

INSTRUCTION MANUAL EDX-200A UNIVERSAL RECORDER (FOR HARDWARE)

Thank you for purchasing KYOWA's product EDX-200A Universal Recorder. Read this Instruction Manual carefully in order to make full use of the high performance capabilities of the product.

Do not use the product in methods other than described in this Manual.

This Manual only describes hardware operation of the EDX-200A.

For software operation, refer to the DCS-100A Instruction Manual (For EDX-200A Operation).

Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Generally, company names and trade names described in this Instruction Manual are trademarks or registered trademarks of the companies.

This Instruction Manual may not be copied or reproduced, in whole or part, without consent of KYOWA.

Copyright © Kyowa Electronic Instruments Co., Ltd. All rights reserved.

The contents of the Instruction Manual are subjected to change without prior notice.

CONTENTS

STANDARD ACCESSORIES	1
OPTIONAL ACCESSORIES	2
SAFETY PRECAUTIONS.....	2
PRIOR TO USE	2
SAFETY SYMBOLS	2
LIMITED LIFE PARTS AND PREVENTIVE MAINTENANCE	8
EDX-200A REPLACEMENT BEFORE THE END OF SERVICE LIFE.....	8
NOTATIONS USED IN INSTRUCTION MANUAL	9
IMPORTANT PRECAUTIONS WHEN USING EDX-200A	10
1. OUTLINE OF PRODUCT.....	11
1-1 OUTLINE	11
1-2 FEATURES	12
2. CONTROLS AND INDICATORS.....	13
2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL	13
2-2 EDX-200A-1 FRONT PANEL	18
2-3 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T REAR PANEL	21
2-4 EDX-200A-1 REAR PANEL	24
3. INSTALLING THE EDX-200A	25
3-1 INSTALLATION PROCEDURE	25
3-2 CONNECTING THE POWER SUPPLY	26
3-2-1 Connecting the DC Power Supply.....	26
3-2-2 Connecting the AC Adapter	28
3-3 CONNECTING SENSORS	29
3-4 LAN INTERFACE DEFAULT SETTINGS	33
3-5 USB DEVICE DRIVER SET-UP	35
3-6 CONNECTING INTERFACE	36
3-6-1 LAN Connection: Connected to the PC	36
3-6-2 USB Connection: Directly Connected to the PC	39
3-6-3 USB Connection: Connecting by Installing a Hub Between the PC and EDX-200A.....	39
3-7 CONNECTINGS AND SETTINGS FOR SYNCHRONOUS OPERATION.....	41
3-7-1 Synchronous Operation by Using Synchronous Cables N-95/N-128.....	42
3-7-2 Synchronous Operation by Using LAN Cables (without using synchronous cables)	43
3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F).....	44
3-7-4 Synchronous Operation and Turning ON/OFF the Power	47
4. MEASUREMENT.....	48
4-1 TYPES OF MEASUREMENT	48
4-2 MOUNT/UNMOUNT CF CARD	48
4-3 ONLINE MEASUREMENT PROCEDURE.....	52
4-4 OFFLINE MEASUREMENT PROCEDURE	55
4-5 SAMPLING MODE.....	58
4-5-1 Normal-sampling Mode	58
4-5-2 Dual-sampling Mode	58
4-5-3 The Number of Measuring Channels.....	62
4-6 DIGITAL FILTER.....	63
4-7 NOISE-REDUCTION FUNCTION	65
4-8 RECORDING VOICE MEMO	67
4-9 PROTECTIVE FUNCTION AGAINST UNEXPECTED POWER FAILURE.....	70
4-9-1 Recorded Data Files and Power Failure during Recording	70
4-10 TURNING ON/OFF THE POWER.....	75

5.	EXTERNAL INPUT AND EXTERNAL OUTPUT	76
5-1	EXTERNAL TRIGGER INPUT	76
5-2	EXTERNAL CLOCK INPUT.....	78
5-2-1	External Clock Input	78
5-2-2	Notes for External Clock Input	79
5-2-3	How to Set Measuring Conditions	80
5-2-4	Measurement Procedure with External Clock	81
5-2-5	External Clock Error	82
5-3	EXTERNAL TRIGGER OUTPUT.....	84
5-3-1	About External Trigger Output.....	84
5-3-2	Output Timing of External Trigger Output Signals	85
5-4	EXTERNAL CLOCK OUTPUT	89
6.	RCU-42A REMOTE CONTROL UNIT.....	90
7.	MULTI-CHANNEL CAN CARD: ECAN-40A.....	91
7-1	CONTROLS AND INDICATORS	91
7-2	SETTING ECAN-40A	93
7-2-1	Setting CAN Communication Conditions.....	94
7-2-2	Setting CAN Receiving Conditions.....	95
7-2-3	Setting CAN Output Conditions	96
7-2-4	The number of CAN Messages that can be Received Per Second.....	98
7-3	CONNECTING CAN BUS	99
7-3-1	Connecting High Speed CAN.....	100
7-3-2	Connecting Low Speed CAN	101
7-4	DIGITAL INPUT/OUTPUT (DIO) PORTS	102
7-4-1	External Input/Output Circuit	102
7-4-2	Setting Digital Input/Output (DIO) Conditions	103
7-4-3	Timing Chart of Digital Output.....	106
7-4-3-1	Trigger signal.....	106
7-4-3-2	Digital output timing during the remote control mode.....	107
8.	TIME SYNCHRONIZATION CARD: ETIM-40A.....	110
8-1	CONTROLS AND INDICATORS	111
8-2	PREPARATION FOR MEASUREMENT (ETIM-40A)	112
8-2-1	Connecting GPS Sensor	112
8-3	MEASUREMENTS USING THE TIME SYNCHRONIZATION FUNCTION	113
8-3-1	Setting DCS-100A for Point ZERO (manual) Measurements	115
8-3-2	Setting DCS-100A for Point ZERO (Manual number of data) Measurements	116
8-3-3	Setting DCS-100A for Interval (GPS synchronization) Measurements.....	117
8-3-4	Setting EDX-200A.....	118
8-3-5	Recording Operation when the GPS status is Error or NONE	119
8-4	RECORDING GPS DATA.....	121
8-4-1	Setting DCS-100A for Recording GPS Data	121
8-4-2	Converting the NMEA Format Files into the KML/CSV Format Files.....	121
8-5	GPS SENSOR STATUS	122
8-5-1	Details of the GPS Sensor Status.....	122
8-5-2	Checking the GPS Sensor Status.....	123
9.	GPS/MULTI-CHANNEL CAN CARD EGPC-40A.....	125
9-1	CONTROLS AND INDICATORS	126
9-2	SETTING EGPC-40A	127
9-2-1	For Recording CAN Data.....	127
9-2-2	For Using the Time Synchronization Function	127

9-2-3 For Recording GPS Data.....	127
10. TROUBLE SHOOTING	128
10-1 TROUBLE SHOOTING FOR THE MAIN UNIT EDX-200A	128
10-2 TROUBLESHOOTING FOR THE CVM-40A, CVM-41A	132
10-3 TROUBLESHOOTING FOR THE DPM-42B/A (-F), DPM-42B-I (-F).....	133
10-4 TROUBLESHOOTING FOR THE ECAN-40A.....	134
10-5 TROUBLESHOOTING FOR THE ETIM-40A.....	135
10-6 TROUBLESHOOTING FOR THE EGPC-40A	136
11. MAINTENANCE.....	138
11-1 MAINTENANCE DESCRIPTIONS	138
11-2 REPLACEMENT OF CONDITIONER CARD.....	139
11-3 REPLACEMENT OF OPTIONAL CARD.....	140
11-4 INITIALIZING EDX-200A	141
12. CONNECTOR PIN ASSIGNMENT.....	142
12-1 POWER SUPPLY CONNECTOR.....	142
12-2 CONT. IN CONNECTOR.....	142
12-3 CONT. OUT CONNECTOR.....	143
12-4 ECAN-40A: CAN PORT CONNECTOR.....	144
12-5 ECAN-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR	144
12-6 ETIM-40A: GPS PORT CONNECTOR.....	145
12-7 ETIM-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR	145
12-8 EGPC-40A: GPS/CAN-1 PORT CONNECTOR	146
12-9 EGPC-40A: CAN-2 PORT CONNECTOR	146
12-10 EGPC-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR	147
13. HARDWARE SPECIFICATIONS.....	148
13-1 OVERALL SPECIFICATIONS.....	148
13-2 REMOTE CONTROL UNIT SPECIFICATIONS	153
13-3 MULTI-CHANNEL CAN CARD SPECIFICATIONS	154
13-4 TIME SYNCHRONIZATION CARD SPECIFICATIONS	156
13-5 GPS/multi-channel CAN card EGPC-40A Specifications	157
14. OUTSIDE DRAWING	159
14-1 UNIVERSAL RECORDER: EDX-200A-4H	159
14-2 UNIVERSAL RECORDER: EDX-200A-2H	159
14-3 UNIVERSAL RECORDER: EDX-200A-1	160
14-4 UNIVERSAL RECORDER: EDX-200A-4T.....	160
14-5 REMOTE CONTROL UNIT: RCU-42A	161
14-6 MULTI-CHANNEL CAN CARD: ECAN-40A.....	161
14-7 TIME SYNCHRONIZATION CARD: ETIM-40A	162
14-8 GPS/MULTI-CHANNEL CAN CARD: EGPC-40A.....	162
15. APPENDIX.....	163
15-1 NAME OF RECORDED DATA FILE	163
15-2 DATA FOLDERS IN THE CF CARD	166
15-2-1 The Software Version of the EDX-200A is Before 01.40.....	166
15-2-2 The Software Version of the EDX-200A is 01.40 or Later.	166
15-3 MAXIMUM SAMPLING FREQUENCY AND RECORDABLE TIME	168
15-3-1 Maximum Sampling Frequency, Recordable Time and the Number of Channels.....	168
15-3-2 Maximum Sampling Frequency and Recordable Time when Using ECAN-40A/EGPC-40A	170
15-4 ITEMS ON SMALL INDICATOR (Organic Light Emitting Display).....	173
15-4-1 Outline	173
15-4-2 Startup Screen	173

15-4-3 List of Display Items (Normal-sampling mode)	174
15-4-4 Details of Display Items (Normal-sampling Mode)	177
15-4-5 List of Display Items (Dual-sampling Mode)	187
15-4-6 Details of Display Items (Dual-sampling Mode)	191
15-4-7 Errors	201
15-5 Triggering operation when the EDX-200A record can data by ECAN-40A or EGPC-40A	203

This Manual describes hardware instruction manual of the EDX-200A Universal Recorder (hereinafter referred to as the EDX-200A), RCU-42A Remote Control Unit (hereinafter referred to as the RCU-42A) and optional card for the EDX-200A (hereinafter referred to as the ECAN-40A).

STANDARD ACCESSORIES

The following accessories are packed with the EDX-200A. After unpacking, check to be sure that they are included.

DCS-100A Dynamic Data Recording Software	1 (DVD)
Ground Wire: P-72	1
DC power cable: P-76	1
Clamp-on ferrite core	1
Fuse	1 *1
USB cable: N-38	1
CF card	1 *2
Accessory bag	1
Product Warranty	1 each
Dummy panels for EDX series	3 (EDX-200A-4H) *3
Dummy panels for EDX series	1 (EDX-200A-2H) *3
Optional slot panel	1 *4

*1 Fuse

5×20 mm, Medium-Acting, Glass tube fuses

EDX-200A-4H/EDX-200A-4T	Current rating: 8 A, voltage rating: 250 VAC
-------------------------	--

EDX-200A-2H	Current rating: 5 A, voltage rating: 250 VAC
-------------	--

EDX-200A-1	Not attached
------------	--------------

*2 CF card

The CF card is mounted in the card slot before shipment.

*3 Dummy panel for EDX series

The dummy panels are mounted in the empty slot before shipment.

Three (3) dummy panels are mounted in the EDX-200A-4H.

One (1) dummy panel is mounted in the EDX-200A-2H.

No dummy panel is mounted in the EDX-200A-1, EDX-200A-4T.

*4 Optional slot panel

The optional slot panel is mounted in the optional slot before shipment.

No optional slot panel is mounted in the EDX-200A-1.

OPTIONAL ACCESSORIES

- AC adapter for the EDX-200A-4H/EDX-200A-4T: UEA360-1540
- AC adapter for the EDX-200A-2H/EDX-200A-1: UIA345-12
- Conditioner cards: See Conditioner cards catalogs.
- Multi-channel CAN card: ECAN-40A
- Time synchronization card: ETIM-40A
- GPS/multi-channel CAN card: EGPC-40A
- Dummy panels for EDX series (1 panel) EDX1P-DUMMY
- Remote control unit: RCU-42A
- Synchronous cable: N-95/N-128 (2 m)
- Data Analysis Software: DAS-200A
- Battery unit for instantaneous power failure: EDB-41B

SAFETY PRECAUTIONS

(Do not forget to read the safety precautions prior to use.)

The EDX-200A is designed in accordance with "13 HARDWARE SPECIFICATIONS".

Do not use the EDX-200A in an environment exceeding the specifications.

Or, failure of the EDX-200A may result.

PRIOR TO USE

For safe use of the EDX-200A do not forget to read the "Safety Precautions" prior to use.

KYOWA ELECTRONIC INSTRUMENTS CO.,LTD. assumes no liability for any damages resulting from user's failure to comply with the safety precautions.

SAFETY SYMBOLS

For safety operation of the EDX-200A, the following symbol marks are used in the Instruction Manual.

 WARNING	Improper operation of the system may result in death or severe injury of the operator.
 CAUTION	Improper operation of the system may result in injury of the operator and physical damage of the system.

WARNING

- **Power Supply**
To prevent a fire hazard, ensure that the power supply voltage specified for the EDX-200A matches the local line voltage before connecting the system to the DC power supply.
When using an AC adapter, check the power voltage of the AC power outlet before connecting.
- **Avoid using in environment with inflammable gas, etc.**
To prevent the risk of fire hazard or explosion, do not use the EDX-200A in environment with inflammable gas, vapor or dust.
- **If any trouble occurs**
To prevent fire hazards, if smoke is emerging from the EDX-200A, immediately turn OFF the power switch and disconnect the DC power cable or the AC adapter to terminate the system operation.
- **Protective Ground**
Be sure to ground the "GND" terminal.
Failure to do so will pose a risk of electric shock, degrade performance and cause damage to the EDX-200A.
- **Maximum Input Voltage Range for Measurement by CVM-40A, CVM-41A**
Do not apply an input voltage exceeding the range (-50 V to +50 V) specified for the voltage measurement mode of the CVM-40A, CVM-41A Strain/Voltage/Acceleration Measurement Card (hereinafter referred to as the CVM-40A, CVM-41A).
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CDV-40B/A (-F)**
Do not apply an input voltage exceeding the range (-10 V to +10 V) specified for the voltage measurement mode of the CDV-40B/A (-F) Strain/Voltage Measurement Card [hereinafter referred to as the CDV-40B/A (-F)].
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CCA-40A (-F)**
Do not apply an input voltage exceeding the range (-5 V to +5 V) specified for the CCA-40A (-F) Charge Amplifier Card [hereinafter referred to as the CCA-40A (-F)].
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CFV-40A**
Do not apply an input voltage exceeding the range (-50 V to +50 V) specified for the CFV-40A F/V Converter Card (hereinafter referred to as the CFV-40A).
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CDV-44AS**
Do not apply an input voltage exceeding the range (-50 V to +50 V) specified for the voltage measurement mode of the CDV-44AS Strain/Voltage Measurement Insulation Card (hereinafter referred to as the CDV-44AS).
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CDA-44AS**
Do not apply an input voltage exceeding the range (-50 V to +50 V) specified for the voltage measurement mode of the CDA-44AS Signal Conditioner Card (hereinafter referred to as the CDA-44AS).
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- **Maximum Input Voltage Range for Measurement by CDA-45AS**
Do not apply an input voltage exceeding the range (-50 V to +50 V) specified for the voltage measurement mode of the CDA-45AS Signal Conditioner Card (hereinafter referred to as the CDA-45AS). Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.

WARNING

- Applicable input: DPM-42B/A (-F), DPM-42B-I (-F)
The dynamic strain amplifier card DPM-42B/A (-F), DPM-42B-I (-F) is a dedicated conditioner card for inputting strain. Do not connect an apparatus other than a strain sensor.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- Applicable input: CTA-40A
The thermocouple card CTA-40A is a dedicated conditioner card for inputting a thermocouple.
Do not connect an apparatus other than a thermocouple.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- Applicable input: CAN-40A, CAN-41A
The CAN card CAN-40A and CAN-41A are dedicated conditioner cards for inputting CAN data.
Do not connect a data other than a CAN data.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- Applicable input: ECAN-40A
The ECAN-40A can input/output CAN data and digital data.
Be sure to input CAN data only to the CAN communication port.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
Specifications of the digital input/output ports are as follows.
 Digital input Input voltage: Max. 5 V, TTL level input
 Digital output Output voltage: Max. 5 V, Open collector output
 (with built-in pull-up resistor of 10k-ohm)
Do not apply an input voltage exceeding the range specified in the Specifications.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
- Applicable input: ETIM-40A
The ETIM-40A can input GPS signal and can input/output digital data.
Be sure to connect only a GPS sensor, standard accessory of the ETIM-40A, to the GPS port.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.
Specifications of the digital input/output ports are as follows.
 Digital input Input voltage: Max. 5 V, TTL level input
 Digital output Output voltage: Max. 5 V, Open collector output
 (with built-in pull-up resistor of 10k-ohm)
Do not apply an input voltage exceeding the range specified in the Specifications.
Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.

WARNING

- Applicable input: EGPC-40A

The EGPC-40A can input GPS signal and can input/output CAN data and digital data.

Be sure to input only a GPS sensor signal, standard accessory of the EGPC-40A or CAN data, to the GPS/CAN port.

Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.

Specifications of the digital input/output ports are as follows.

Digital input	Input voltage: Max. 5 V, TTL level input
---------------	--

Digital output	Output voltage: Max. 5 V, Open collector output (with built-in pull-up resistor of 10k-ohm)
----------------	--

Do not apply an input voltage exceeding the range specified in the Specifications.

Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.

- When using the CVM-40A, CVM-41A, CDV-40B/A/(-F)

- (1) Use a tester or the like to measure the voltage between negative sides of the DC voltage and confirm that the voltage is approximately 0 V.
- (2) Confirm that the voltage between the negative side of the DC voltage and the GND terminal of the EDX-200A is approximately 0 V.
- (3) When connecting an input, correctly connect the positive and negative sides.

Failure to comply with the above precautions will result in a short circuit of the signal source (DC power supply, etc.) to be measured in the CVM-40A, CVM-41A or CDV-40B/A (-F), thus causing a fire hazard.

CAUTION

- The EDX-200A is for indoor use only. Outdoor, please do not use the EDX-200A. Or, it may cause electric shock, fire hazard, lower the performance and troubles.
- Use the EDX-200A in the specified operating temperature range 0 to 50°C. (*With regard to the EDX-200A-4T, use the EDX-200A-4T in the specified operating temperature range -20 to 65°C.) Use at temperatures exceeding the specified range may lower the performance and cause troubles. If use under direct sunlight or in a cold place is inevitable, prepare a sunscreen or take proper measures to keep it warm.
- Use the EDX-200A in the specified operating humidity of 20 to 90%RH. Use in a humid place exceeding the specified range or where it is exposed to splashing water may lower the performance and cause troubles.
- Immediately stop the EDX-200A if operating environment changes abruptly. Leave the EDX-200A as it is until it becomes adaptable to the environment. Abrupt change in ambient temperature or ambient humidity due to transportation, etc. may cause dew condensation result to deteriorate its performance and cause trouble.
- Do not use the EDX-200A where it is subject to significant vibration or impact.
 - Vibration resistance
 - When in operation: 29.42m/s²(3 G): 5 to 55 Hz
 - When not in operation: 49.03m/s²(5 G): 5 to 55 Hz
 - Impact resistance
 - EDX-200A-4H/EDX-200A-2H/EDX-200A-4T: 196.1m/s²(20 G)/11 ms
 - EDX-200A-1: 294.2m/s²(30 G)/11 msUse the EDX-200A in an area where vibration and impact can be kept within the scope of specifications. Continuous vibration or severe impact may cause deteriorated performance and system failure.
- Do not use the EDX-200A in strong electromagnetic field. Use the EDX-200A in an electromagnetic field environment where the PC may be used. If the EDX-200A is used near devices generating strong magnetic field such as a telemetry system, microwave oven, electric furnace, etc., its performance may be lowered and erroneous operation and trouble may result.
- Do not use the EDX-200A under poor conditions. Operate the EDX-200A-4H/EDX-200A-2H/EDX-200A-4T within the range of 10 VDC to 36 VDC when a DC power supply is used or 100 VAC to 240 VAC (50/60 Hz) when an optional AC adapter is used. Operate the EDX-200A-1 within the range of 10 VDC to 33 VDC when a DC power supply is used or 100 VAC to 240 VAC (50/60 Hz) when an optional AC adapter is used. The power supply used for the EDX-200A should not experience an instantaneous power failure and be free from noise.
- The Specifications of the optional AC adapters are as follows.
 - AC adapter for the EDX-200A-4H/EDX-200A-4T: UEA360-1540
 - Input voltage: 100 to 240 VAC (50/60 Hz)
 - Output voltage: 15 V (4 A)
 - Operating temperature range: 0 to 40°C
 - AC adapter for the EDX-200A-2H/EDX-200A-1: UIA345-12
 - Input voltage: 100 to 240 VAC (50/60 Hz)
 - Output voltage: 12 V (3.8 A)
 - Operating temperature range: 0 to 40°C
- The optional AC adapter is a consumable item. Replace it every five years.
- When you use the EDX-200A-4T, you can not insert and extract the conditioner card.

CAUTION

- Do not turn ON the power switch immediately after turning it OFF.
After turning OFF the power switch, wait (approx. 5 seconds) until the power supply is shut OFF before turning ON the power switch again.
- Do not pull cables.
Lay cables with a certain allowance so that any unreasonable force may not be applied to the connections.
Pulling or unreasonable force may cause troubles or interrupt the measurement.
- Do not seal ventilation holes located at the back, top, bottom, and both sides.
If there is not enough space to radiate heat, temperature in the EDX-200A may increase to lower the performance and cause troubles.
- Avoid installing sensors and EDX-200A near a welding machine.
Failure to do so will pose the risk of erroneous data, malfunction and failure.
- Do not disassemble or remodel the EDX-200A.
Failure to do so will pose the risk of electric shock and system failure.
This warranty does not cover any damaged or defective parts that results from disassembling or remodeling.
- The EDX-200A limits the number of CFV-40A.
EDX-200A-2H: The number of CFV-40A is up to 1.
EDX-200A-4H: The number of CFV-40A is up to 2.
EDX-200A-4T: The number of CFV-40A is up to 2.
Or, deterioration or malfunction of the instrument may result.
- The EDX-200A limits the positions and the number of CAN-40A and CAN-41A.
Mount one CAN-40A or CAN-41A to the final slot.
- For the DPM-42 series and CDV-40 series with anti-aliasing function, conduct the internal calibration when changing the Low Pass Filter setting to or from "AUTO".

LIMITED LIFE PARTS AND PREVENTIVE MAINTENANCE

The EDX-200A consists of various electronic components and those components, if not all, have a useful life. Using them exceeding the years specified according to each part type (useful life) may affect the characteristics of the EDX-200A, resulting in a malfunction or a failure.

You need to replace parts with a regular preventive maintenance schedule.

Limited life parts used with the EDX-200A are as follows.

- CF card
The CF card will be unable to read or write data.
- Aluminum electrolytic capacitor
The signal-noise ratio will be lower due to capacity low or smoke will be emitted due to liquid leak, resulting in a malfunction of the EDX-200A.
- Electric double-layer capacitor
The back-up time will be lower due to capacity low or smoke will be emitted due to liquid leak, resulting in a malfunction of the EDX-200A.
- Built-in backup battery
When you turn OFF and ON the power, the EDX-200A will be initialized to factory default or the built-in clock will be reset to factory default.
- Small indicator (Organic Light Emitting Display)
Characters will not be displayed correctly.
- AC adapter (optional)
The AC adapter will overheat, emit smoke or will not output stable voltages.

To operate the EDX-200A normally, finding a sign of the EDX-200A failure early by daily/periodic inspections and taking the corrective action are required.

For inspection, contact KYOWA or our representatives.

* Limited life parts used with the EDX-200A are a CF card, aluminum electrolytic capacitors, electric double-layer capacitor, built-in backup battery, small indicator, and AC adapter.

*The small indicator is not included in the EDX-200A-1.

* All components do age and will fail.

EDX-200A REPLACEMENT BEFORE THE END OF SERVICE LIFE

Preventive maintenance and replacement parts are a cost-effective way of keeping the performance and extending the service life of the EDX-200A.

Regardless of the replacement parts, the EDX-200A itself gradually deteriorates with age.

Before the expected service life is reached, consider replacing the EDX-200A with a new one or the latest series as preventive maintenance.

NOTATIONS USED IN INSTRUCTION MANUAL

Informational Notes

Certain notations are used as necessary to attract your attention to information that requires special care when handling the EDX-200A, and to information provided for reference purposes.

Examples of Notations

NOTE

Essential precautions required when handling the EDX-200A.

MEMO

Reference items required when handling the EDX-200A.

IMPORTANT PRECAUTIONS WHEN USING EDX-200A

NOTE

1. If possible, do not turn OFF the power while recording data.
When you turn OFF the power while recording data, the protective function against unexpected power failure will save the data being recorded and the CF card.
However, doing so may invalidate the data being recorded. In some cases, doing so may destroy data in the CF card or damage the card itself.
2. Never turn OFF the power while collecting data via the LAN or USB interface.
Doing so may destroy data in the CF card or damage the card itself.
When the LAN or USB interface is used for collecting data, you cannot see whether data is being collected simply through a visual check of the main unit.
Therefore, before turning OFF the power, use the DCS-100A to check that data is not being collected.
3. If the possibility exists that a power failure may occur, be sure to use an uninterruptible power supply unit.
4. When using an external battery, use the one with sufficient capacity to cover the length of measuring time.
For details of the current consumption of the EDX-200A, see "13-1 OVERALL SPECIFICATIONS".
5. Prior to data recording, be sure to insert a CF card into the card slot of the main unit.
6. Never extract the CF card from the slot while the BUSY LED is lit or flashing green.
Extracting the CF card while accessing the card such as while recording, deleting or collecting data via the LAN/USB (when the BUSY LED is lit or flashing green) may damage the data in the CF card or damage the card itself.
If the CF card is accidentally extracted while accessing to the CF card, check the contents of the card on the PC. If the CF card is faulty, reformat the CF card.
7. Use the accessory CF card (1GB).
If use other than accessories or the recommended CF card, there is that the measurement is interrupted, or the abnormal recorded data file is generated. When using the other than accessory CF card, please contact our business offices, or representatives.
8. Make sure you are formatting the CF card in FAT or FAT32.
Re-format the CF card in a PC.
9. To ensure accurate measurement, turn ON the power and warm up the unit for about 30 minutes before starting the measurement.
10. By affixing the CE marking, KYOWA confirms that the EDX-200A, satisfying the following conditions, complies with the requirements of the EU Directives by assessing the conformity of the requirements established by the EU Directives. (For the complying requirements established by the EU Directives, see "13 HARDWARE SPECIFICATIONS.")
 - Always use shielded cables for connecting the EDX-200A or conditioner cards. Cable length should be less than 30 m.
 - When using an USB cable other than the standard accessories (N-38) or LAN cable, use a cable with the ferrite cores or wrap the clamp-on ferrite core around the cable.
 - When using a DC power cable (P-76), wrap the attached clamp-on ferrite core around the cable. For details, see "CONNECTING THE POWER SUPPLY".
 - The conditioner cards and the optional products, comply with the requirements established by the EU Directives, are as follows.
The conditioner cards: CVM-41A, CVM-40A, CDV-40B/A-F, DPM-42B/A-F, DPM-42B-I, DPM-42B-I-F, CTA-40A, CFV-40A, CCA-40A, CCA-40A-F, CAN-40A, CAN-41A
ECAN-40A, ETIM-40A, EGPC-40A, RCU-42A, EDB-41B

1. OUTLINE OF PRODUCT

1-1 OUTLINE

The EDX-200A is a new type of recorder having advanced functions and better performance. In addition to the advanced functions, the EDX-200A inherits advantages of the Universal Recorder EDX-100A which enables flexible configuration, free arrangement, and various functions.

By using conditioner cards for the EDX series, the EDX-200A can conduct various measurements; from small-scale measurement to large-scale measurement of up to 256 channels by connecting 8 EDX-200A units in synchronous operation.

The new function called the "Dual-sampling mode", which allows two-sampling frequencies to be used, is added. You can record low-response-speed data, such as temperature, etc., at the low-speed sampling and high-response speed data, such as strain and vibration, etc. at the high-speed sampling at the same time.

The new noise-reduction function allows you to easily measure a low-noise data.

Moreover, according to the number of insertion slots of a conditioner card, 4 models, EDX-200A-1 (1 slot-8channels), EDX-200A-2H (2 slot-16channels), EDX-200A-4H (4 slot-32channels), and EDX-200A-4T (4 slot-32channels) are prepared.

EDX-200A-1 omits a synchronized operation function and an organic light emitting display, and since it achieved small size and a weight saving, it is excellent in portability.

EDX-200A-2H, EDX-200A-4H, and EDX-200A-4T has a synchronized operation function in which large-scale measurement can be performed, and also carries the organic light emitting display which can check the status of these main units, a data file names, etc. Moreover, since the option slot for expansion is also carried, it can respond to various measurement.

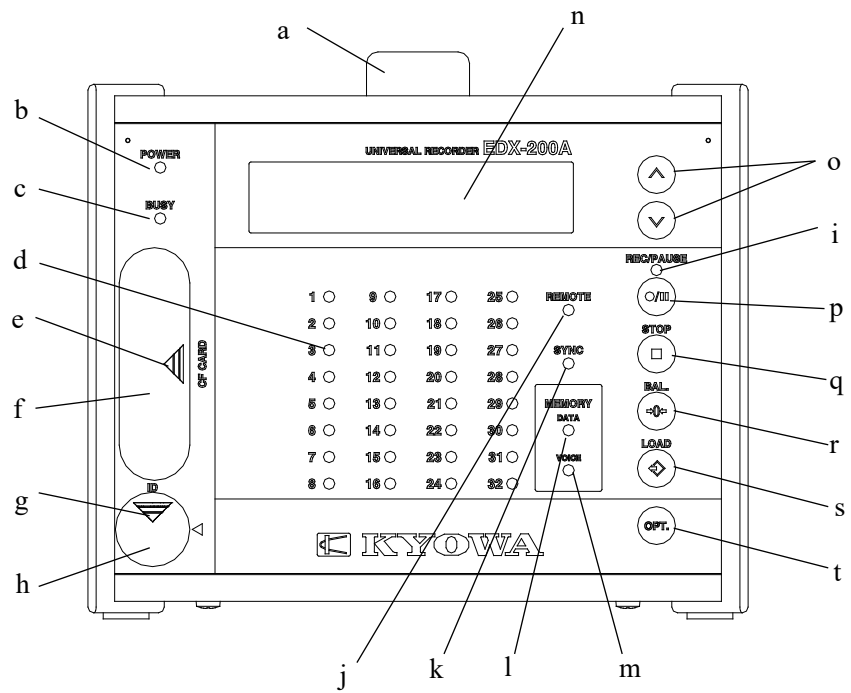
The EDX-200A-4T has all the functions of the EDX-200A-4H and the operating temperature range of the EDX-200A-4T is extended -20 to 65°C. (The operating temperature range of the other 3 models is 0 to 50°C)

1-2 FEATURES

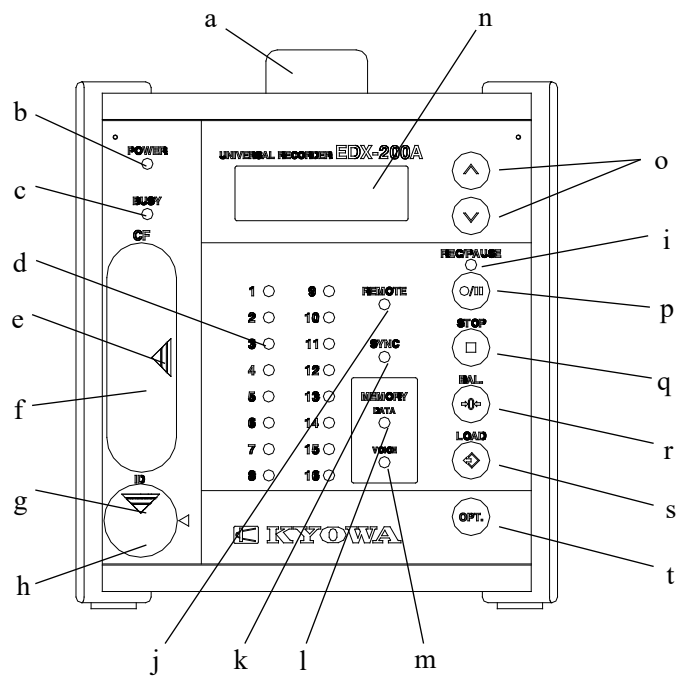
- Dual-sampling mode allows two sampling frequencies for every CH.
- Real-time digital filtering
- Noise-reduction function allows you to easily measure low-noise data.
- Maximum sampling frequency is 100 kHz (while recording data up to 3 channels).
- The maximum number of measuring channels per EDX-200A is 32 channels (at the sampling frequency of 10 kHz).
- Conditioner cards for the EDX series are also used.
- Recording the CAN data by using the CAN-40A/41A, ECAN-40A, and EGPC-40A.
- Synchronous operation up to 256 channels by connecting 8 EDX-200A units with LAN cables only. (No hub is required. The synchronous operation is not available with the EDX-200A-1.)
- Connection with the PC is easy with the use of the LAN or USB interface.
- Stand-alone operation without PC
- Various measuring conditions are set online from the PC or set offline by reading the measuring conditions in the CF card.
- A Built-in protective function against unexpected power failure during recording for saving the data and CF card.
- Voice memo can be recorded simultaneously with data recording.
- The DCS-100A that controls the EDX-200A from the PC is provided with standard accessories.
- The DAS-200A is optional software that reproduces and analysis data after recording.
- Easily viewable organic light emitting display for checking the status of the EDX-200A. (The small indicator is not included in the EDX-200A-1.)
- Synchronizes the recording start time of remote EDX-200A units, with the ETIM-40A and EGPC-40A, by using the time data received from GPS satellites.
- Recording the GPS data by using the ETIM-40A and EGPC-40A.

2. CONTROLS AND INDICATORS

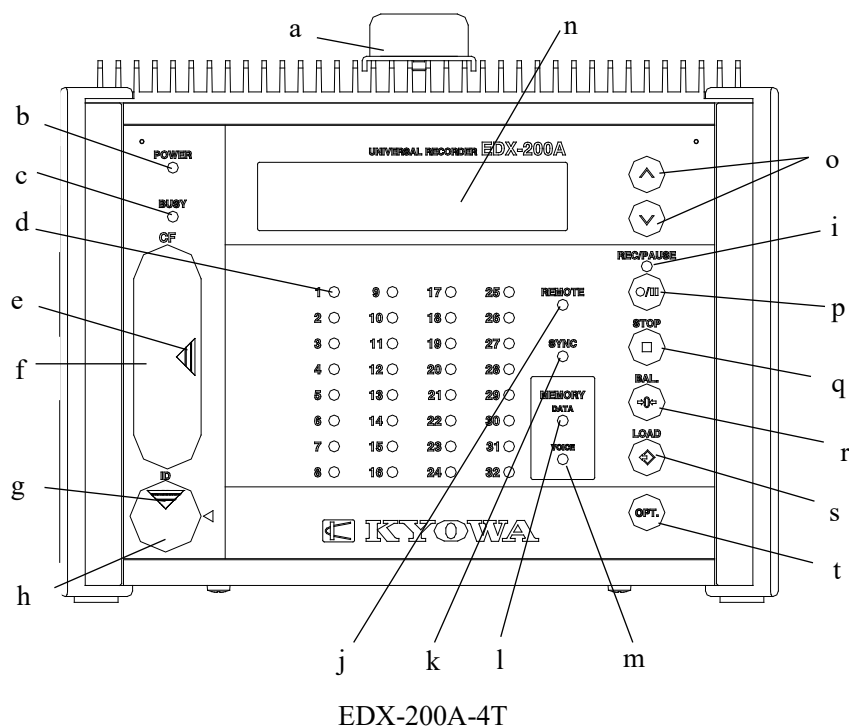
2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL



EDX-200A-4H



EDX-200A-2H



- a) Handle
- b) 'POWER' LED
Lights up while the EDX-200A is ON. See the table 2-1.
- c) 'BUSY' LED
Lights up or flashes green while accessing to the CF card. See the table 2-1.
- d) 'CH' LED
Displays the state of each channel. See the table 2-1.
EDX-200A-4H: 32 LEDs (from CH No. 1 to CH No. 32)
EDX-200A-2H: 16 LEDs (from CH No. 1 to CH No. 16)
EDX-200A-4T: 32 LEDs (from CH No. 1 to CH No. 32)

Table 2-1 LED Status Displays

LED		POWER	BUSY	CH
Status				
Green	ON	POWER ON	Accessing to the CF card	Normal (Measurement OK)
	Flashing			Calibration output in progress
Orange	ON		Note 4	Balancing in progress
	Flashing			Balance Error
Red	ON		Measurement disabled state Note 1	Sensor input overflow detected
	Flashing	Voltage drop in the DC power supply (Flashes at less than approx. 11 V)	Residual capacity of the built-in backup battery is short. Note 2	Sensor input overflow solved Note 3
OFF		POWER OFF	Ready for recordings. (Setting completed.)	Measurements not available. Conditioner card not installed.

Note 1 The EDX-200A is in measurement disabled state. Refer to "10 TROUBLE SHOOTING" and remove the cause.

Note 2 Replacing the built-in backup battery is required. The used battery must be returned for replacement. Contact the KYOWA or our representatives.

Note 3 Sensor input overflow exceeding the specified range has been solved and the signal within the specified range is currently entered.

Note 4 When the BUSY LED flashes orange, the EDX-200A is accessing to the CF card with the measurement disabled state.

- e) 'CF CARD' lid
Lid of the 'CF CARD' slot. Open the lid from the ▼ side.
- f) 'CF CARD' slot
A CF card is inserted into this slot.

NOTE

Correctly insert the CF card.

Or, the CF card and EDX-200A may cause trouble.

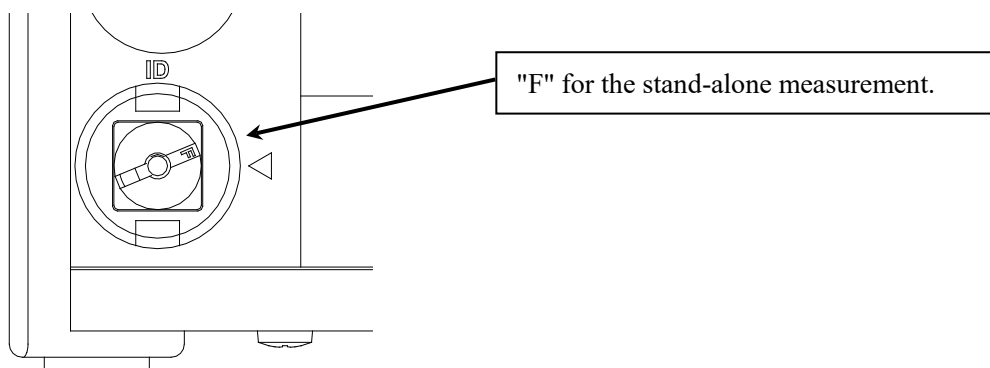
For details, see "4-2 MOUNT/UNMOUNT CF CARD".

g) 'ID' lid

Lid of the 'ID' switch. Open the lid from the ▼ side.

h) 'ID' switch

A switch used for identifying whether the EDX-200A is solely used (Stand-alone) or multiple EDX-200A units are used for synchronous operation. When data is recorded with 1 unit (stand-alone), set this ID switch to "F".



When synchronous operation is conducted with multiple EDX-200A units, set the master unit to "0", and slave units to any numbers from "1 to 7". See the table 2-2.

Table 2-2 ID Numbers

ID No.	0	1, 2, 3, 4, 5, 6, 7	8, 9, A, B, C, D, E	F
Function	Sync. master	Sync. slave	Reserved	Stand-alone

NOTE

When you change the setting of the ID switch, be sure to turn OFF the EDX-200A.

Wait approx. 5 seconds and turn ON the EDX-200A again.

You need to reboot the EDX-200A to complete the settings change.

MEMO

- When measurement is conducted with only one EDX-200A, it is called stand-alone measurement.
- Synchronous master unit is an EDX-200A that sends sampling clock and DPM oscillator signal to slave units during synchronous operation. Trigger measurement of the synchronous operation can only be set for synchronous master unit.
- Synchronous slave units are EDX-200A units that receive the sampling clock and DPM oscillator signal from the master EDX-200A during synchronous operation and record data at the same time.

- i) 'REC/PAUSE' LED Displays the state of data recording. See the table 2-3.
j) 'REMOTE' LED Lights up during online control from the PC. See the table 2-3.
k) 'SYNC' LED Lights up during the synchronous operation. See the table 2-3.

Table 2-3 LED Status Displays

LED Status		REC/PAUSE	REMOTE	SYNC
Green	ON		During online control via LAN interface	Synchronous master ID switch = "0"
	Flashing	Monitoring via online control		
Orange	ON		During online control via USB interface Note 5	Synchronous slave ID switch = "1 to 7"
Red	ON	Data recording or voice memo recording in progress		
	Flashing	Data recording paused		External clock error
OFF		Monitoring stopped and data recording stopped.	Offline	Stand-alone ID switch = "F"

Note 5 The REMOTE LED lights up orange when the USB interface connector is connected to the PC, and turns OFF when it is Disconnected.

- l) 'MEMORY DATA' LED Displays available capacity for recording data. See the table 2-4.
m) 'MEMORY VOICE' LED Displays available capacity for recording voice memo. See the table 2-4.

Table 2-4 LED Status Displays

LED Status		MEMORY DATA	MEMORY VOICE
Green	ON	The residual capacity of the CF card for recording data is 30% or more.	The remaining time for recording voice memo is 300 seconds or more.
Orange	ON	The residual capacity of the CF card for recording data is 5 to 30%. Note 6	The remaining time for recording voice memo is 60 seconds to 300 seconds.
Red	ON	The residual capacity of the CF card for recording data is 0 %.	The remaining time for recording voice memo is 0 second.
	Flashing	The residual capacity of the CF card for recording data is less than 5 %.	The remaining time for recording voice memo is less than 60 seconds.
OFF		No CF card inserted.	Failure Note 7

Note 6 It is recommended to replace the CF card with the one having sufficient capacity.

Note 7 The EDX-200A is faulty. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives.

- n) Small indicator Displays the EDX-200A status.
The display is organic light emitting display (OLED).
EDX-200A-4H: 20 characters × 2 lines
EDX-200A-2H: 12 characters × 2 lines
EDX-200A-4T: 20 characters × 2 lines

- o) 'UP/DOWN' switch Changes the display on the small indicator.

- p) 'REC/PAUSE' switch Starts or pauses data recording.

MEMO

- When recording data in the dual-sampling mode or the noise-reduction function, you cannot pause recording.
- You can disable the pause function of the REC/PAUSE switch by using the DCS-100A.
For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

q) 'STOP' switch

Stops data recording.

r) 'BAL.' switch

Performs balancing by pressing and holding the switch for 1 second or more. When using the CVM-40A/41A, balancing is performed in the strain measurement mode, while zero suppress is performed in the voltage measurement mode.

MEMO

- When a strain sensor is used, the Balancing function eliminates imbalance in the strain gage bridge and adjusts the measured data to almost zero.
This function can be used when the CVM-40A/41A, CDV-40B/A (-F), DPM-42B/A (-F), DPM-42B-I (-F), CDV-44AS, CDA-44AS, and CDA-45AS conditioner cards are used.

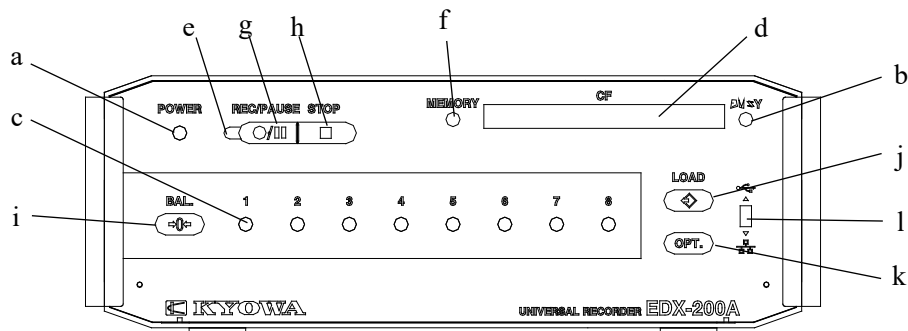
s) 'LOAD' switch

Loads the recording conditions from the CF card.

t) 'OPT.' switch

You can set the function of the switch by using the DCS-100A.

2-2 EDX-200A-1 FRONT PANEL



EDX-200A-1

- a) 'POWER' LED Lights up while the EDX-200A-1 is ON. See the table 2-5.
 - b) 'BUSY' LED Lights up or flashes green while accessing to the CF card. See the table 2-5.
 - c) 'CH' LED Displays the status of channels. See the table 2-5.
- EDX-200A-1: 8 LEDs (from CH No. 1 to CH No. 8)

Table 2-5 LED Status Displays

LED		POWER	BUSY	CH
Status				
Green	ON	POWER ON	Accessing to the CF card	Normal (Measurement OK)
	Flashing			Calibration output in progress
Orange	ON		Note 11	Balancing in progress
	Flashing			Balance Error
Red	ON		Measurement disabled state Note 8	Sensor input overflow detected
	Flashing	Voltage drop in the DC power supply (Flashes at less than approx. 11 V)	Residual capacity of the built-in backup battery is short. Note 9	Sensor input overflow solved Note 10
OFF		POWER OFF	Ready for recordings. (Setting completed.)	Measurements not available. Conditioner card not installed.

- Note 8 The EDX-200A is in measurement disabled state. Refer to "10 TROUBLE SHOOTING" and remove the cause.
- Note 9 Replacing the built-in backup battery is required. The used battery must be returned for replacement. Contact the KYOWA or our representatives.
- Note 10 Sensor input overflow exceeding the specified range has been solved and the signal within the specified range is currently entered.
- Note 11 When the BUSY LED flashes orange, the EDX-200A is accessing to the CF card with the measurement disabled state.

- d) 'CF CARD' slot A CF card is inserted into this slot.

NOTE

Correctly insert the CF card.
Or, the CF card and EDX-200A may cause trouble.
For details, see "4-2 MOUNT/UNMOUNT CF CARD".

- e) 'REC/PAUSE' LED
f) 'MEMORY DATA' LED

Displays the state of data recording. See the table 2-6.

'MEMORY' LED on the EDX-200A-1.

Displays available capacity for recording data. See the table 2-6.

Table 2-6 LED Status Displays

LED Status		REC/PAUSE	MEMORY DATA
Green	ON		The residual capacity of the CF card for recording data is 30% or more.
	Flashing	Monitoring via online control	Failure Note 13
Orange	ON		The residual capacity of the CF card for recording data is 5% to 30%. Note 12
	Flashing		Failure Note 13
Red	ON	Data recording or voice memo recording in progress	The residual capacity of the CF card for recording data is 0%.
	Flashing	Data recording paused	The LED flashes every second → The residual capacity of the CF card for recording data is less than 5%. The LED flashes every 0.5 second → Failure Note 13
OFF		Monitoring stopped and data recording stopped.	No CF card inserted.

Note 12 It is recommended to replace the CF card with the one having sufficient capacity.

Note 13 The EDX-200A is faulty. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives.

- g) 'REC/PAUSE' switch

Starts or pauses data recording.

MEMO

- When recording data in the dual-sampling mode or the noise-reduction function, you cannot pause recording.
- You can disable the pause function of the REC/PAUSE switch by using the DCS-100A.
For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

- h) 'STOP' switch

Stops data recording.

- i) 'BAL.' switch

Performs balancing by pressing and holding the switch for 1 second or more.
When using the CVM-40A/41A, balancing is performed in the strain measurement mode, while zero suppress is performed in the voltage measurement mode.

MEMO

- When a strain sensor is used, the Balancing function eliminates imbalance in the strain gage bridge and adjusts the measured data to almost zero.

This function can be used when the CVM-40A/41A, CDV-40B/A (-F), DPM-42B/A (-F), DPM-42B-I (-F), CDV-44AS, CDA-44AS, and CDA-45AS conditioner cards are used.

j) 'LOAD' switch

Loads the recording conditions from the CF card.

k) 'OPT.' switch

Can set the function of the OPT. switch with the DCS-100A.

l) 'USB/LAN' switch

A switch for selecting the interface during the online measurement.

The upper side is for the USB interface, while the bottom side is for the LAN interface.

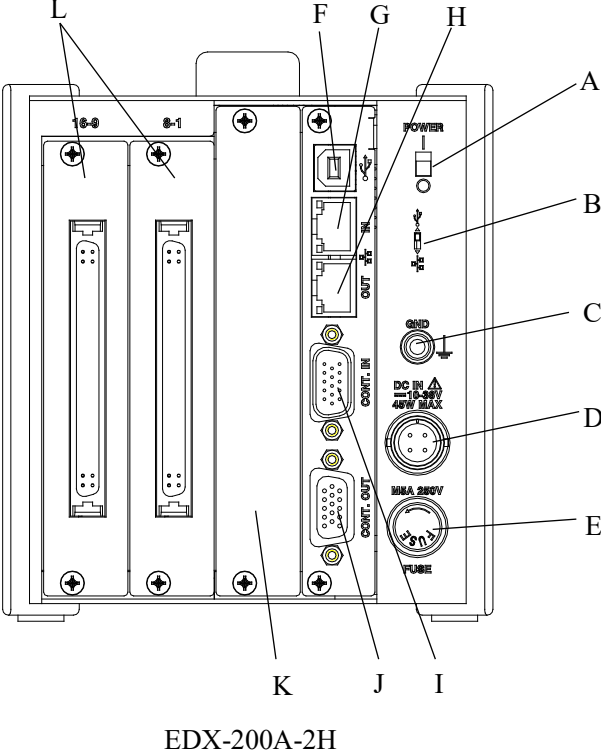
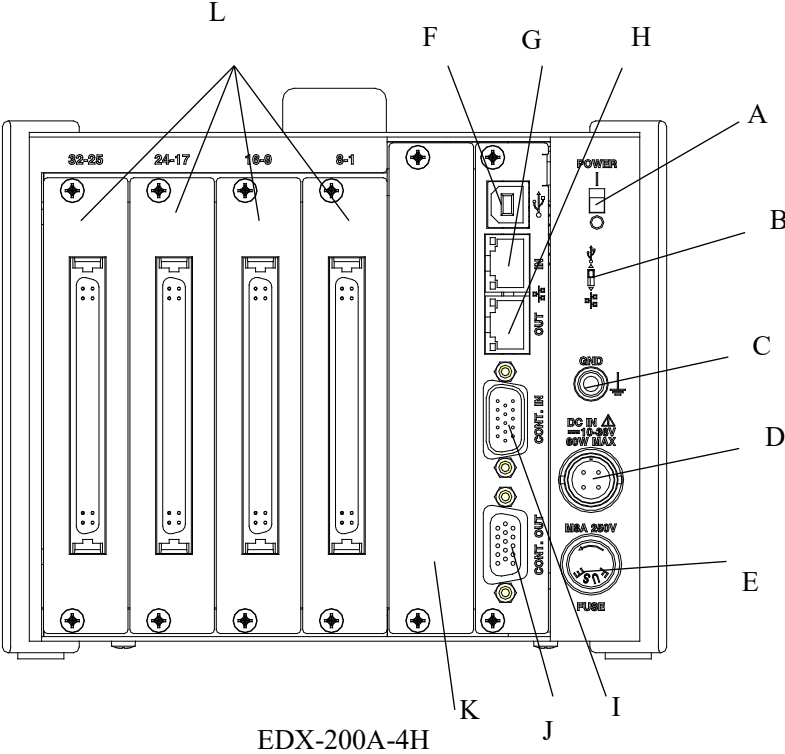
NOTE

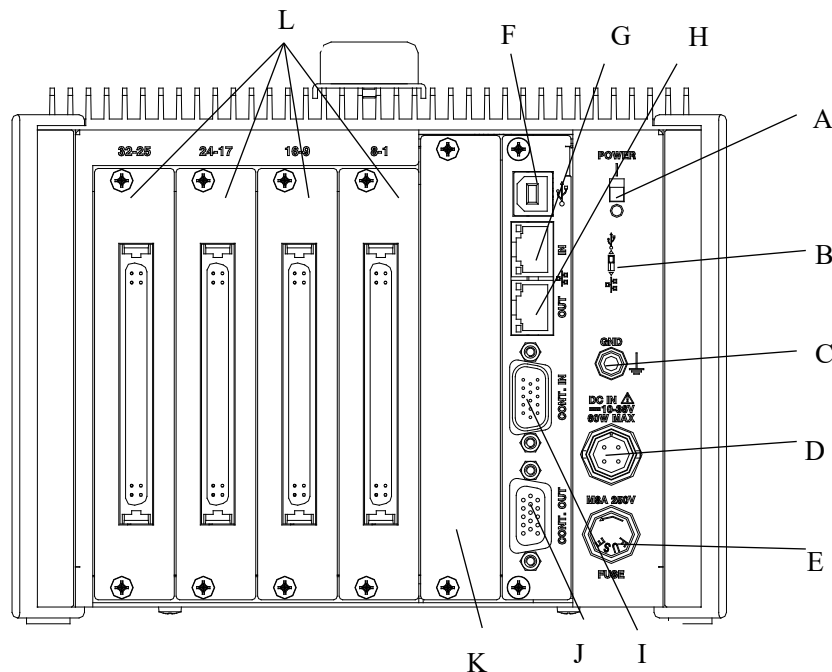
When you change the setting of the USB/LAN switch, be sure to turn OFF the EDX-200A.

Wait approx. 5 seconds and turn ON the EDX-200A again.

You need to reboot the EDX-200A to complete the settings change.

2-3 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T REAR PANEL





EDX-200A-4T

A) 'POWER' switch

The power is turned ON or OFF when this power supply switch is pressed to the "I" position or "O" position, respectively.

B) 'USB/LAN' switch

A switch for selecting the interface during the online measurement.

The upper side is for the USB interface, while the bottom side is for the LAN interface.

NOTE

When you change the setting of the USB/LAN switch, be sure to turn OFF the EDX-200A.

Wait approx. 5 seconds and turn ON the EDX-200A again.

You need to reboot the EDX-200A to complete the settings change.

C) 'GND' terminal

GND terminal

Always connect a ground wire to the GND terminal.

MEMO

The 'GND' terminal is connected to the chassis and the common of the internal power supply.

D) Power supply connector

Power supply connector. Voltage range of this power supply connector is 10 to 36 VDC. For details, see "12-1 POWER SUPPLY CONNECTOR".

E) Power supply fuse

5×20 mm, Medium-Acting, Glass tube fuses

EDX-200A-4H/EDX-200A-4T

Current rating: 8 A, voltage rating: 250 VAC

EDX-200A-2H

Current rating: 5 A, voltage rating: 250 VAC

F) 'USB' connector

An USB connector. Connects to the PC.

G) 'LAN IN' connector

A LAN connector. Connects to the PC.

H) 'LAN OUT' connector

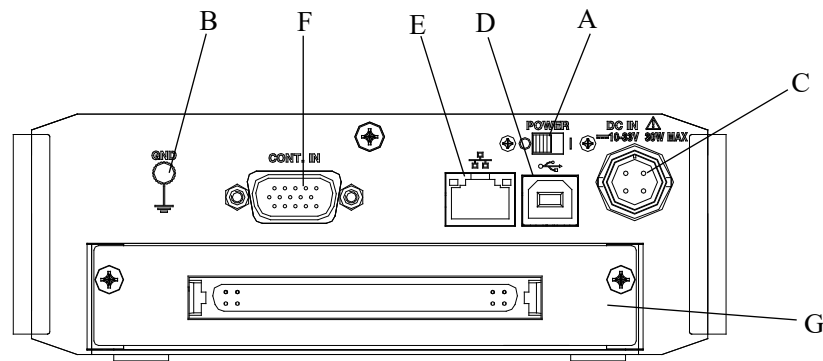
For facilitating the synchronized operation of multiple EDX-200A units by

- using LAN cables.
- I) 'CONT. IN' connector For connecting a dedicated RCU-42A, for facilitating synchronized operation of multiple EDX-200A units, for inputting external triggers, and inputting external clock signals.
For details, see "12-2 CONT. IN CONNECTOR".
- J) 'CONT. OUT' connector Used for outputting the external trigger signal and external clock signal of multiple EDX-200A units.
For details, see "12-3 CONT. OUT CONNECTOR".
- K) Optional slot Slots for optional functions.
For details, see "11-3 REPLACEMENT OF OPTIONAL CARD".
(Note that the optional card, in the EDX-200A-4T, can not be changed on your own.)
- L) Conditioner card slot Slots for conditioner cards.
The CDV-40B is mounted in the figure.
For details, see "11-2 REPLACEMENT OF CONDITIONER CARD".
(Note that the conditioner cards, in the EDX-200A-4T, can not be changed on your own.)

MEMO

The channel No. is determined by the location where the conditioner card is inserted.
The channel numbers are assigned from right to left as viewed from the rear panel.

2-4 EDX-200A-1 REAR PANEL



EDX-200A-1

A) 'POWER' switch

The power is turned ON or OFF when this power supply switch is pressed to the "I" position or "O" position, respectively.

B) 'GND' terminal

GND terminal

Always connect a ground wire to the GND terminal.

MEMO

The 'GND' terminal is connected to the chassis and the common of the internal power supply.

C) Power supply connector

Power supply connector. Voltage range of this power supply connector is 10 to 33 VDC. For details, see "12-1 POWER SUPPLY CONNECTOR".

D) 'USB' connector

An USB connector Connects to the PC.

E) 'LAN IN' connector

A LAN connector Connects to the PC.

F) 'CONT. IN' connector

For connecting a dedicated RCU-42A, for facilitating synchronized operation of multiple EDX-200A units, for inputting external triggers, and inputting external clock signals.

For details, see "12-2 CONT. IN CONNECTOR".

G) Conditioner card slot

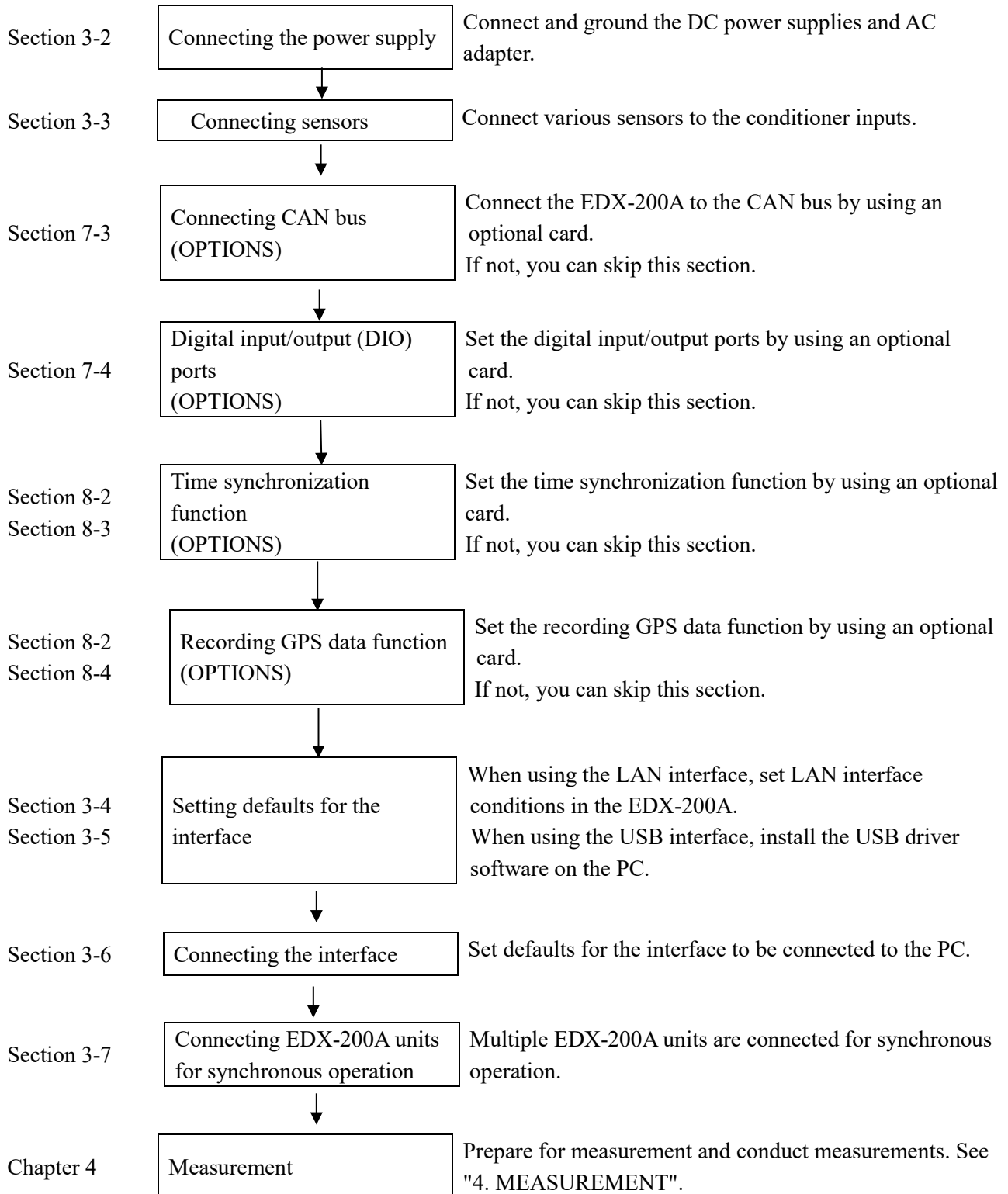
Slots for conditioner cards. The CDV-40B is mounted in the figure.

For details, see "11-2 REPLACEMENT OF CONDITIONER CARD".

3. INSTALLING THE EDX-200A

3-1 INSTALLATION PROCEDURE

This section describes the required steps used to install the EDX-200A and prepare for measurements. Use the following steps to complete the installation.



3-2 CONNECTING THE POWER SUPPLY

3-2-1 Connecting the DC Power Supply

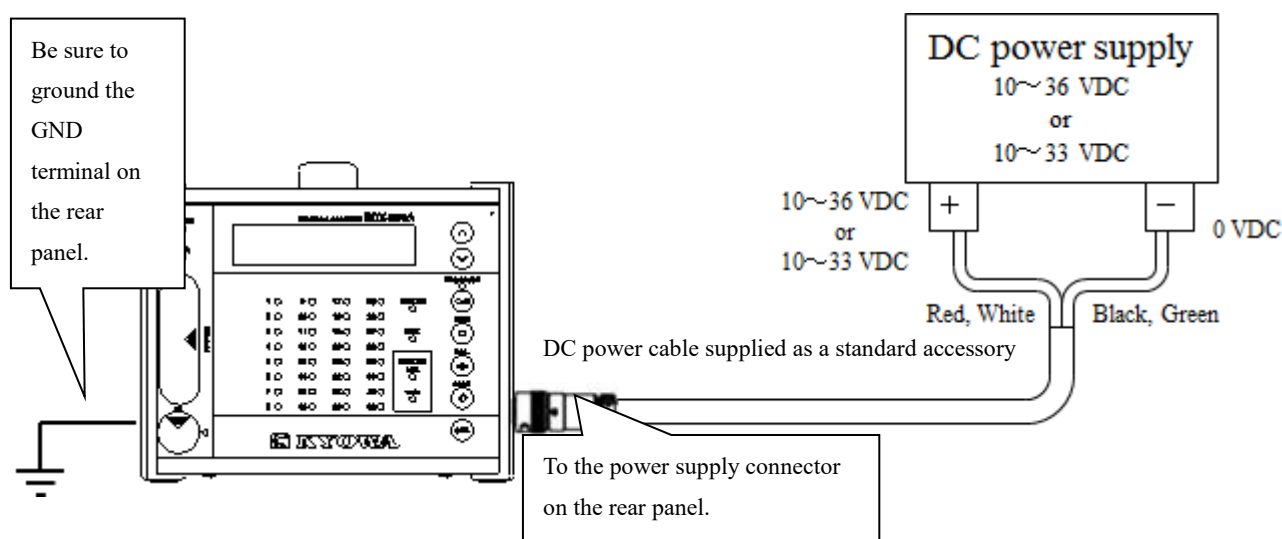
Be sure to check the power supply voltage before connecting the DC power cable.

The operating power supply voltage range of the EDX-200A-4H/EDX-200A-2H/EDX-200A-4T is 10 to 36 VDC. The operating power supply voltage range of the EDX-200A-1 is 10 to 33 VDC. Always operate the DC power supply within the specified voltage range. Also, be sure to ground the EDX-200A.

Supply power to the EDX-200A through the accessory DC power cable. Connect the power cable connector to the power supply connector located on the rear panel of the EDX-200A. Connect the cable ends as follows:

[Red and white cable ends] → [EDX-200A-4H/EDX-200A-2H/EDX-200A-4T: 10 VDC to 36 VDC]
[EDX-200A-1: 10 VDC to 33 VDC]

[Black and green cable ends] → [0 VDC]



DC Power Supply Connection Diagram

NOTE

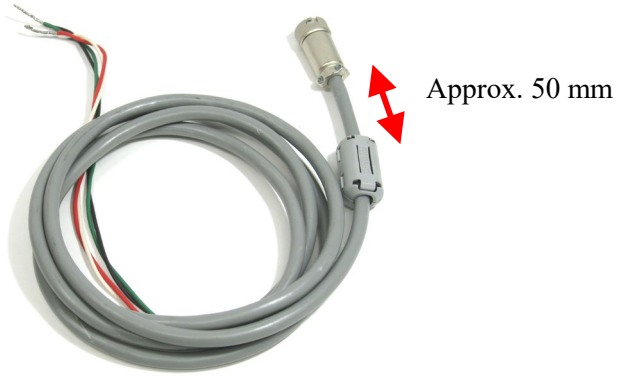
- The negative side (-) of the DC power supply is electrically isolated from the "EDX-200A chassis" and "GND" terminal.
- When using an automotive battery as the DC power supply, ensure that the negative side of the battery is connected to the vehicle body.
- When an automotive battery is used as the DC power supply, the power supply voltage may temporarily drop and the EDX-200A operation may become unstable because of the cell starter or other reasons. Take appropriate measures.
- The EDX-200A should never be connected to the power supply if the power supply voltage is outside the range specified above, or if the positive and negative sides of the power supply are connected in reverse.
- Be sure to ground the "GND" terminal. Failure to do so will pose a risk of electric shock, degrade performance and cause damage to the EDX-200A.

MEMO

In the case of momentary power loss, in some cases only the POWER LED lights up and the buzzer may continue to issue a "beep, beep" sound. At this time, the power can be recovered by taking the following steps: Turn OFF the POWER switch once, check that the DC power supply voltage is stable between 10 to 36 VDC (EDX-200A-4H/EDX-200A-2H/EDX-200A-4T) or is stable between 10 to 33 VDC (EDX-200A-1) and then, turn ON the POWER switch once again.

MEMO

- When using the DC power cable, be sure to wrap the accessory clamp-on ferrite core. Wrap the ferrite core 50 mm away from the connector base as follows.



3-2-2 Connecting the AC Adapter

Connect the optional AC adapter to the power-supply connector located on the rear of the EDX-200A to supply power.

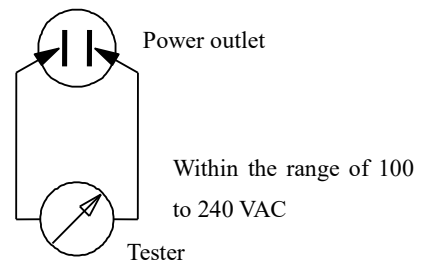
Be sure to check the power supply voltage before connecting the power cable of the AC adapter to the AC power outlet.

The operating power supply voltage range of the AC adapter is 100 to 240 VDC. Always operate the AC adapter within the specified voltage range. Also, be sure to ground the EDX-200A.

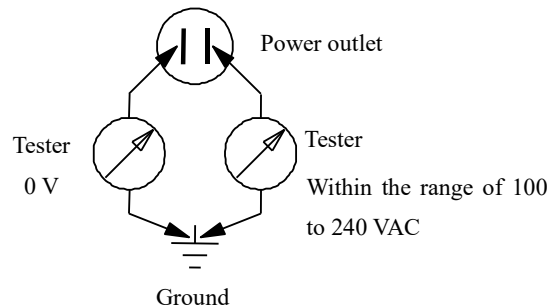
The EDX-200A should never be connected to the power supply if the power supply voltage is outside the range specified above or if the voltage potentials of the terminals for the power supply exceed the level of power supply voltage relative to the ground. Doing so will cause accidents and damage to the EDX-200A.

The power supply voltage should be checked according to the procedure described below.

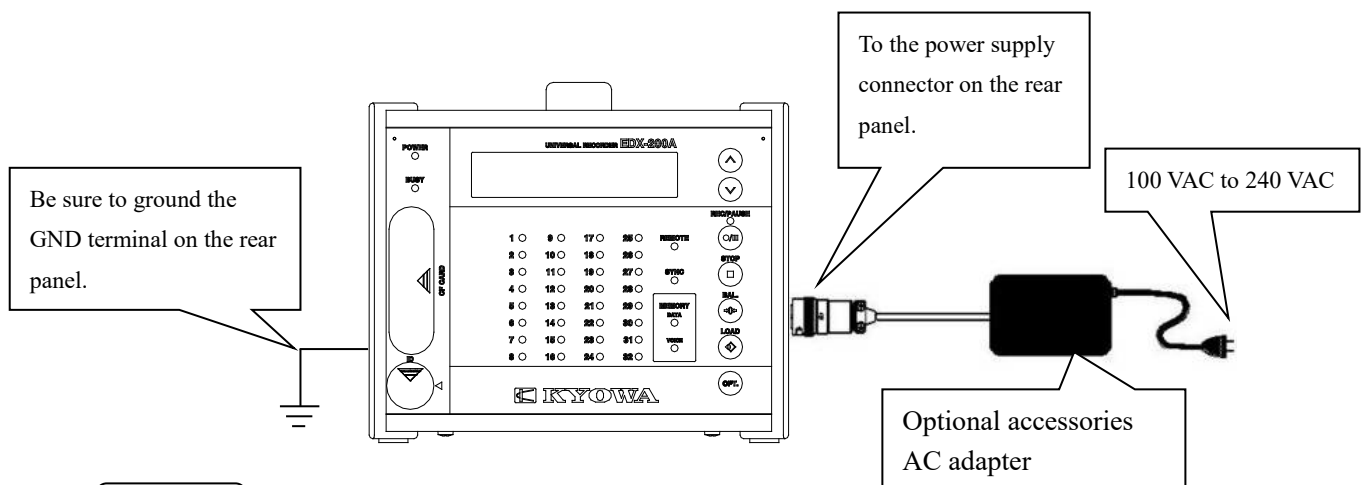
- (1) Use the tester to measure the voltage between the AC power outlet terminals and ensure that the voltage is within the range of 100 to 240 VAC.



- (2) Use the testers to measure the voltage levels between the ground and each of the AC power outlet terminals to ensure that one voltage level is 0 V and the other is within the range of 100 V to 240 VAC.



- (3) On the site where induction motors, electric welders and other devices that generate noise are used, power supply conditions may be deteriorated due to excessive noise in such environments. Use an Isolation Transformer (Optional: UPT-300BR) or a commercially available noise cut transformer to prevent noise.



NOTE

Be sure to ground the "GND" terminal.

Failure to do so will pose a risk of electric shock, degrade performance and cause damage to the EDX-200A.

3-3 CONNECTING SENSORS

Before connecting sensors, do not forget to turn OFF the EDX-200A.

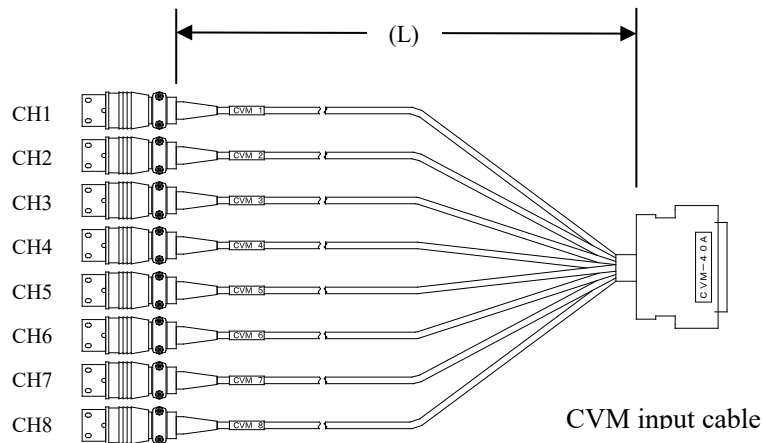
When connecting conditioner cards, see the instruction manual for applicable sensors.

This section explains how to connect sensors to the CVM-40A/41A.

Dedicated input cables (Optional) are used to connect sensors to the CVM-40A/41A.

The dedicated input cables shown in the table below are available.

Item	Model	Cable length [(L) in the figure]
CVM input cable	U-121	50 cm
	U-122	1.0 m
	U-123	1.5 m

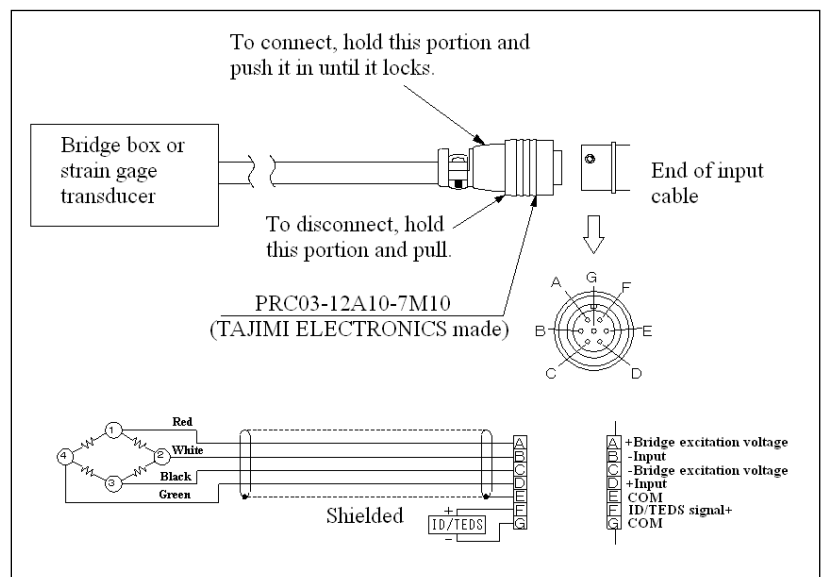


The CVM-40A/41A is capable of performing strain measurement, voltage measurement, and acceleration measurement. The inputs should be connected as described below.

(1) When using a strain gage or strain gage transducer

When measuring the output of the strain gage or strain gage transducer, connect a bridge box or strain gage transducer as shown in the figure at right.

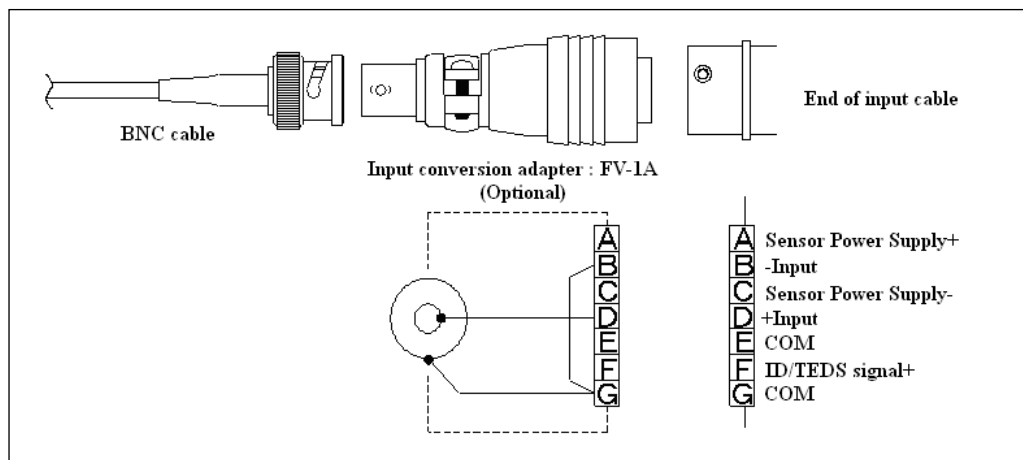
Before recording data, select the strain mode and monitor the noise. If excessive noise is measured, ground the ground terminal of the bridge box or connect the ground terminal of the bridge box to the GND terminal of the EDX-200A, whichever results in less noise.



NOTE

- Strain generator, CAB-120D/-350D, and WDS-10 are not available because the F and A terminals are short-circuited. In addition, to connect a remote sensing transducer, use connection cables (N81 to N85).
- Be sure to ground the "GND" terminal. Failure to do so will pose a risk of electric shock, degrade performance and cause damage to the EDX-200A.
- To compensate the change in sensitivity caused by the bridge resistance of the strain gage, perform internal sensitivity compensation prior to measurement.
(See "5. SETTING CH CONDITION" in the DCS-100A INSTRUCTION MANUAL for EDX-200A Operation.)
For internal sensitivity compensation, the result is multiplied internally by a coefficient factor by considering bridge resistance of 350ohm and the use of a 1-m input cable as reference.
- When measuring voltage, if a conditioner card is newly installed or the card slot is changed, in order to compensate the internal zero point, perform internal sensitivity compensation prior to measurements.

(2) When applying an input voltage



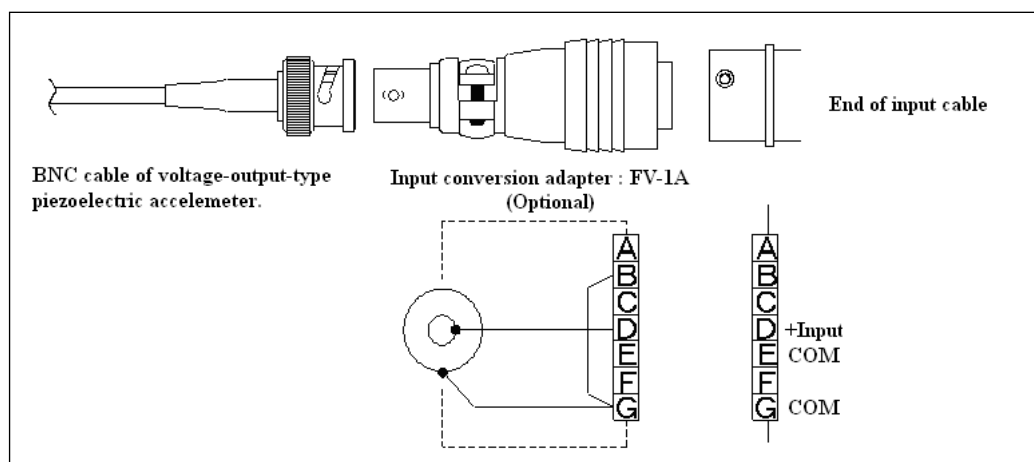
When measuring the voltage, connect the FV-1A input conversion adapter (optional) to a quick mating connector with the BNC connector. If excessive noise exists, connect the negative side of the voltage signal source to the GND terminal of the EDX-200A.

NOTE

- When using the CVM-40A/41A in the voltage measurement mode, the input format is the balanced differential input format.
When using the CVM-40A/41A and FV-1A together, since the negative (-) input is connected to the frame ground (GND terminal of the EDX-200A), the input format is the single-ended input format.
Note that the negative side of every channel is connected each other.
- Take the following precautions when measuring the DC voltage of a battery, power supply or the like.
 - (1) When measuring multiple DC voltages, use a tester or the like to measure the voltage between negative sides of every signal source and confirm that the voltage is approximately 0 V.
 - (2) Confirm that the voltage between the negative side of every signal source and the GND terminal of the EDX-200A is approximately 0 V.
 - (3) When connecting an input, correctly connect the positive and negative sides.

Failure to comply with the above precautions will result in a short circuit of the signal source (e.g. DC power supply) of the measuring target in the CVM-40A/41A, thus causing system failure and a fire hazard.

(3) When using an acceleration sensor



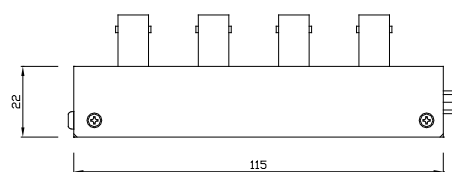
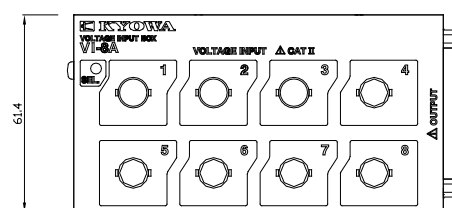
When measuring the acceleration, connect the FV-1A input conversion adapter (optional) to a quick mating connector with the BNC connector. If excessive noise exists, connect the negative side of the voltage signal source to the GND terminal of the EDX-200A.

NOTE

- For measuring acceleration, the applicable sensor for the CVM-40A/41A is a voltage-output-type piezoelectric accelerometer.
No measurement is allowed if an electric charge output type piezoelectric accelerometer is directly connected.
The specifications of the sensor power supply is constant-current: Approx.4 mA, applied voltage: approx. 23 V. Take care and always connect appropriate sensors conforming to the specifications. Or, sensor failure may result in.
- When using the CVM-40A/41A in the acceleration measurement mode, the input format is the single-ended input format.

(4) When using only voltage sensors or only acceleration sensors

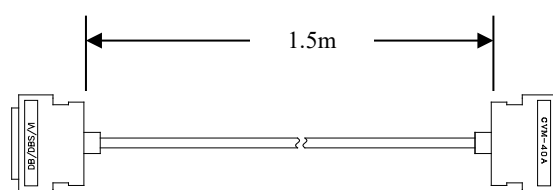
When using only voltage sensors or only acceleration sensors, you can use the optional Voltage Input Box VI-8A (hereinafter referred to as the VI-8A) as shown in the figure at right. The VI-8A can connect 8-channel inputs into the CVM-40A/41A by using one cable. It will save you time, labor, and wire.



Voltage Input Box: VI-8A [Unit mm]

NOTE

- When using the CVM-40A/41A in the voltage measurement mode, the input format is the balanced differential input format.
However, when using the CVM-40A/41A and VI-8A together, the input format is the single-ended input format.



CVM concentrated input cable

(Model: N-118, standard accessory cable of the VI-8A)

WARNING

- Maximum Input Voltage Range for Measurement

Strain/Voltage/Acceleration Measurement Card: Do not apply an input voltage exceeding the range specified for the CVM-40A/41A.

Failure to do so will pose the risk of electric shock, deteriorated performance and system failure.

- (1) When connecting an input, correctly connect the positive and negative sides.
- (2) The input voltage limit of the CVM-40A/41A in the voltage measurement mode is ± 50 V. Do not apply an input voltage exceeding the said range.

- Check the following items when measuring the DC voltage of a battery, power supply or the like.

- (1) When measuring multiple DC voltages, use a tester or the like to measure the voltage between negative sides of every signal source and confirm that the voltage is approximately 0 V.
- (2) Confirm that the voltage between the negative side of every signal source and the GND terminal of the EDX-200A is approximately 0 V.
- (3) When connecting an input, correctly connect the positive and negative sides.

Failure to comply with the above precautions will result in a short circuit of the signal source (e.g. DC power supply) of the measuring target in the CVM-40A/41A, thus causing system failure and a fire hazard.

3-4 LAN INTERFACE DEFAULT SETTINGS

To control the EDX-200A via the LAN interface, it is necessary to set the IP address, subnet mask, etc. for the EDX-200A. This section describes how to set the LAN interface.

- How to set the LAN interface by using the CF card.

Set the LAN interface conditions by creating a LAN interface condition file (file name: EDX200A.IP) in the CF card and insert the CF card into the EDX-200A to let it read and set the LAN interface conditions. Details of the determined file are described below.

File name: **EDX200A.IP** (The file name is fixed.)

[EDX-200A] 
IP_ADDRESS= <u>192.168.111.111</u> 
SUBNET_MASK= <u>255.255.255.0</u> 
DEFAULT_GATEWAY= <u>0.0.0.0</u> 

Example of File Content

(Step 1) Create the above described file using Notepad or other editor softwares, and save it with a file name [EDX200A.IP] in the [Root Folder] of the CF card.

[Precautions in Creating the EDX200A.IP]

- Ask the Network Manager for the appropriate values of the IP address, subnet mask and default gateway, which are underlined with a wavy line in the above figure.
- Set the IP address with 192.168.111 portion same as, and XXX portion different from the IP address of the EDX-200A. In addition, set the IP address of the PC in the same manner.
- All alphanumeric characters should be entered in capital letters without spaces or tabs.
- After creating a file with the editor software, always check the file name on Explorer. The file name should be "EDX200A.IP"; if not, change the name to "EDX200A.IP".
-  in the box above indicates the line feed code (0x0d 0x0a).

(Step 2) With the power OFF, insert the CF card on which the above file is saved into the EDX-200A.

(Step 3) Turn ON the power while pressing and holding the LOAD switch on the front panel.

(Step 4) [For the EDX-200A-4H/EDX-200A-2H/EDX-200A-4T]

Press and hold the LOAD switch, and wait a few moments.

If you hear the buzzer issuing a "beep, beep, bip, bip, bip" sound and if the REMOTE LED flashes orange → light up in green, it means the setup is complete.

Release the LOAD switch.

[For the EDX-200A-1]

Press and hold the LOAD switch, and wait a few moments. If you hear the buzzer issuing a "beep, beep, bip, bip, bip" sound and the REC/PAUSE LED and CH1 LED flash orange → light up in green, it means the setup is complete. Release the LOAD switch.

(Step 5) Turn OFF the power, wait for about 5 seconds, then turn ON the power once again to enable settings for the LAN interface. With the EDX-200A-4H, EDX-200A-2H, and EDX-200A-4T, you can check them on the small indicator. For details, see "15-4 ITEMS ON SMALL INDICATOR (Organic Light Emitting Display)."

MEMO

If the LAN conditions are not set successfully, the buzzer will continue to issue a "beep, beep, ..." sound in step 4.

In this case, check the content of "EDX200A.IP" in the CF card.

Make necessary corrections and start (from step 1) once again.

[Factory Default of LAN Settings of the EDX-200A]

IP address	192.168.200.200
Subnet mask	255.255.255.0
Default gateway	0.0.0.0

- How to set the LAN interface by using the DCS-100A.
For details, see the TCP/IP settings in "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation."

3-5 USB DEVICE DRIVER SET-UP

To control the EDX-200A via the USB interface, it is necessary to setup the USB device driver for the EDX-200A in the PC.

NOTE

- When setting up the USB device driver, login to the Administrator account (e.g. Administrator).
- Before connecting the EDX-200A and PC via the USB cable, be sure to setup the USB device driver.

- For using the DCS-100A
 - (1) When setting up the DCS-100A, be sure to setup the USB device driver for the EDX-200A at the same time.
For details, see "DCS-100A INSTRUCTION MANUAL For set-up."
 - (2) After turning ON the EDX-200A, connect the EDX-200A and PC via the USB cable.
- For creating the control software
 - (1) Insert the accessory DVD into the PC.
 - (2) Execute the "¥UsbDriver¥KYOWA_USB_****.exe" in the DVD.
Note that *** indicates the version of the setup file for the USB device driver.
 - (3) Setup the USB device driver by following the instructions on the window.
For details, see "DCS-100A INSTRUCTION MANUAL For USB driver set-up."
 - (4) After turning ON the EDX-200A, connect the EDX-200A and PC via the USB cable.

MEMO

After setting up the USB device driver, connect the EDX-200A and PC via an USB cable for installing the USB device driver automatically.

Depending on the OS (operating system), the Wizard window may appear to help you setup the USB device driver.

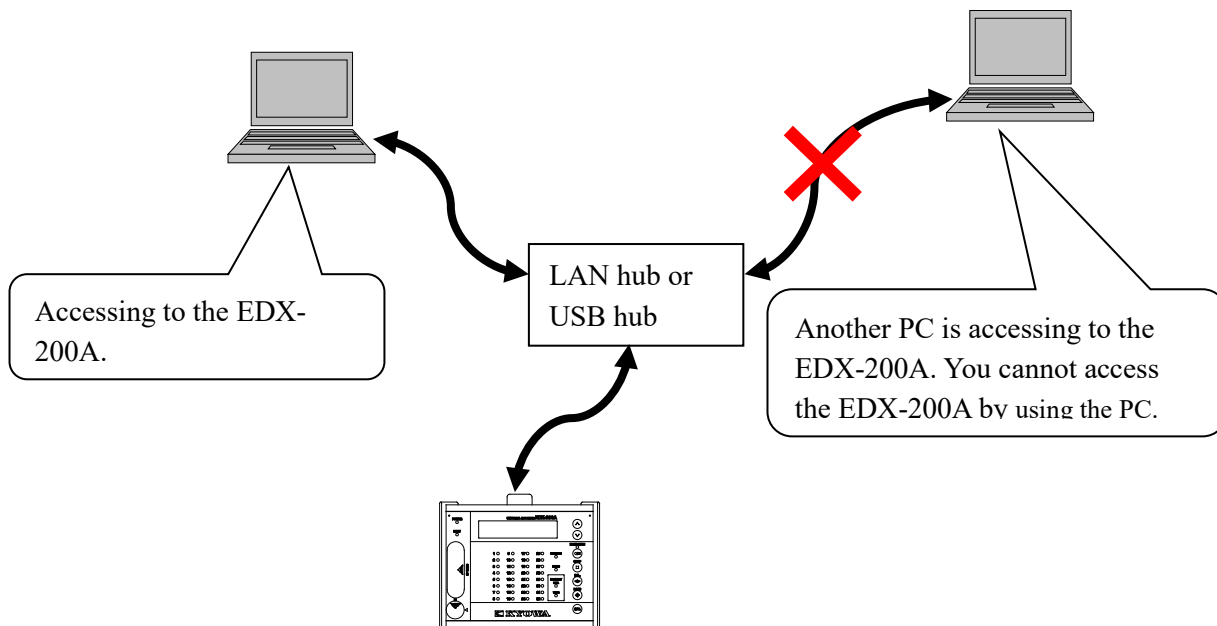
For details, see the DCS-100A INSTRUCTION MANUAL For USB driver set-up.

3-6CONNECTING INTERFACE

This section describes details of interface connection diagram (online measurement).

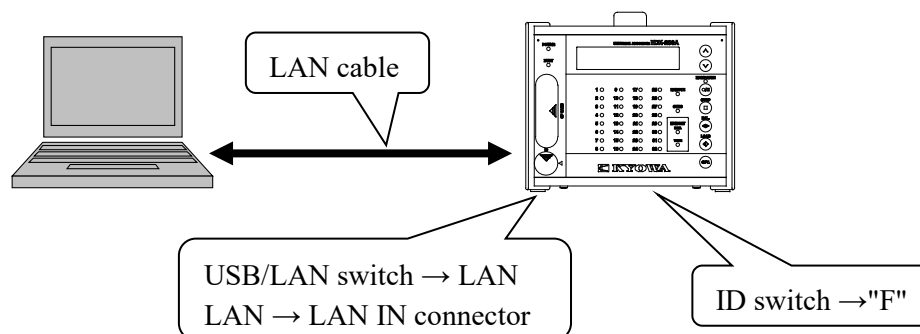
NOTE

- When accessing the EDX-200A through the USB interface or LAN interface, you can use only one PC.



3-6-1 LAN Connection: Connected to the PC

Connection diagram for the stand-alone EDX-200A is described in the following



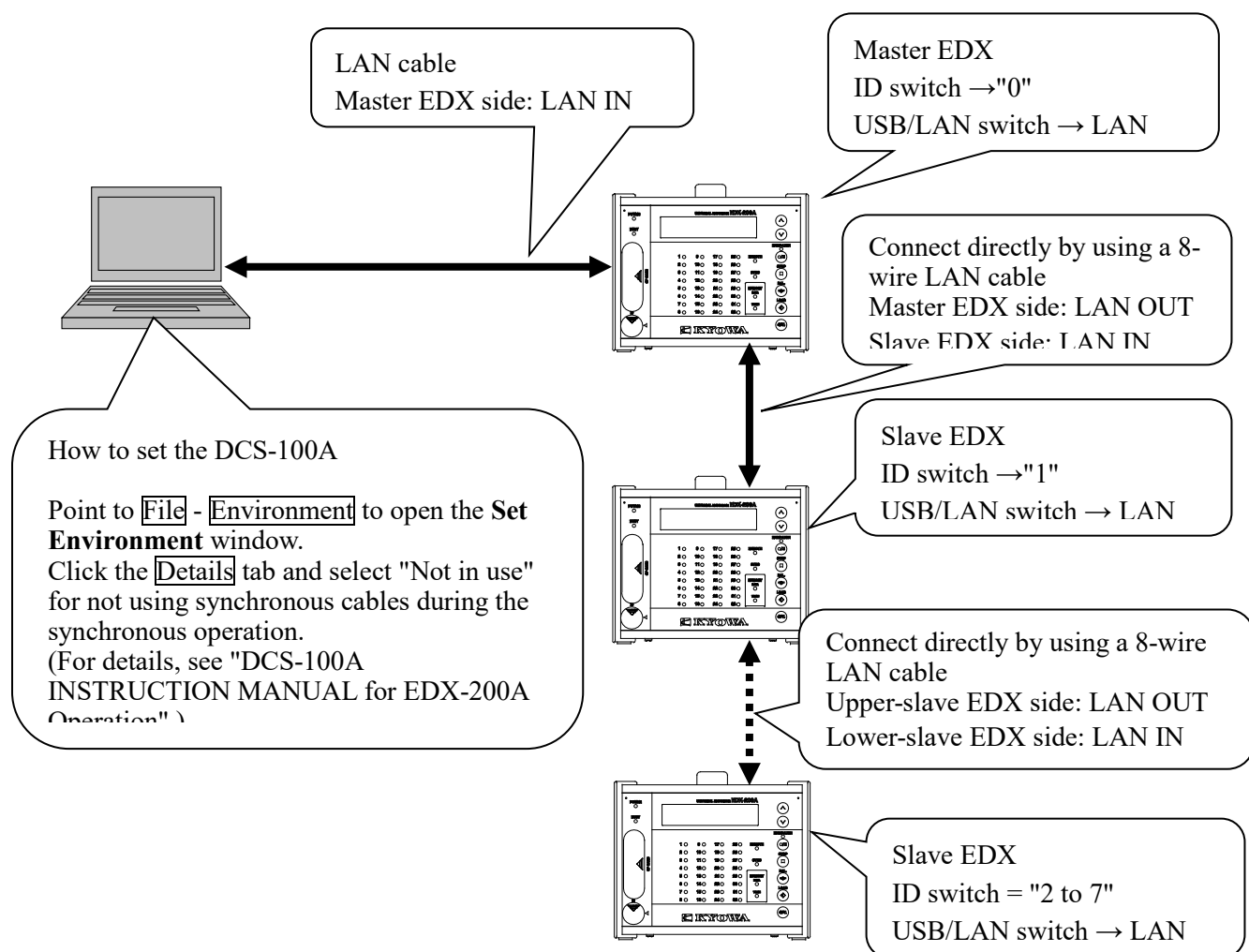
NOTE

- Connect the LAN cable to the LAN IN connector. The LAN OUT connector is for synchronous operation. You cannot connect the EDX-200A and PC by using the LAN OUT connector.
- The operation in wireless LAN environment is not guaranteed.
- The EDX-200A-1 does not have the LAN OUT connector and ID switch.

MEMO

- The EDX-200A has a built-in LAN hub. Use a straight STP cable of category 5 or higher (category 7 or higher only for EDX-200A-1) as the LAN cable.
- You can also connect the EDX-200A and PC by using a LAN hub supporting the 100BASE-TX or faster.

Connection diagram for synchronous operation is described in the following.



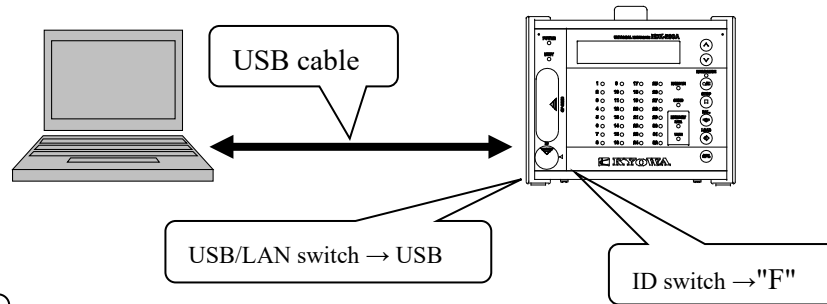
NOTE

- The synchronous operation is not available with the EDX-200A-1.
- Between the EDX-200A units, use a 8P8C straight STP cable of category 5 or higher as the LAN cable. The synchronous operation is not available by using a 8P4C straight STP cable.
- The synchronous operation is not available when connecting a LAN hub between the EDX-200A units. Directly connect the EDX-200A units by using a LAN cable.
- The operation in wireless LAN environment is not guaranteed.

MEMO

- The EDX-200A has a built-in LAN hub. Use a straight STP cable of category 5 or higher (category 7 or higher only for EDX-200A-1) as the LAN cable.
- You can also connect the EDX-200A and PC by using a LAN hub supporting the 100BASE-TX or faster.

3-6-2 USB Connection: Directly Connected to the PC

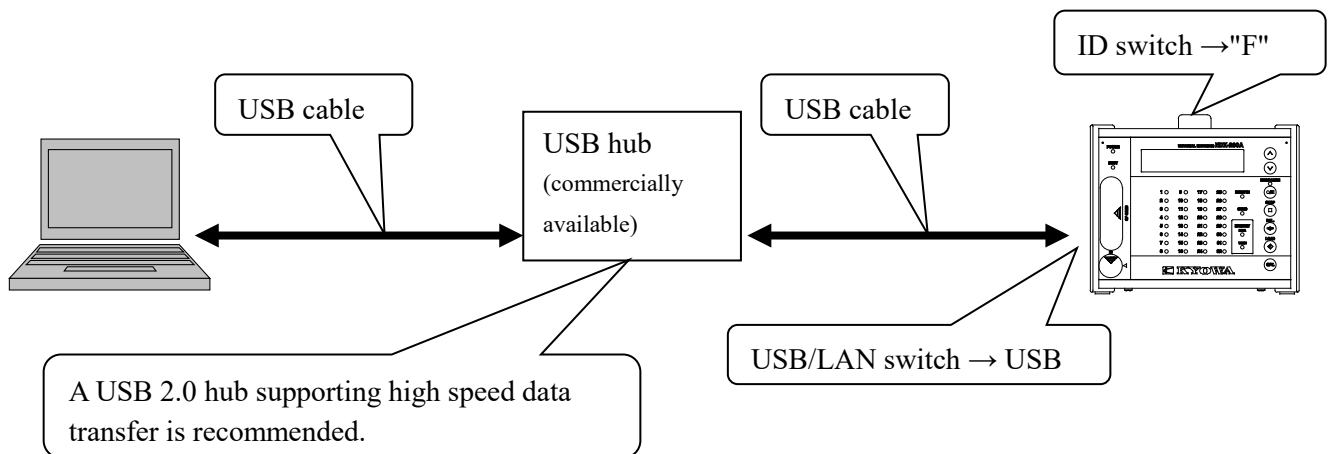


NOTE

- The EDX-200A-1 does not have the ID switch.

3-6-3 USB Connection: Connecting by Installing a Hub Between the PC and EDX-200A

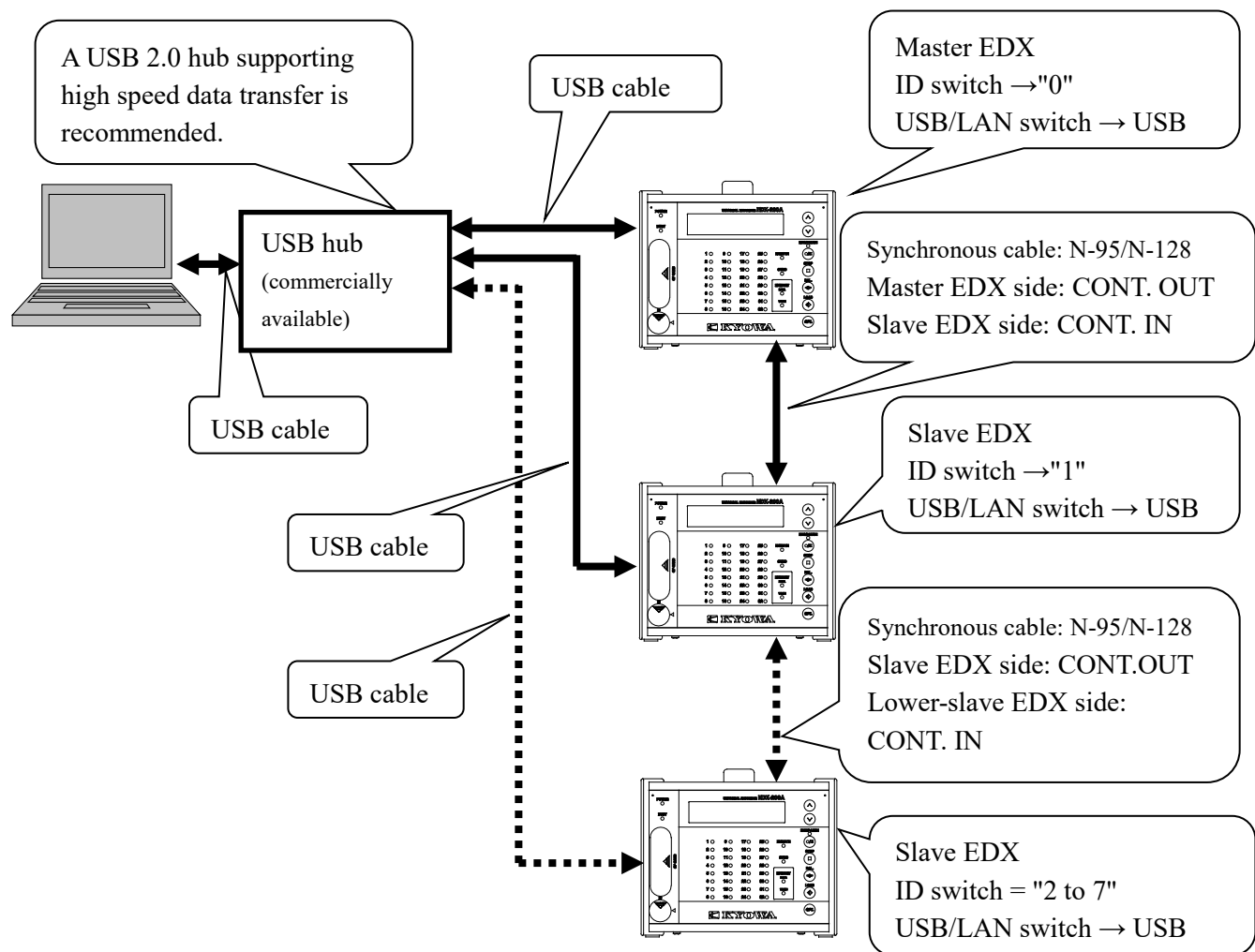
Connection diagram for the stand-alone EDX-200A is described in the following



NOTE

- The EDX-200A-1 does not have the ID switch.

Connection diagram for synchronous operation is described in the following.



NOTE

- The synchronous operation is not available with the EDX-200A-1.
- No synchronous operations is available by using the USB interface on the PC together with additionally installed USB interface board.
- When connecting multiple EDX-200A units by using USB cables for synchronous operation, be sure to use the synchronous cable N-95/N-128.

3-7 CONNECTINGS AND SETTINGS FOR SYNCHRONOUS OPERATION

Synchronous operation is a function that conducts measurement by multiple EDX-200A units at the same timing (sampling clock) and records the measured data of up to 256 channels at the same time. It is effective for recording data of more than 32 channels.

NOTE

The synchronous operation is not available with the EDX-200A-1.

Precautions on setting conditions for synchronous operation are described in the following.

- 1) The number of EDX-200A units that can be connected for synchronous operation is total 8 irrespective of the number of slots on the EDX-200A main body. (Master: 1, Slave: 7)
- 2) According to setting conditions of all the synchronous cable connected EDX-200A units, recordable conditions are defined for synchronous operation. Especially, carefully note the following 2 items.
 - (1) When using antialiasing filter mounted conditioners: CVM-40A/41A, CDV-40B/A-F, DPM-42B/A-F, DPM-42B-I-F, and CCA-40A-F and setting the Low Pass Filter to "AUTO," it is not available to set the sampling frequency to less than 100 Hz. If the Low Pass Filter is set to other than "AUTO," it can be set to less than 100 Hz.
 - (2) When it is set to record data by CAN card (CAN-40A/41A), sampling frequency shall become maximum 2 kHz (the sampling frequency is 2048 Hz in the 2ⁿ system). To set the sampling frequency to more than 2 kHz, turn OFF the CAN card (CAN-40A/41A) recording.
- 3) Trigger setting is available only by the master EDX [ID="0"] and not by the slave EDX.
- 4) Sampling clock is transmitted from the master EDX to the slave EDX.
- 5) To conduct synchronous operation with the DPM cards, see "3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F)".

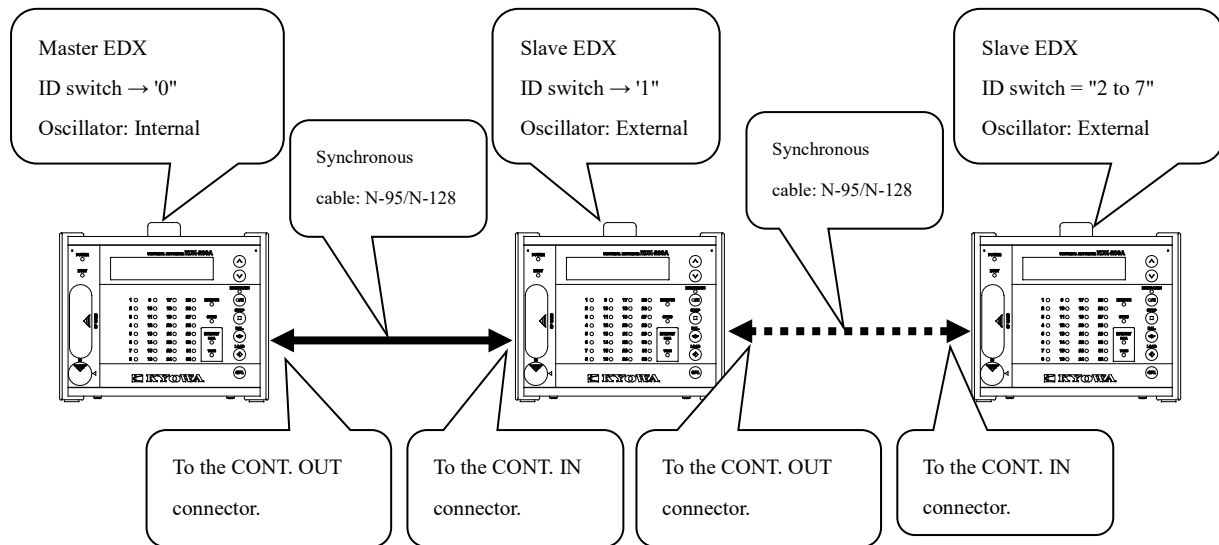
MEMO

Useful functions of offline-synchronous operation for manual measurement

- (1) For manual measurement in offline-synchronous operation, you need to press the REC/PAUSE switch in the master EDX-200A to start recording. If you start recording by pressing the REC/PAUSE switch, since every EDX-200A has pre-settings to be performed before recording, it takes some time to start recording. For avoiding, assign the "start monitoring" function to the OPT. switch by using the DCS-100A. Then before pressing the REC/PAUSE switch, press the OPT. switch to make all the EDX-200A units in the monitoring status. You can start recording immediately after the REC/PAUSE switch is pressed.
- (2) When the "start monitoring" function is not assigned to the OPT. switch by using the DCS-100A or when another function is assigned to the OPT. switch, press the STOP switch on the master EDX-200A. It will make all the EDX-200A units in the monitoring status.

3-7-1 Synchronous Operation by Using Synchronous Cables N-95/N-128

To conduct synchronous operation by using synchronous cables (N-95/N-128), connect as follows.



Always set the ID switch of the head EDX-200A to master [ID = "0"] and the rest of the EDX-200A units to [ID = "1 to 7"] by taking care not to set the same ID No. In addition, assign the ID switch Nos. in due order from "0" as described in the above figure. Change the ID switch with EDX-200A power turned OFF. Then, the changed ID switch is enabled with the EDX-200A power turned ON. Note that changing the ID switch with the power ON is not enabled.

In addition, when using the DPM cards and oscillator signal for the DPM cards to conduct synchronous operation, select the "Internal" or "External" of the Oscillator. Point to **File** - **Environment** to open the **Set Environment** window. Click the **Configuration** tab. Select either "Internal" or "External".

To conduct the synchronous operation by using synchronous cables (N-95/N-128), set the master EDX-200A "Internal" and all slave EDX-200A units "External". For details, see "3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F)".

MEMO

- The oscillator signal for the DPM card is transmitted from the master EDX-200A to every slave EDX-200A.
- When conducting the synchronous operation by using LAN cables or by using ESYN-30A, set the master EDX-200A and every slave EDX-200A "Internal."

NOTE

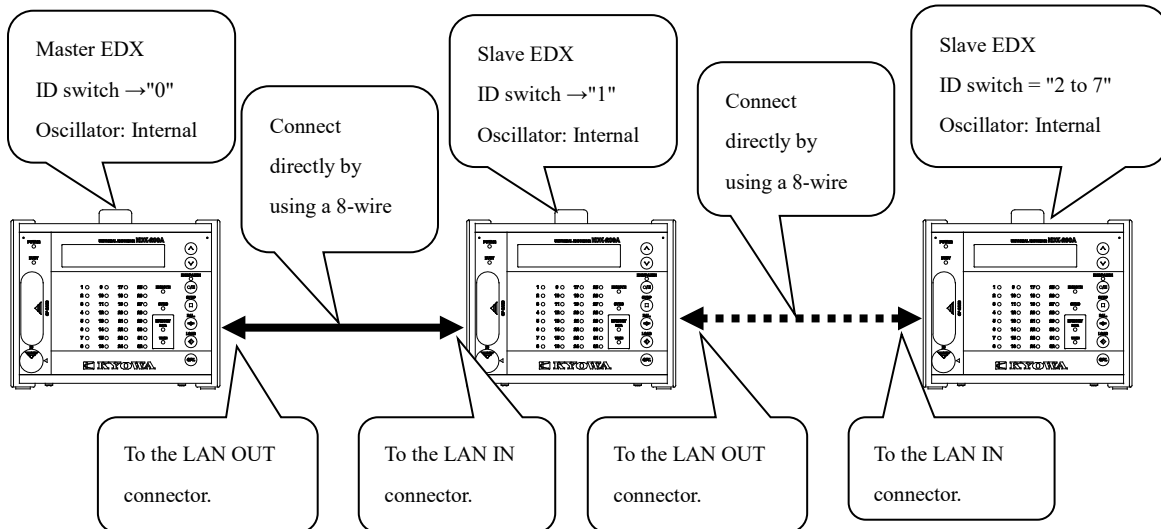
- The synchronous operation is not available with the EDX-200A-1.
- When conducting the synchronous operation, never turn OFF the power of the EDX-200A units connected with synchronous cables. If any EDX-200A is turned OFF during the synchronous operation, data cannot be recorded correctly.
- To decrease the number of EDX-200A units in synchronous operation, turn OFF the power of every EDX-200A. Disconnect the slave EDX-200A having the final ID No. At this time, disconnect the remaining synchronous cable as well. You cannot conduct the synchronous operation with the remaining synchronous cable.

3-7-2 Synchronous Operation by Using LAN Cables (without using synchronous cables)

To conduct synchronous operation by using only LAN cables, connect as follows.

NOTE

- The synchronous operation is not available with the EDX-200A-1.
- When conducting synchronous operation by using LAN cables, use the "LAN" interface for connecting the PC and EDX-200A units. You cannot conduct the synchronous operation by using "LAN" interface.



Always set the ID switch of the head EDX-200A to master [ID = "0"] and the rest of the EDX-200A units to [ID = "1 to 7"] by taking care not to set the same ID No. In addition, assign the ID switch Nos. in due order from "0" as described in the above figure. Change the ID switch with EDX-200A power turned OFF. Then, the changed ID switch is enabled with the EDX-200A power turned ON. Note that changing the ID switch with the power ON is not enabled.

When using the DPM cards, select the "Internal" or "External" of the Oscillator. Point to **File** - **Environment** to open the **Set Environment** window. Click the **Configuration** tab. Select either "Internal" or "External".

To conduct the synchronous operation by using LAN cables, set the master EDX-200A and all slave EDX-200A units "Internal". For details, see "3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F)".

NOTE

- Between the EDX-200A units, use a 8P8C straight STP cable of category 5 or higher as the LAN cable. The synchronous operation is not available by using a 8P4C straight STP cable.
- The synchronous operation is not available when connecting a LAN hub between the EDX-200A units. Directly connect the EDX-200A units by using a LAN cable.
- The operation in wireless LAN environment is not guaranteed.

NOTE

- When conducting the synchronous operation, never turn OFF the power of the EDX-200A units connected with synchronous cables. If any EDX-200A is turned OFF during the synchronous operation, data cannot be recorded correctly.
- To decrease the number of EDX-200A units in synchronous operation, turn OFF the power of every EDX-200A. Disconnect the slave EDX-200A having the final ID No. At this time, disconnect the remaining LAN cable as well. You cannot conduct the synchronous operation with the remaining LAN cable.

3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F)

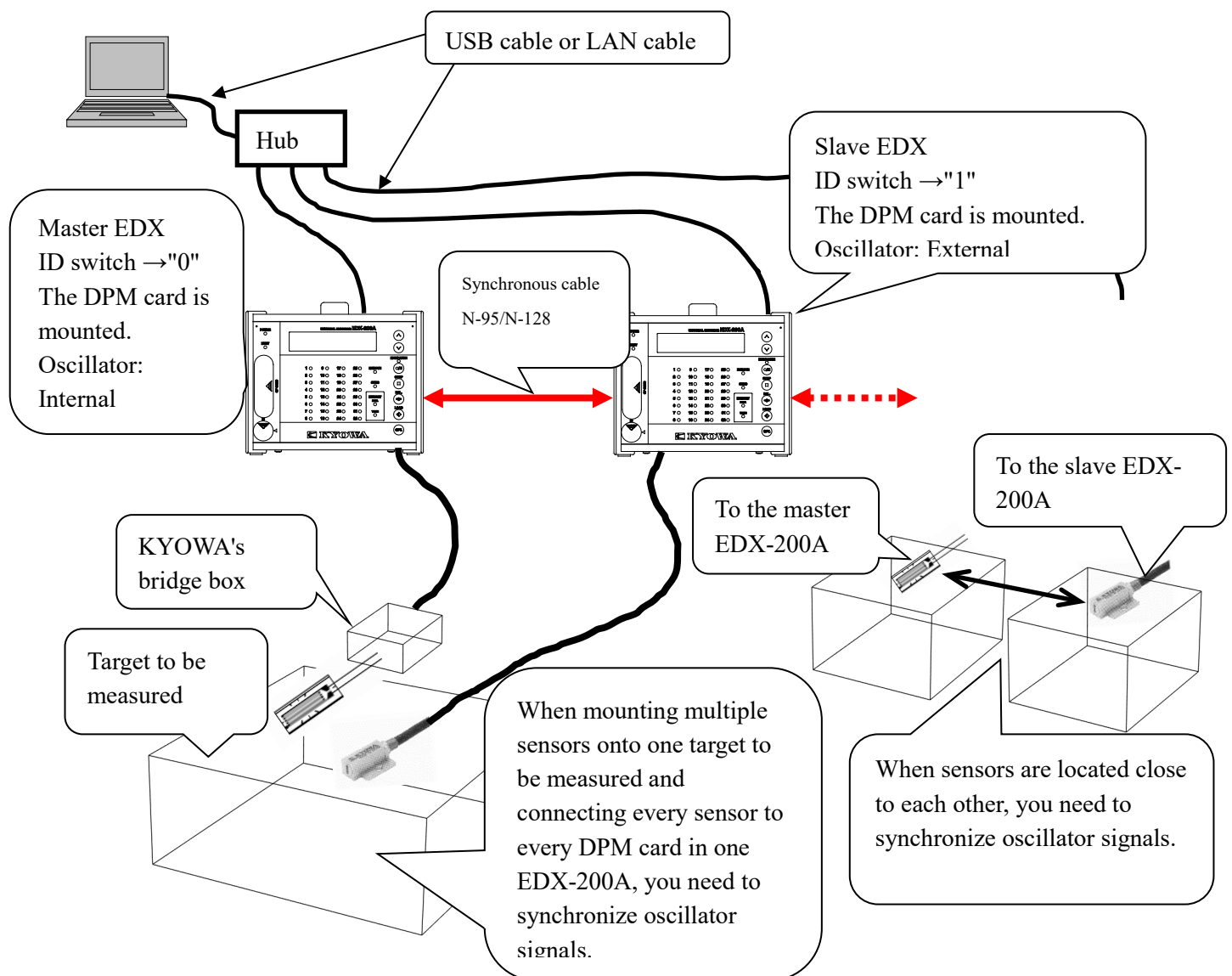
When conducting the synchronous operation, you will use multiple DPM cards and multiple EDX-200A units. In some situation, the synchronization of oscillator signals is required. In other situation, the synchronization of oscillator signals is not required.

NOTE

- The synchronous operation is not available with the EDX-200A-1.

○ Case 1: You need to synchronize oscillator signals.

When mounting multiple sensors, such as strain gages or strain gage transducers, onto one target to be measured and connecting every sensor to every DPM card in one EDX-200A as described as follows, you need to synchronize oscillator signals. Set the master EDX-200A "Internal" and slave EDX-200A units "External". Connect the EDX-200A units by using synchronous cables N-95/N-128. If you do not synchronize the oscillator signals, a beat phenomenon occurs (see MEMO in the next page). The beat waveform different from those seen in normal output (data) of a DPM card appears.



- Oscillator signals

When the master EDX-200A is "Internal" and slave EDX-200A units are "External", the oscillator signal generated from the master EDX-200A is sent to every slave EDX-200A through a synchronous cable (N-95/N-128).

- Beat phenomenon

A DPM card is controlled by using an oscillator signal generated from an EDX-200A. When mounting multiple sensors onto one target to be measured and connecting every sensor to every DPM card in one EDX-200A for the synchronous operation, you need to send the oscillator signal generated from the master (1st) EDX-200A to all slave EDX-200A units and control all the DPM cards by using the same oscillator signal. The process of controlling all the DPM cards by using the same oscillator signal is called "synchronization of oscillator signals".

When you measure data without synchronizing oscillator signals, the beat phenomenon described in the figure 1 occurs. The figure 1 shows the resulting wave, which has the clear beat phenomenon. If you synchronize oscillator signals, you will obtain the correct output described in the Figure 2.

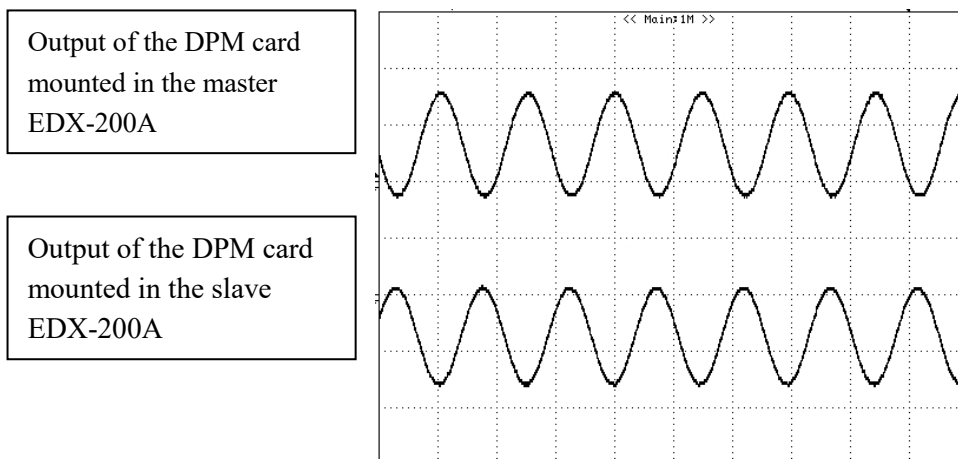


Figure 1 Resulting wave, which has the clear beat phenomenon. (Incorrect values)

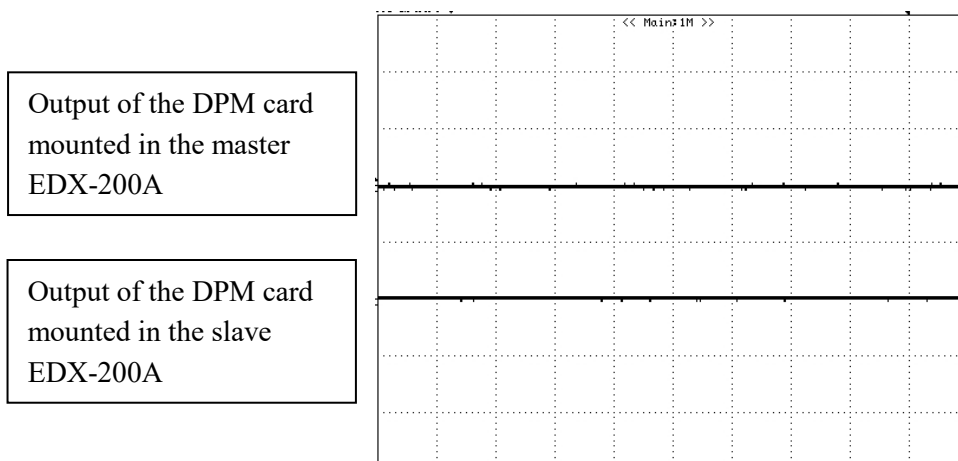
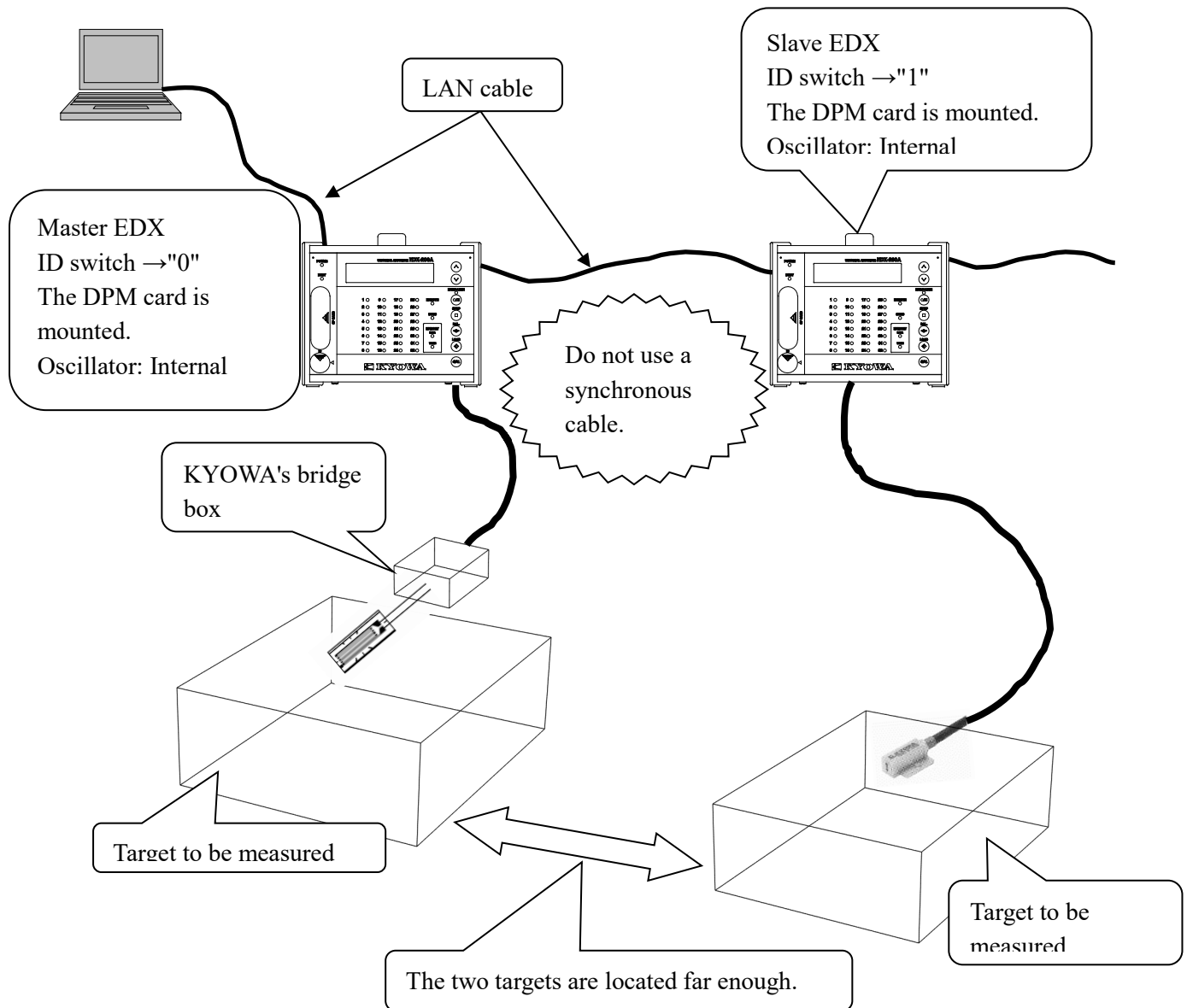


Figure 2 Resulting wave with synchronized oscillator signals (Correct values)

○ Case 2: You do not need to synchronize oscillator signals.

When mounting one sensor, such as a strain gage or strain gage transducer, onto one target to be measured and connecting one sensor to one EDX-200A as described as follows, you do not need to synchronize oscillator signals. Set the master EDX-200A "Internal" and slave EDX-200A unit "Internal" as well. However, when targets to be measured are located close to each other, the beat phenomenon may occur. We recommend you to synchronize oscillator signals.



MEMO

You do not need to synchronize oscillator signals under the following situations.

- A DPM card is not included in the measurement.
- A DPM card is not mounted.
- The number of the DPM-mounted EDX unit is one.

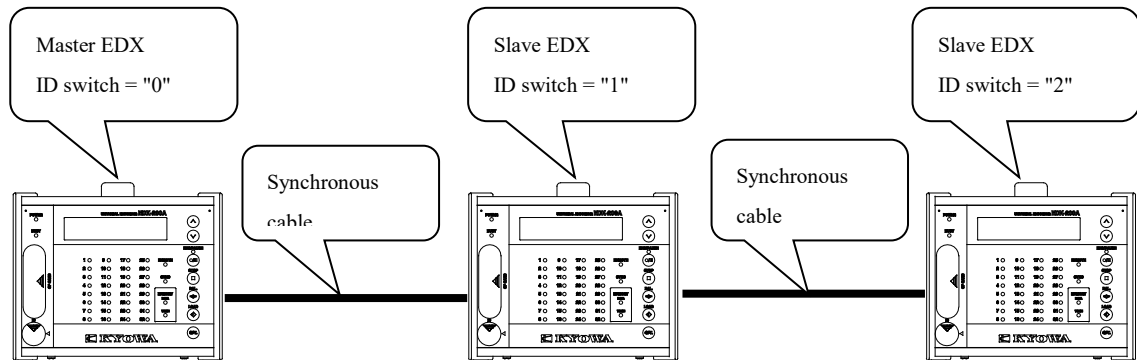
3-7-4 Synchronous Operation and Turning ON/OFF the Power

During the synchronous operation, turn ON/OFF the power as follows.

- When turning ON the power.

First, turn ON the slave EDX units in the order of large to small ID switch No. Then, turn ON the master EDX (ID switch: 0). When conducting the synchronous operation with 3 EDX units, turn ON the power as follows.

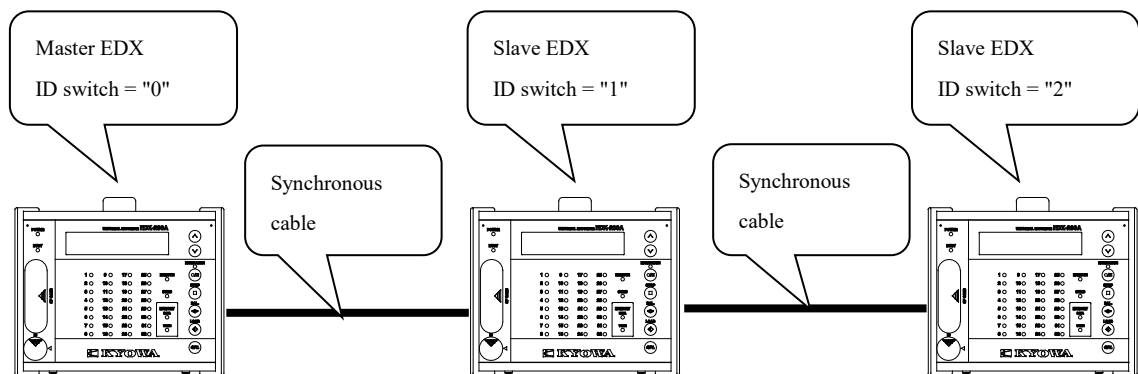
- (1) Slave EDX (ID switch = 2)
- (2) Slave EDX (ID switch = 1)
- (3) Master EDX (ID switch = 0)



- When turning OFF the power.

First, turn OFF the master EDX (ID switch: 0). Then, turn OFF the slave EDX units in the order of small to large ID switch No. When conducting the synchronous operation with 3 EDX units, turn OFF the power as follows.

- (1) Master EDX (ID switch = 0)
- (2) Slave EDX (ID switch = 1)
- (3) Slave EDX (ID switch = 2)



4. MEASUREMENT

4-1 TYPES OF MEASUREMENT

The EDX-200A is capable of online measurement as well as offline measurement.

- Online measurement: In this measuring method, the PC and EDX-200A are connected via the LAN or USB interface, and data is recorded using the control software (DCS-100A) or the software developed by the user.
- Offline measurement: In this measuring method, the measuring conditions for the EDX-200A are set using the PC or a CF card, and data is recorded by controlling the switches on the front panel of the EDX-200A

4-2 MOUNT/UNMOUNT CF CARD

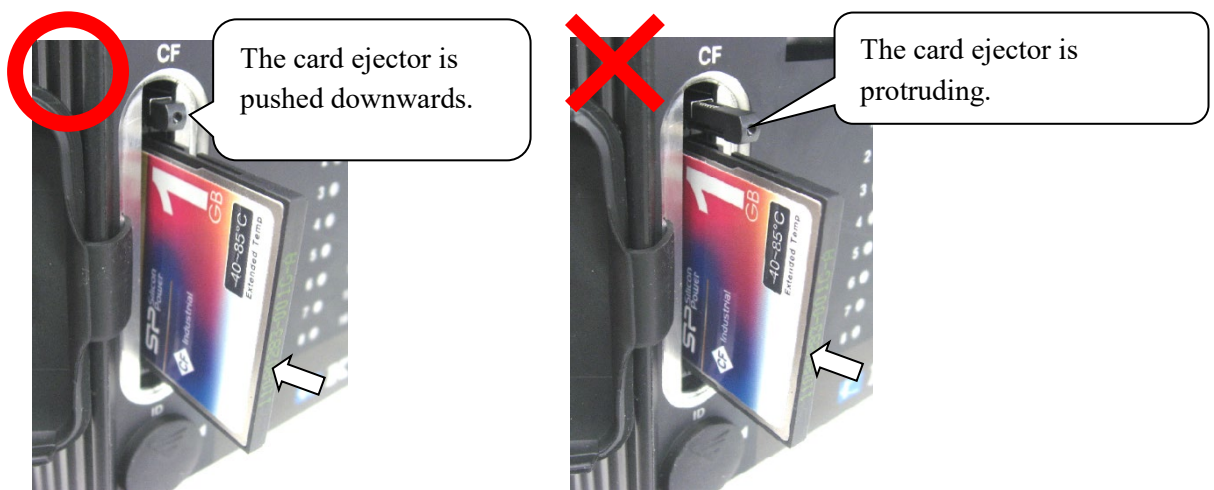
The EDX-200A uses a CF card as the recording media.

This section describes how to mount/unmount a CF card.

- (1) Slide the CF card in, with the small holes in the CF card facing inside the EDX-200A.



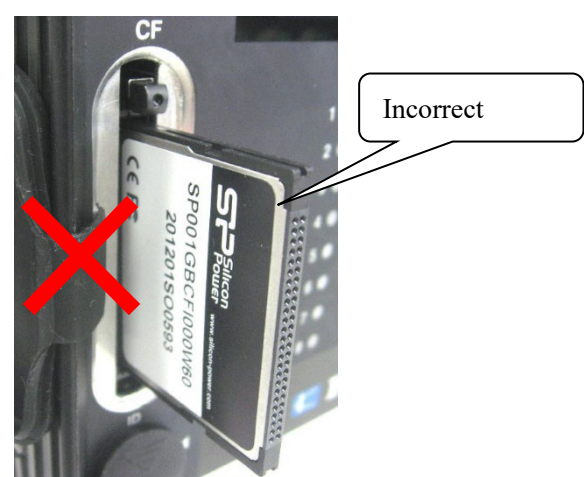
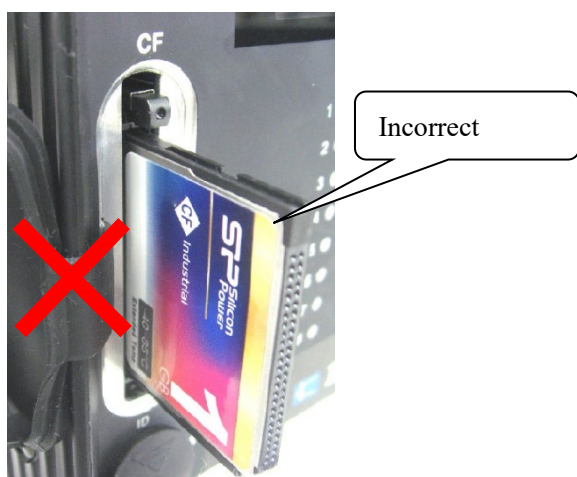
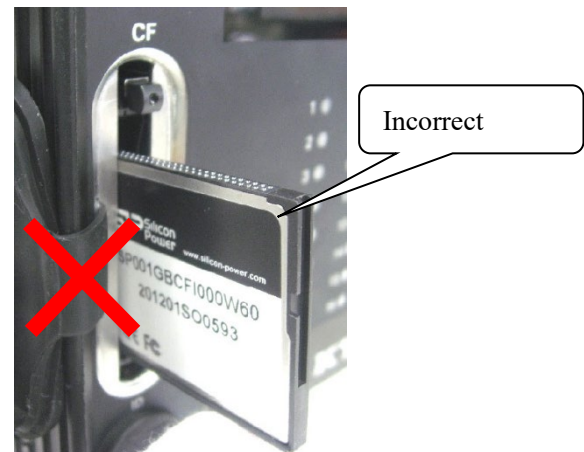
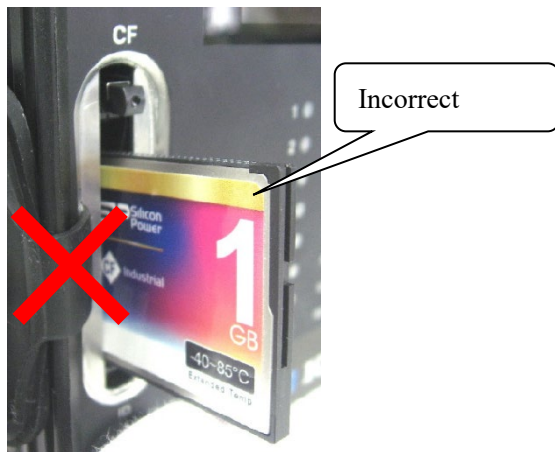
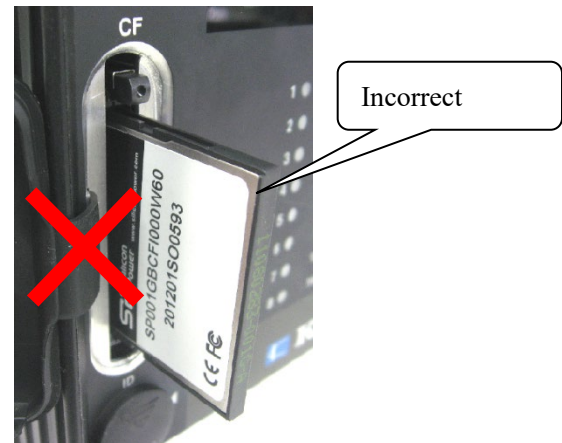
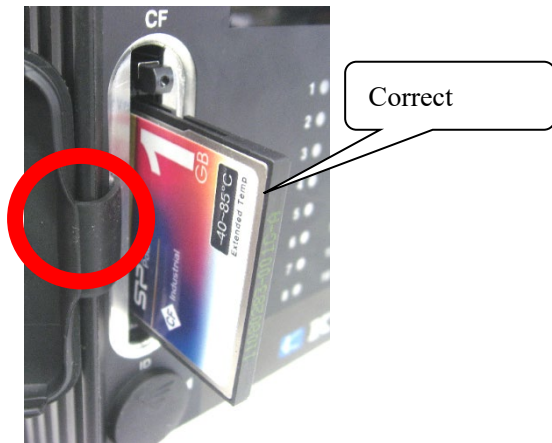
- (2) With the card ejector pushed downwards, insert the CF card all the way in.



Correctly insert the CF card.

If you insert the CF card in the wrong way, it will damage the CF card itself and EDX-200A.

[EDX-200A-4H, EDX-200A-2H, EDX-200A-4T]

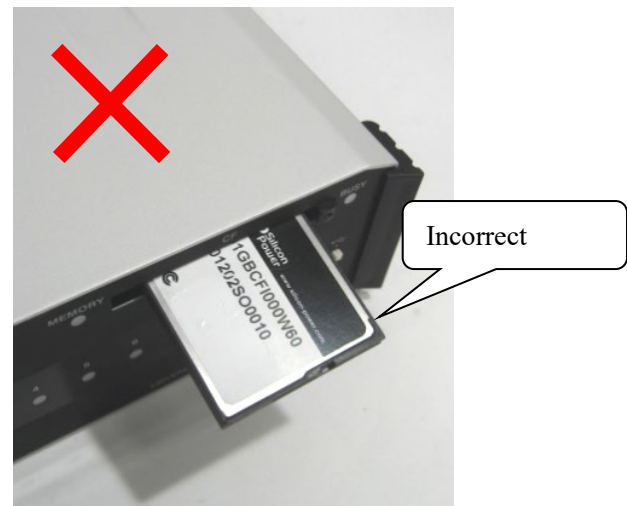
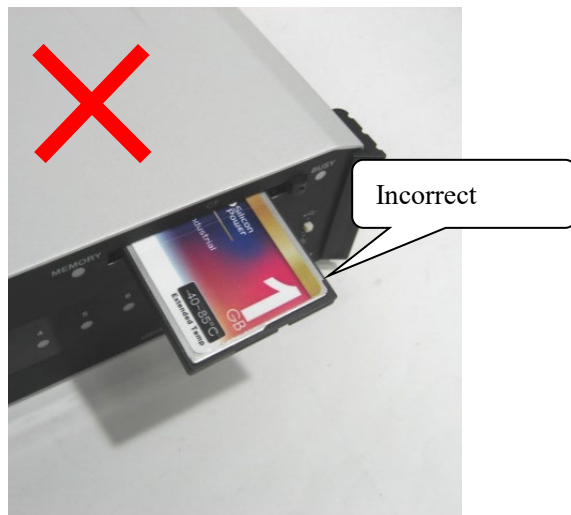
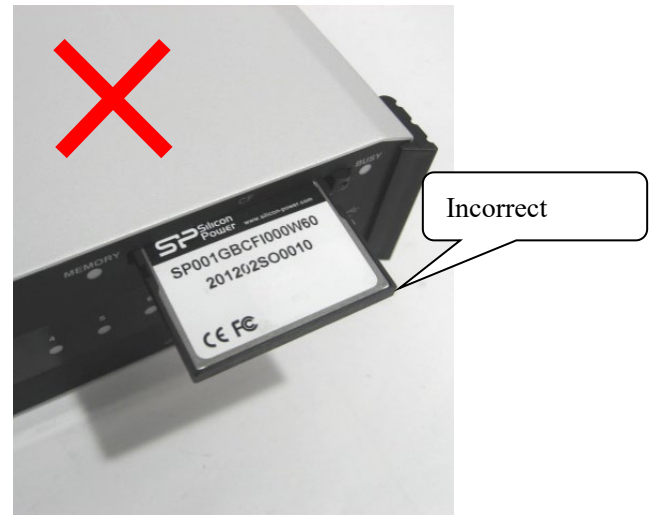
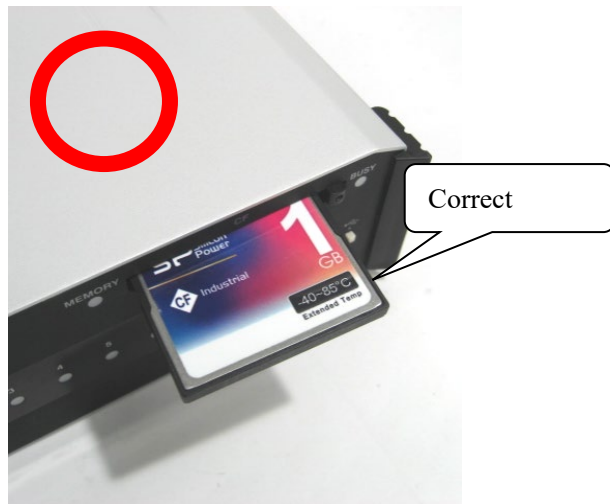


NOTE

If you insert the CF card in the wrong way, it will damage the CF card itself and EDX-200A.

Pay attention to the inserting direction. The faulty product must be returned to the KYOWA for repair.

Note that repair costs will be charged to the customer.



NOTE

If you insert the CF card in the wrong way, it will damage the CF card itself and EDX-200A.
Pay attention to the inserting direction. The faulty product must be returned to the KYOWA for repair.
Note that repair costs will be charged to the customer.

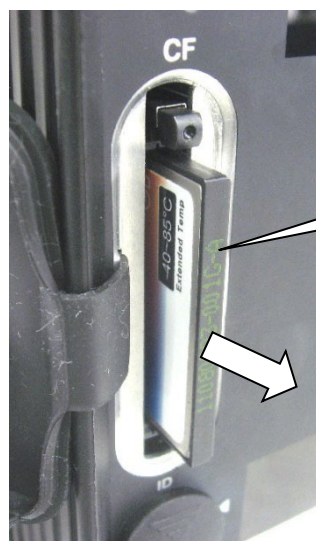
- (3) To remove the CF card, push the card ejector once to pop it out.
Then push the card ejector again.
The CF card will pop up a little.
Grasp and pull the CF card with fingers.



Push the card ejector once



The card ejector will pop up.
Push the card ejector again.



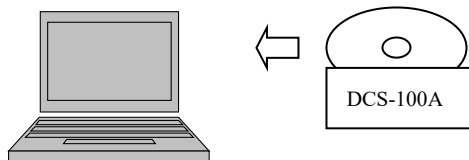
The CF card will pop up a little.
Grasp and pull the CF card with fingers.

4-3 ONLINE MEASUREMENT PROCEDURE

- (1) Install the control software.
(Prior to the first use only)

Install the control software DCS-100A to the PC.

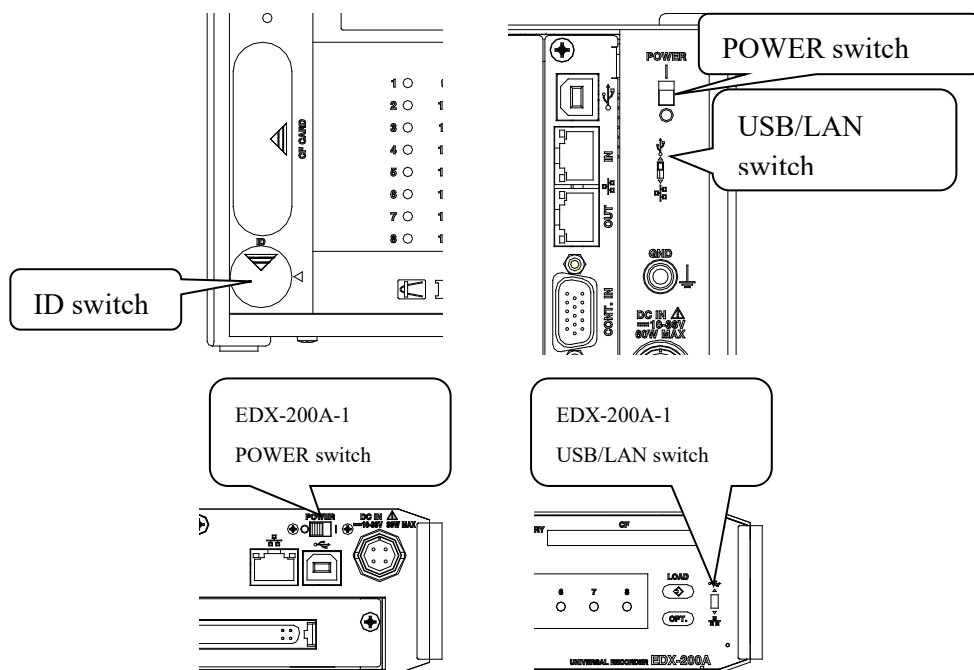
For details, see "DCS-100A INSTRUCTION MANUAL For set-up".



- (2) Setup
- Connect the power supply
 - Connect sensors
 - Set the defaults for the interface
 - Connect the interface

Setup the EDX-200A. For details, see "3. INSTALLING THE EDX-200A". Especially when setting defaults for the interface, read "3-4 LAN INTERFACE DEFAULT SETTINGS" and "3-5 USB INTERFACE DEFAULT SETTINGS" thoroughly and carefully set required conditions. Next, connect the PC and EDX-200A by referring to "3-6 CONNECTING INTERFACE".

Be sure to set the ID switch and USB/LAN switch located on the rear panel of the EDX-200A according to the conditions in use.



NOTE

- The EDX-200A-1 does not have the ID switch.
- The power must be turned OFF when changing the USB/LAN switch from LAN to USB or vice versa. Changing the USB/LAN switch or ID switch while the power is ON will not change the interface for the EDX-200A. To enable the interface that has been selected with the USB/LAN switch and ID switch, turn OFF the power, wait at least 5 seconds and then, turn ON the power once again.

(3)

Turn ON the EDX-200A and the PC.

Turn ON the EDX-200A and the PC.

If the power switch is turned ON, all LEDs on the front panel other than the POWER LED light up in due order from green → red → orange.

Then, insert the CF card into the EDX-200A.

MEMO

When conducting the online measurement, you can choose a location where data files should be saved from the "EDX-200A CF card", "PC data file folder", and "Both the EDX-200A CF card and PC data file folder".

When you choose the "PC data file folder", you can conduct the online measurement without inserting the CF card.

However, the BUSY LED lights up in red. The CF card is involved in the EDX-200A package. If possible, insert the CF card.

NOTE

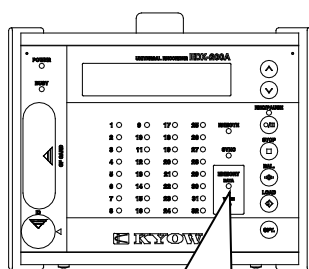
In the following three cases, measurement data can't save in "PC data file folder".

- (1) When recording the CAN data by using the ECAN-40A/EGPC-40A.
 - (2) When using the time synchronization function by using the ETIM-40A/EGPC-40A.
 - (3) When recording the GPS data by using the ETIM-40A/EGPC-40A.
- These case, the data can be saved only in the "EDX-200A CF card".

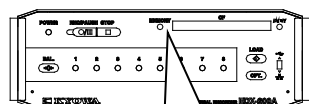
NOTE

Open the lid on the front panel, and securely insert the CF card with the card ejector (button) pressed in (see "4-2 MOUNT/UNMOUNT CF CARD"). When the CF card is properly inserted, the MEMORY DATA LED lights up and a buzzer sound "bip" is issued.

For details, see the Table 2-4 and 2-6 in "CONTROLS AND INDICATORS."



MEMORY DATA
LED



MEMORY DATA LED

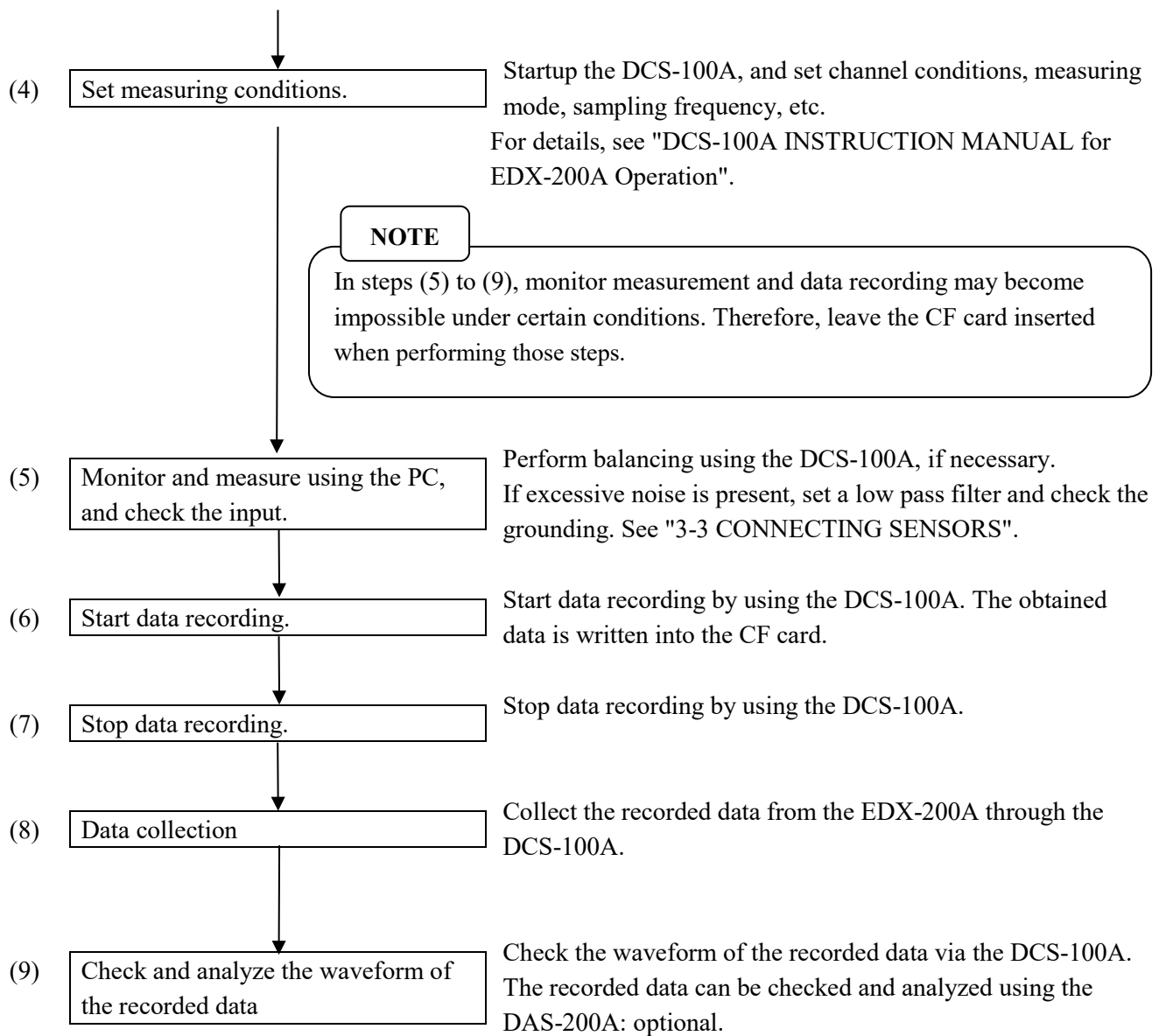


Bad example: The card
ejector is protruding.

Card ejector



Press in the card ejector
before inserting the CF card.

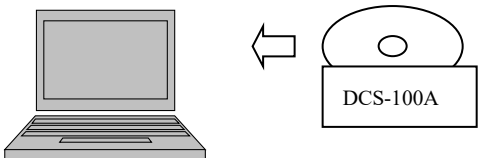


4-4 OFFLINE MEASUREMENT PROCEDURE

- (1)

Install the control software.
(Prior to the first use only)

Install the control software DCS-100A to the PC.
For details, see “DCS-100A INSTRUCTION MANUAL For set-up.”


- (2)

Setup

 - Connect the power supply
 - Connect sensors
 - Set the defaults for the interface
 - Connect the interface

Setup the EDX-200A. For details, see "3. INSTALLING THE EDX-200A". Especially when setting defaults for the interface, read "3-4 LAN INTERFACE DEFAULT SETTINGS" and "3-5 USB INTERFACE DEFAULT SETTINGS" thoroughly and carefully set required conditions.

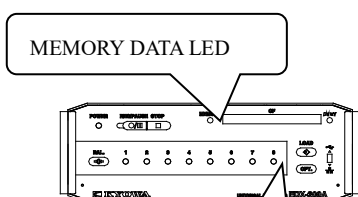
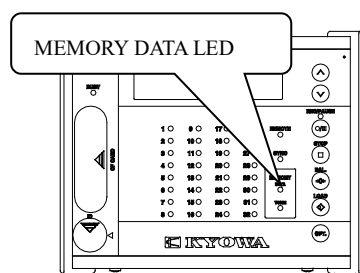
Next, connect the PC and EDX-200A by referring to "3-6 CONNECTING INTERFACE".
- (3)

Create an EDX-200A measuring condition file by using the DCS-100A.

Startup the DCS-100A, create a measuring condition file on the PC and save it on the CF card.
- (4)

Set measuring conditions.
(The determined measuring conditions remain in memory even after the power is turned OFF.)

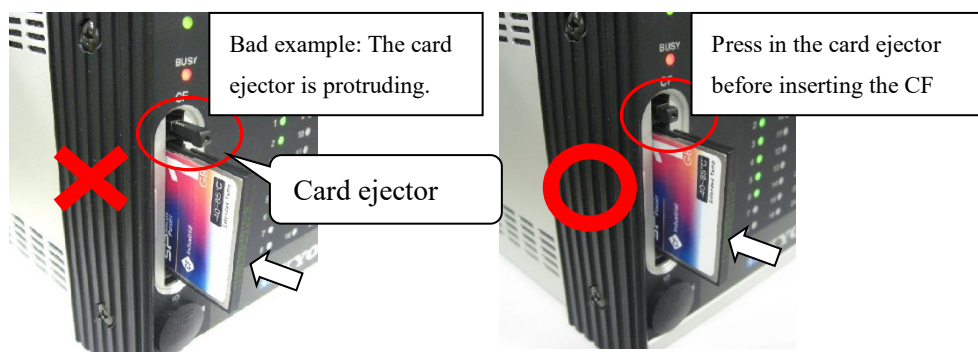
Turn ON the EDX-200A, insert the CF card with measuring condition file to the EDX-200A, and press the LOAD switch to set the measuring conditions. Next, insert a CF card for saving data.



Insert the CF card and press the LOAD switch. The buzzer sound "bip" is issued, and the setting of measuring conditions will be completed within 1 second.

NOTE

Open the lid on the front panel, and securely insert the CF card with the card ejector (button) pressed in (see "4-2 MOUNT/UNMOUNT CF CARD"). When the CF card is properly inserted, the MEMORY DATA LED lights up and a buzzer sound "bip" is issued. For details, see the Table 2-4 in "2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL" and see the Table 2-6 in "2-2 EDX-200A-1 FRONT PANEL".



NOTE

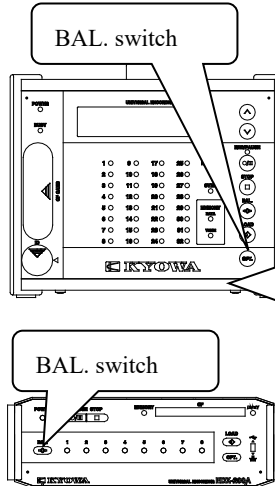
If the BUSY LED lights up red after the LOAD switch is pressed, it means the subsequent measurement tasks cannot be performed because there is no measuring condition file in the CF card or an error exists in the file content. At this time, create a new condition file with the DCS-100A, save it in the CF card and follow the procedure in step (4) once again.
The name of the measuring condition file is EDX200A.SET (fixed).

(5)

Check input status with the CH LED.

Press the BAL. switch for more than 1 second to perform balancing, if necessary.

Check the input status with the CH LED. For details, see the appropriate table in "2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL" and "2-2 EDX-200A-1 FRONT PANEL". For details of inputs, see "3-3 CONNECTING SENSORS".



In case when a sensor is connected for the first time or when the CH LED lights up red, press the BAL. switch for more than 1 second to perform balancing. During balancing, the CH LED lights up orange. If the CH LED lights up orange and starts flashing orange, it means balancing is not successful. At this time, connect the PC and check the cause of the problem.

(6)

Start data recording.

Press the REC/PAUSE switch to start data recording.

The red REC/PAUSE LED lights up while data recording is in progress.

Pressing the REC/PAUSE switch once again causes the REC/PAUSE LED to flash red and to pause the operation (pause data recording). For details, see the appropriate table in "2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL" and "2-2 EDX-200A-1 FRONT PANEL".

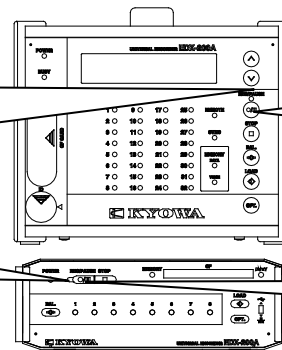
NOTE

Be sure that the CF card is inserted before starting data recording. The obtained data is written into the CF card.

REC/PAUSE LED

Recording data: Lights up in red
Pausing: Flashes red

REC/PAUSE LED



REC/PAUSE switch

REC/PAUSE switch

MEMO

- To record voice memo, use the optional RCU-42A.
- You can disable the pause function of the REC/PAUSE switch by using the DCS-100A. At this time, both pause functions of the EDX-200A and RCU-42A are invalid. For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

(7)

Stop data recording.

Press the STOP switch to stop the data recording.
The REC/PAUSE LED lights out.

REC/PAUSE LED

Data recording stop: OFF

STOP switch

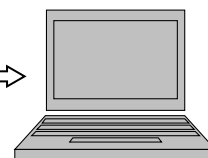
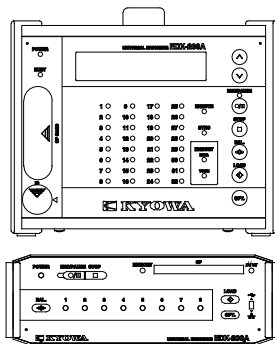
REC/PAUSE LED

STOP switch

(8)

Insert the CF card into the PC's drive.

When data recording is completed, extract the CF card from the EDX-200A and insert the card into the PC's drive. If necessary, copy the recorded data to another drive.



(9)

Check and analyze the waveform of the recorded data

Check the waveform of the recorded data using the DCS-100A.

The recorded data can be checked and analyzed using the DAS-200A: optional.

4-5 SAMPLING MODE

The EDX-200A has 2 sampling modes.

4-5-1 Normal-sampling Mode

The normal-sampling mode enables recording all channels' data at the same sampling clock.

4-5-2 Dual-sampling Mode

The dual-sampling mode enables high-speed sampling and low-speed sampling to every CH for recording.

High-speed sampling frequencies (Sf) are as follows.

1/2/5 system: 1 Hz to 100 kHz, 2ⁿ system: 2Hz to 65536 Hz

Low-speed sampling frequencies (Ss) are as follows.

1/2/5 system: Divide the 1/2/5 system of the high-speed sampling, where $S_s \leq S_f/4$

2ⁿ system: Divide the 2ⁿ system of the high-speed sampling, where $S_s \leq S_f/4$

Table 4-1: Available sampling frequencies in the dual-sampling mode

High-speed Sampling [Hz]	Low-speed Sampling [Hz]
100 k	20k, 10k, 5k, 2k, 1k, 500, 200, 100, 50, 20, 10, 5, 2, 1
50 k	10k, 5k, 2k, 1k, 500, 200, 100, 50, 20, 10, 5, 2, 1
20 k	5k, 2k, 1k, 500, 200, 100, 50, 20, 10, 5, 2, 1
10 k	2k, 1k, 500, 200, 100, 50, 20, 10, 5, 2, 1
5 k	1k, 500, 200, 100, 50, 20, 10, 5, 2, 1
2 k	500, 200, 100, 50, 20, 10, 5, 2, 1
1 k	200, 100, 50, 20, 10, 5, 2, 1
500	100, 50, 20, 10, 5, 2, 1
200	50, 20, 10, 5, 2, 1
100	20, 10, 5, 2, 1
50	10, 5, 2, 1
20	5, 2, 1
10	2, 1
5	1
2, 1	Not available.
65536	16384, 8192, 4096, 2048, 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2
32768	8192, 4096, 2048, 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2
16384	4096, 2048, 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2
8192	2048, 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2
4096	1024, 512, 256, 128, 64, 32, 16, 8, 4, 2
2048	512, 256, 128, 64, 32, 16, 8, 4, 2
1024	256, 128, 64, 32, 16, 8, 4, 2
512	128, 64, 32, 16, 8, 4, 2
256	64, 32, 16, 8, 4, 2
128	32, 16, 8, 4, 2
64	16, 8, 4, 2
32	8, 4, 2
16	4, 2
8	2
4, 2	Not available.

MEMO

- When measuring data in the dual-sampling mode, set the following items on the **Set Environment** window of the DCS-100A.

Data Save Folder: EDX-200A CF Card

AD data format: 24 Bit

For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

Available measurements in the dual-sampling mode are described as follows.

Table 4-2: Available measurements in the dual-sampling mode

High-speed sampling channel	Low-speed sampling channel
Manual measurement	Manual measurement
Trigger measurement	Manual measurement
	Interval measurement
Interval measurement	Interval measurement

MEMO

- Suppose the Measuring mode of the high-speed sampling channels is the Trigger.
When the pre-set number of trigger recording is completed, the EDX-200A stops recording data of the low-speed sampling channels.
Therefore, if you want to keep measuring data of the low-speed sampling channels until the DCS-100A is stopped manually (by pressing the STOP switch on the EDX-200A or by pressing the STOP switch on the DCS-100A), set the number of repeat times of the high-speed sampling channels "0 (65,535 times)".

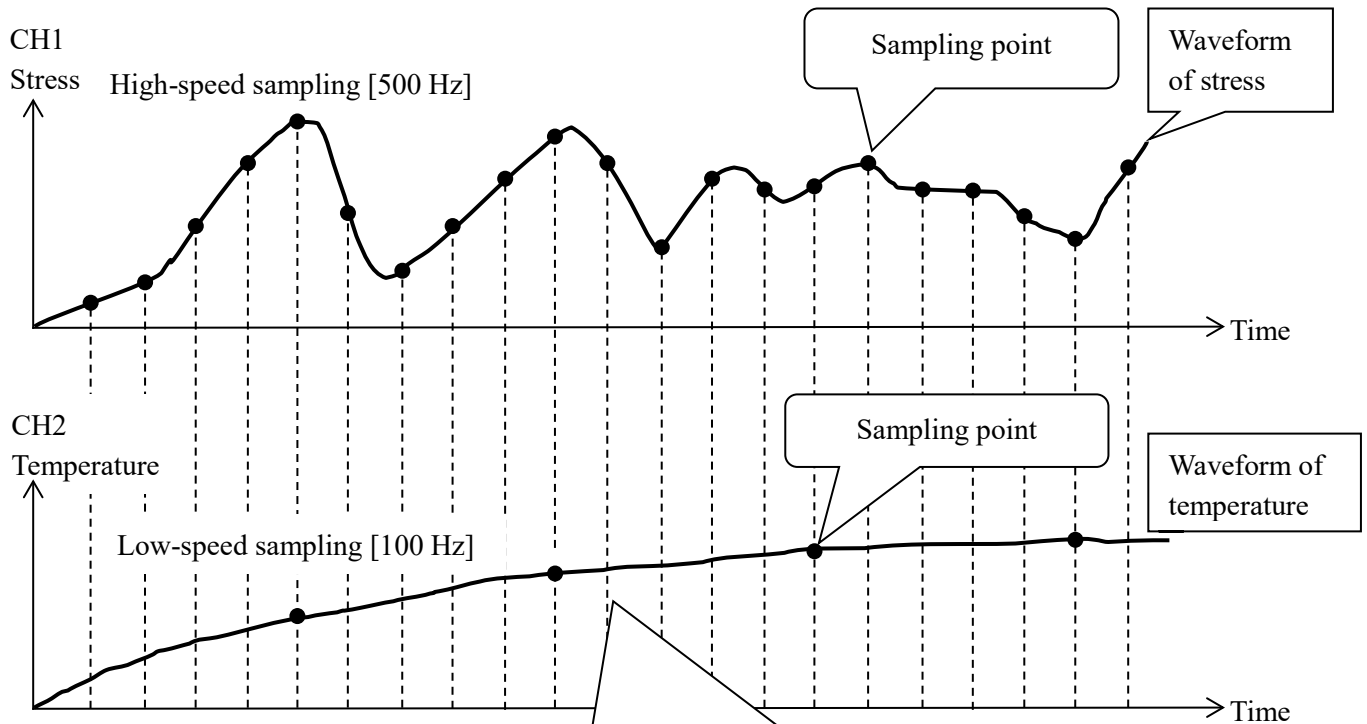
NOTE

When recording data in the dual-sampling mode, you cannot pause recording.

- Example of dual-sampling mode (part 1)

When measuring stress (strain) and temperature at the same time, you want to measure the stress having high-response speed at high-speed sampling and want to measure the temperature having low-response speed at low-speed sampling.

Input the stress to the CH1 at the high-speed sampling of 500 Hz and input the temperature to the CH2 at the low-speed sampling of 100 Hz for recordings. Sampling points are described as follows.



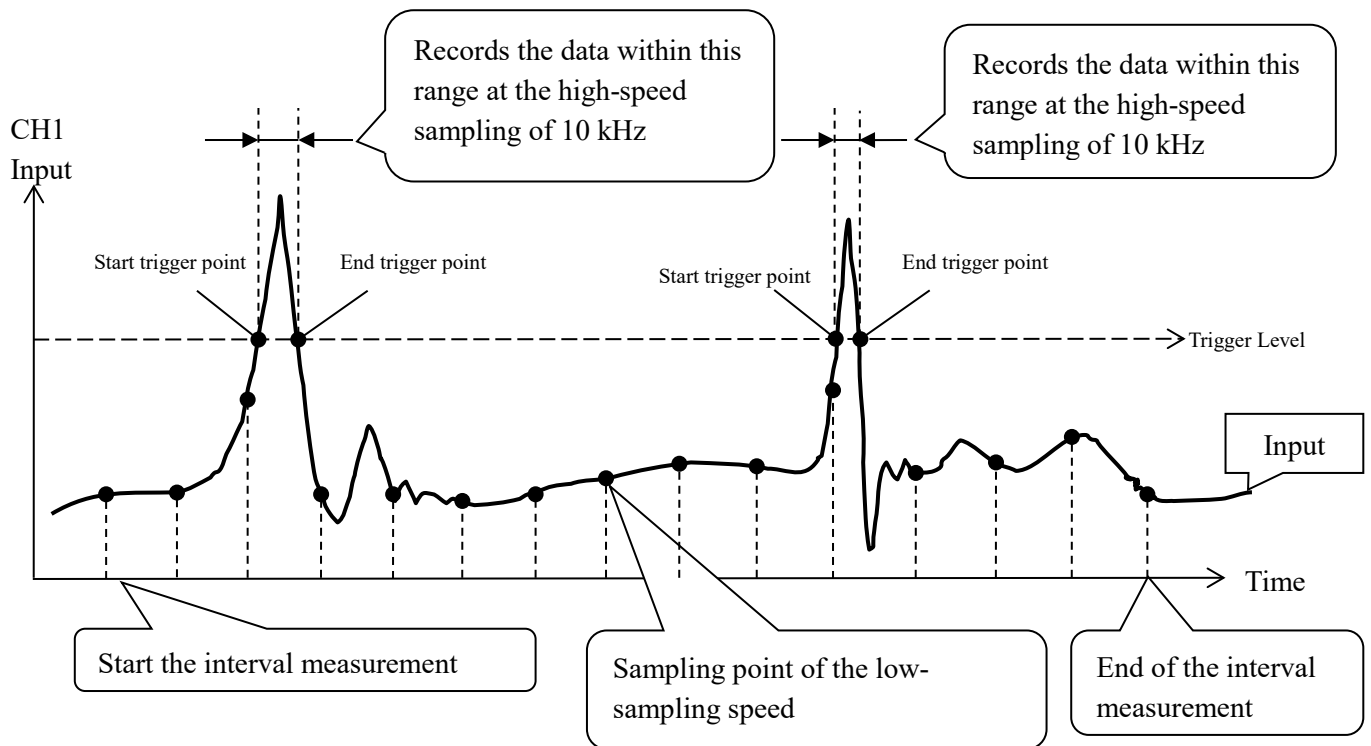
[Advantages]

The dual-sampling mode can measure data having low-response speed at the low-speed sampling, while the normal-sampling mode measures multiple data at the same sampling frequency. Therefore the data size of the dual-sampling mode is smaller than that of the normal-sampling mode. You can save capacity of data and you can organize/analyze data more easily after measurements.

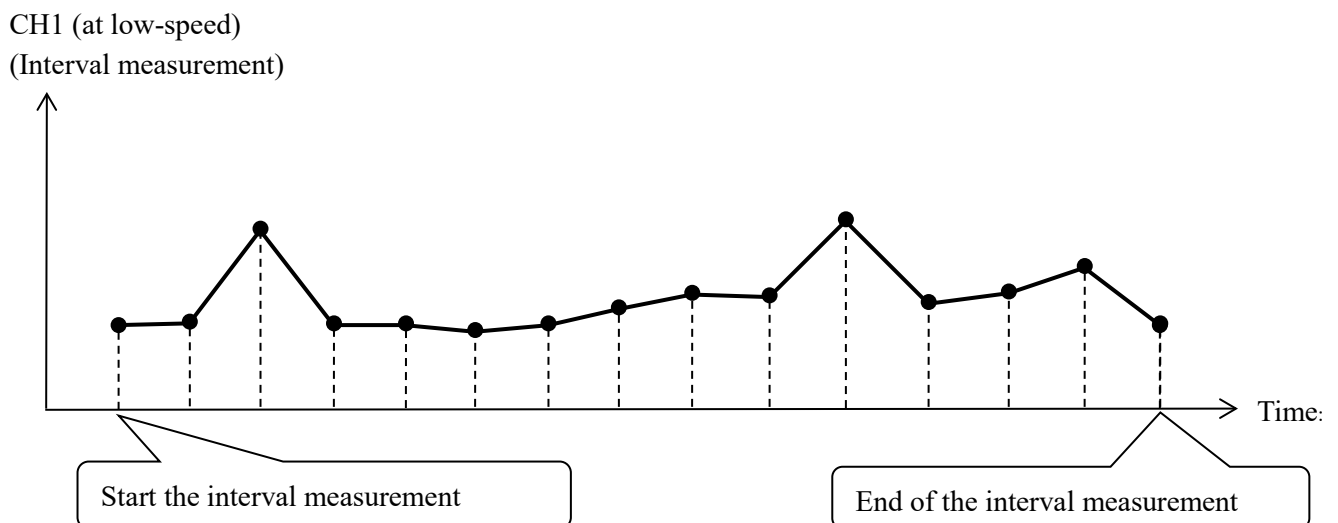
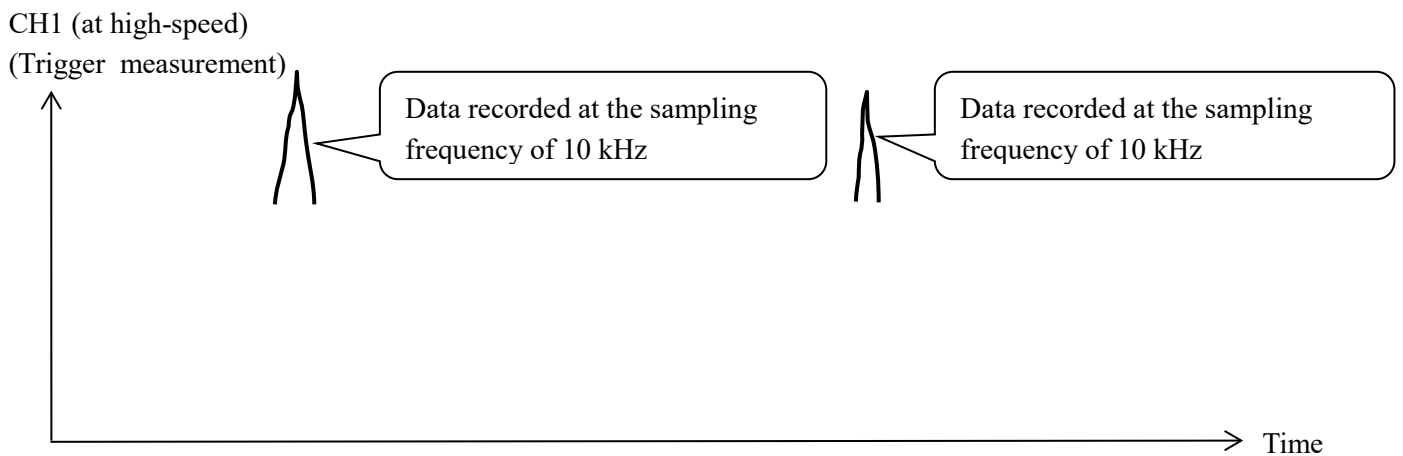
- Example of dual-sampling mode (part 2)

While recording data at the low-speed sampling of 10 Hz, you want to measure data in details at the high-speed sampling of 10 kHz when an abrupt change occurs.

- (1) Input the data to the CH1. Set the sampling mode "High-speed and low-speed." Set "10 kHz" for the high-speed sampling and "10 Hz" for the low-speed sampling.
- (2) Set the trigger measurement (analog trigger) to the high-speed sampling side and set the interval measurement to the low-speed sampling side for recordings.



(3) Reproduced waveforms recorded in the item (2) are described as follows.



4-5-3 The Number of Measuring Channels

The EDX-200A has the following relations between the sampling frequency and the number of measuring channels.

During the normal-sampling mode

$$320,000 \geq \text{Sampling frequency [Hz]} \times \text{The number of measuring channels}$$

During the dual-sampling mode

$$320,000 \geq \text{High-speed sampling frequency [Hz]} \times \text{The number of measuring channels}$$

<Example 1> Obtain the number of measuring channels at the sampling frequency of 50 kHz.

$$320,000 \div 50,000 \text{ [Hz]} = 6.4 \text{ [CH]}$$

The EDX-200A can measure data of 6 channels.

<Example 2> Obtain the sampling frequency when the number of measuring channels is 7.

$$320,000 \div 7 \text{ [CH]} = 45714.2 \text{ [Hz]}$$

In the 1/2/5 system, the sampling frequency is up to 20 kHz.

In the 2ⁿ system, the sampling frequency is up to 32768 Hz.

MEMO

- When the dual-sampling mode is selected, you can select "High-speed", "Low-speed", and "High-speed and low-speed" on the **Set CH Condition** window of the DCS-100A. If you select the "High-speed and low-speed," the channel is counted as 2 channels. Example: When selecting "High-speed" for the 1st channel, "High-speed and low-speed" for the 2nd channel, "Low-speed" for the 3rd channel, and "High-speed and low-speed" for the 4th channel, the number of measuring channels is 6.
- When measuring CAN data by using a CAN card (CAN-40A/41A), the maximum sampling frequency is 2 kHz in the 1/2/5 system, while 2048 kHz in the 2ⁿ system.

4-6 DIGITAL FILTER

The EDX-200A has digital filters.

Butterworth filter (IIR)

Filter type:	Low-pass filter, high-pass filter
Order of filter:	1 to 8
Amplitude Ratio at the cutoff point:	-3dB
Attenuation characteristic:	-6×N dB/oct. (N: Order of filter)

MEMO

- The digital filter can be used with the built-in low pass filter of conditioner cards.
- The digital filter is not applied to the CAN data.
- The low-pass filter and high-pass filter can be used at the same time.
The cutoff frequency can be set by each channel.
- The order of low-pass filter and order of high-pass filter can be set individually.
The order of every filter is common to all channels in the filter.
- When measuring data under the digital filter function, you need to set the "AD data format" to "24 Bit" on the **Set Environment** window of the DCS-100A. For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

The available cutoff frequency (f_c), 1 [Hz] step, is based on the sampling frequency (f_s).

$$f_s/1000 \leq f_c \leq f_s/2.5$$

When using the low-pass filter and high-pass filter in combination, the cutoff frequency of the low-pass filter f_c (LPF) and cutoff frequency of the high-pass filter f_c (HPF) are limited as follows.

$$f_c (\text{HPF}) < f_c (\text{LPF})$$

With DCS-100A Ver. 01.20 and later versions, you can set the digital filter with the external clock.

[Example]

Suppose the external clock is 1073 [Hz]. The available cutoff frequency (f_c) is as follows.

$$2 \leq f_c \leq 429$$

Lower limit of the cutoff frequency: $f_s/1000 = 1073/1000 = 1.073$	2 [Hz]
Upper limit of the cutoff frequency: $f_s/2.5 = 1073/2.5 = 429.2$	429 [Hz]

Table 4-3: Cutoff frequency (fc) and sampling frequency (fs)

Sampling Frequency (Hz)	Available cutoff frequency [Hz]
100k	100 to 40 k
50 k	50 to 20 k
20 k	20 to 8 k
10 k	10 to 4 k
5 k	5 to 2 k
2 k	2 to 800
1 k	1 to 400
500	1 to 200
200	1 to 80
100	1 to 40
50	1 to 20
20	1 to 8
10	1 to 4
5	1,2
1,2	Not available.
65536	66 to 26214
32768	33 to 13107
16384	17 to 6553
8192	9 to 3276
4096	5 to 1638
2048	3 to 819
1024	2 to 409
512	1 to 204
256	1 to 102
128	1 to 51
64	1 to 25
32	1 to 12
16	1 to 6
8	1 to 3
4	1
2	Not available.

4-7 NOISE-REDUCTION FUNCTION

The EDX-200A has the noise-reduced function to measure low-noise and high-stability data.

The signal of every measurement ON channel is oversampled 10 times or higher pre-set sampling frequency for the signal averaging.

1/2/5 system

Available sampling frequencies: Maximum 10 kHz
Oversampling: 10 times

2ⁿ system

Available sampling frequencies: Maximum 4096 Hz
Oversampling: 16 times

Table4-4: Sampling frequency and the number of measuring channels under the noise-reduction function

Available sampling frequencies [Hz]	The number of measuring channels		
	EDX-200A-4H EDX-200A-4T	EDX-200A-2H	EDX-200A-1
10 k	3	3	3
5 k	6	6	6
2 k	16	16	8
1 k	32	16	8
500	32	16	8
200	32	16	8
100	32	16	8
50	32	16	8
20	32	16	8
10	32	16	8
5	32	16	8
2	32	16	8
1	32	16	8
4096	4	4	4
2048	9	9	8
1024	19	16	8
512	32	16	8
256	32	16	8
128	32	16	8
64	32	16	8
32	32	16	8
16	32	16	8
8	32	16	8
4	32	16	8
2	32	16	8

MEMO

- When measuring data under the noise-reduction function, you need to set the "AD data format" to "24 Bit" on the Set Environment window of the DCS-100A. For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

NOTE

- When measuring data under the noise-reduction function, you can select the manual measurement and interval measurement. The trigger measurement is not available.
- When recording data under the noise-reduction function, you cannot pause recording.

4-8 RECORDING VOICE MEMO

(1) Voice memo

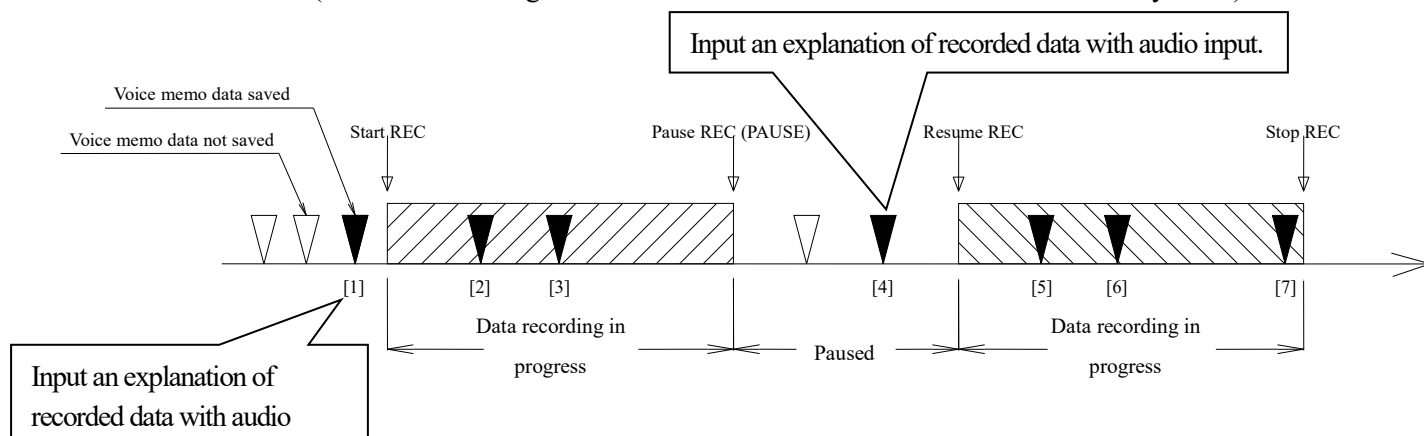
Voice memo can be recorded by using the optional RCU-42A.

Voice memo can be recorded while recording data (REC), can be recorded before starting data recording, or while pausing recording.

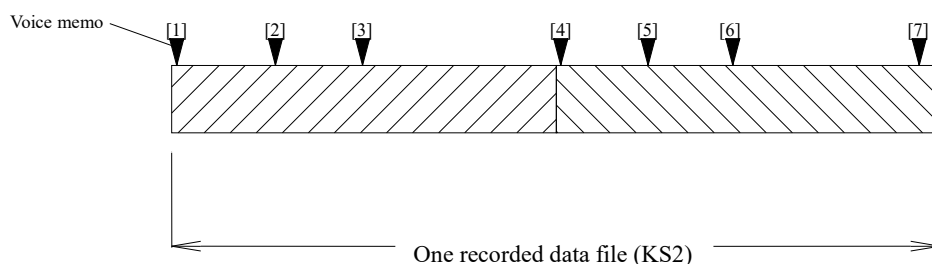
- During data recording Voice memo is recorded while the VOICE MEMO switch is being pressed.
- Before starting data recording Voice memo is recorded while the VOICE MEMO switch is being pressed, but only the voice data recorded immediately before starting data recording is saved in the data file.

Triangular marks ▽ and ▼ in the figure below indicate a point when voice memos are recorded. As shown in the figure, voice memos recorded during data recording are saved into a data file (marked with ▼), but among voice memos recorded when data recording is not in progress, only those immediately before a data recording are saved into the data file. (Voice memos marked with ▽ are not saved in the data file.)

This function makes it possible to store the voice memo recorded immediately before data recording. At items [1] and [4] in the following figure, an "explanation" (e.g. purpose, conditions, etc.) of the data to be recorded can be saved as voice memo (instead of entering detailed memo of the recorded data file from the keyboard).



If data and voice memos are recorded as shown above, the data file (KS2 file) will be as shown below:



Voice memos can be recorded up to either of the following capacity and continues recording until either item (1) or (2) is satisfied.

- (1) Total recording time of 1,048 seconds (approx. 17 minutes)
- (2) Total recording times of 255 times

NOTE

- Data recording (REC) does not start by pressing the VOICE MEMO switch.
- The EDX-200A cannot playback the recorded voice memo solely by itself.
Use the DAS-200A (optional).
- If the EDX-200A is controlled by DCS-100A, please press the VOICE MEMO switch while monitoring, to record the voice memo.

(2) Requirements

The requirements of the voice memo are as follows.

○Normal-sampling Mode

Measuring mode	The use of voice memo
Manual	✓
Manual (Set the number of recorded data)	✓ (When the number of repeat times is 1.)
Interval	
Analog Trigger	✓ (When the number of repeat times is 1.)
External trigger	✓ (When the number of repeat times is 1.)
Complex Trigger	✓ (When the number of repeat times is 1.)

✓ : Available

○Dual-sampling Mode

High-speed sampling	Low-speed sampling	The use of voice memo
Manual	Manual	✓
Manual (Set the number of recorded data)	Manual (Set the number of recorded data)	✓ (When the number of repeat times of the high-speed sampling is 1.)
Interval	Interval	
Analog Trigger	Manual	✓
	Manual (Set the number of recorded data)	
	Interval	
External trigger	Manual	✓
	Manual (Set the number of recorded data)	
	Interval	
Complex Trigger	Manual	✓
	Manual (Set the number of recorded data)	
	Interval	

✓ : Available (Make sure the low-speed sampling channel has at least 1 channel.)

MEMO

When measuring data in the dual-sampling mode, voice data is saved in the low-speed sampling data files. You cannot record voice data when there is no low-speed channel.

Make sure the low-speed sampling channel has at least 1 channel.

4-9 PROTECTIVE FUNCTION AGAINST UNEXPECTED POWER FAILURE

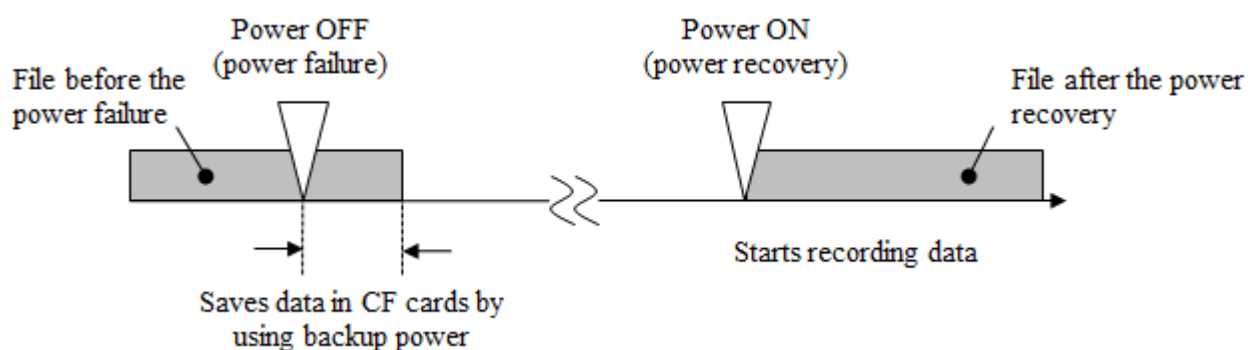
While recording data, an unexpected power failure may occur by a momentary-power loss of an apparatus or by turning off the power mistakenly. The EDX-200A has a protective function against the above unexpected power failures for saving the recording data in progress and CF card.

NOTE

- The EDX-200A has functions for protecting data and CF card. However, if momentary power failure occur repeatedly within short periods of time or if you exceed the operating temperature range of the EDX-200A, the data, CF card, and EDX-200A itself may be damaged.
- If power loss occurs when collecting data or deleting data online via the LAN interface or USB interface, the data and CF card itself may be damaged. If power loss is a concern, do not collect data or delete data online. Extract the CF card and collect data or delete data in the PC offline.
- To perform this properly, we recommend you to conduct the preventive maintenance regularly. For details, see "11-1 MAINTENANCE DESCRIPTIONS."

4-9-1 Recorded Data Files and Power Failure during Recording

When a power failure and power recovery occur while recording data, the EDX-200A starts recording data again.



After the power recovery, the EDX-200A will create a new file as follows.

For the name of the recorded data file, see "15-1 NAME OF RECORDED DATA FILE."

● Normal-sampling Mode

(1) Measuring mode: Manual measurement

When a power failure and power recovery occur while recording data or while pausing recording, the EDX-200A increments the file No. and newly starts recording data.

[Example]	File name before the power failure	File name after the power recovery
	[TEST0000.KS2] →	[TEST0001.KS2]

(2) Measuring mode: Manual measurement (Set Record Data)

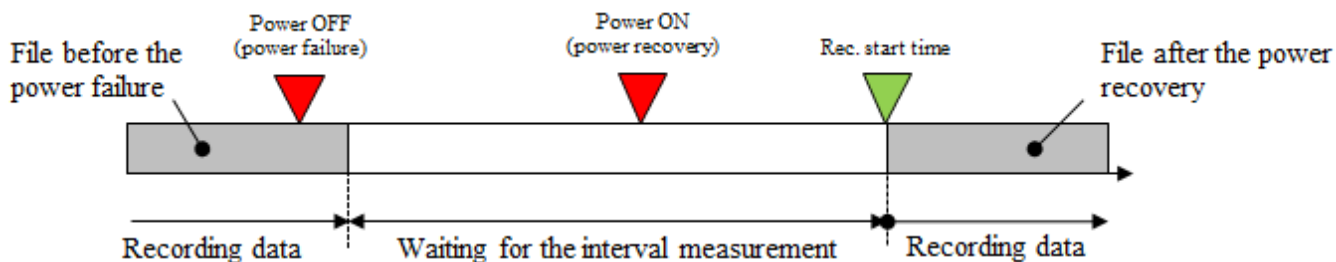
When a power failure and power recovery occur while recording data, the EDX-200A increments the file No. and reworks the recording again from the repeat No. 0.

[Example]	File name before the power failure	File name after the power recovery
	[TEST0000_M0015.KS2] →	[TEST0001_M0000.KS2]

- Normal-sampling Mode (continued from the previous page)

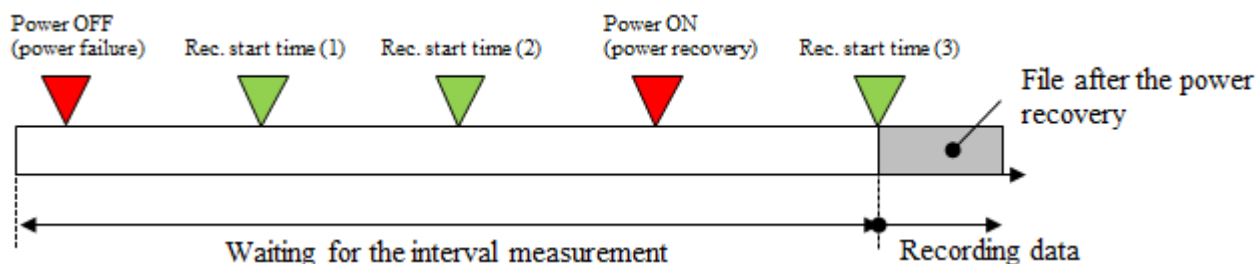
(3) Measuring mode: Interval measurement

When a power failure and power recovery occur while interval measurement, the EDX-200A increments the repeat No. and starts interval measurement again.



[Example] File name before the power failure
[TEST0000_I0005.KS2] → File name after the power recovery
[TEST0000_I0006.KS2]

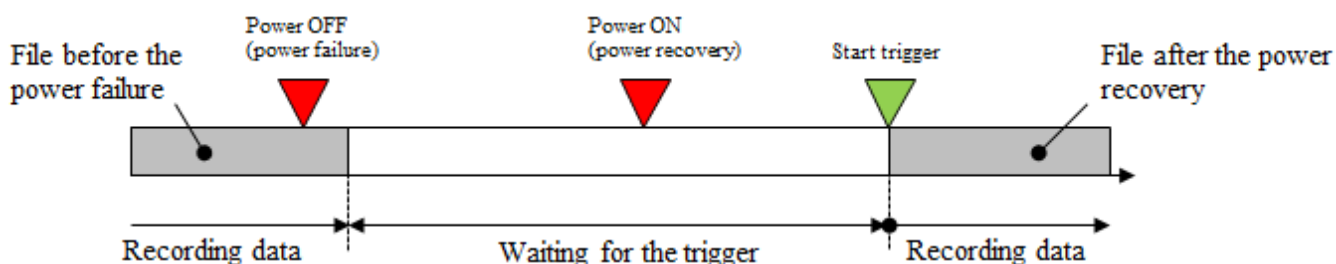
When the interval start time passes during a power failure, the EDX-200A sets the repeat No. applicable to the current time.



[Example] File name before the power failure
[TEST0000_I0003.KS2] → File name after the power recovery
[TEST0000_I0006.KS2]

(4) Measuring mode: Trigger measurement (analog, digital, external, complex)

When a power failure and power recovery occur while trigger measurement, the EDX-200A increments the repeat No. and starts trigger measurement again.



[Example] File name before the power failure
[TEST0000_A0011.KS2] → File name after the power recovery
[TEST0000_A0012.KS2]

- Dual-sampling Mode

(1) High-speed sampling: Manual measurement

Low-speed sampling: Manual measurement

When a power failure and power recovery occur while recording data, the EDX-200A increments the file No. and newly starts recording data.

[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_H.KS2]	→	[TEST0001_H.KS2]
	[TEST0000_L.KS2]	→	[TEST0001_L.KS2]

(2) High-speed sampling: Manual measurement (Set Record Data)

Low-speed sampling: Manual measurement (Set Record Data)

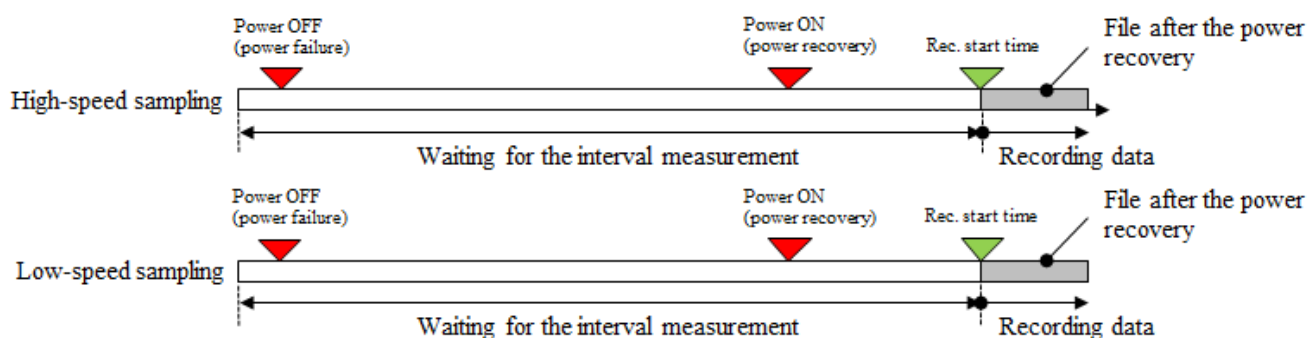
When a power failure and power recovery occur while recording data, the EDX-200A increments the file No. and reworks the recording again from the repeat No. 0.

[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_M0025_H.KS2]	→	[TEST0001_M0000_H.KS2]
	[TEST0000_M0025_L.KS2]	→	[TEST0001_M0000_L.KS2]

(3) High-speed sampling: Interval measurement

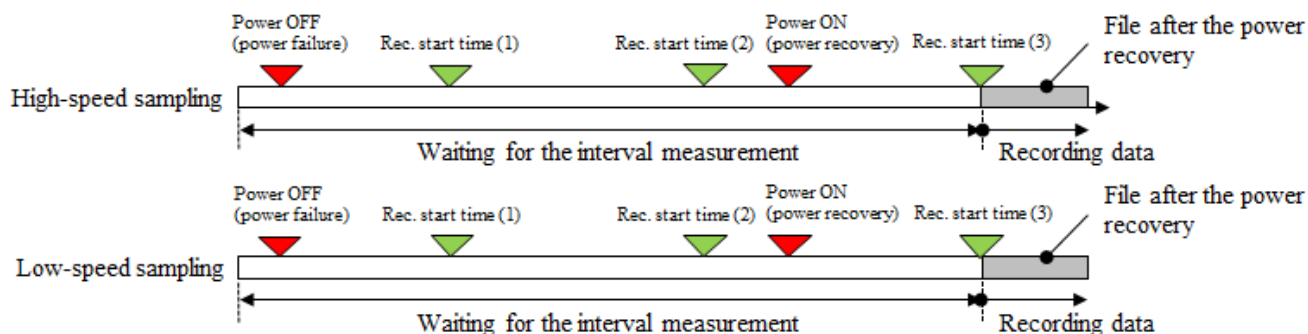
Low-speed sampling: Interval measurement

When a power failure and power recovery occur while interval measurement, the EDX-200A increments the repeat No. and starts interval measurement again.



[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_I0009_H.KS2]	→	[TEST0000_I0010_H.KS2]
	[TEST0000_I0009_L.KS2]	→	[TEST0000_I0010_L.KS2]

When the interval start time passes during a power failure, the EDX-200A sets the repeat No. applicable to the current time.



[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_I0006_H.KS2]	→	[TEST0000_I0009_H.KS2]
	[TEST0000_I0006_L.KS2]	→	[TEST0000_I0009_L.KS2]

- Dual-sampling Mode (continued from the previous page)

(4) High-speed sampling: Trigger measurement (analog, digital, external, complex)

Low-speed sampling: Manual measurement

When a power failure and power recovery occur while recording data, the EDX-200A increments the file No. and reworks the recording again from the repeat No. 0.

[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_A0005_H.KS2]	→	[TEST0001_A0000_H.KS2]
	[TEST0000_L.KS2]	→	[TEST0001_L.KS2]

(5) High-speed sampling: Trigger measurement (analog, digital, external, complex)

Low-speed sampling: Manual measurement (Set Record Data)

When a power failure and power recovery occur while recording data, the EDX-200A increments the file No. and reworks the recording again from the repeat No. 0.

[Example]	File name before the power failure		File name after the power recovery
	[TEST0000_A0014_H.KS2]	→	[TEST0001_A0000_H.KS2]
	[TEST0000_M0052_L.KS2]	→	[TEST0001_M0000_L.KS2]

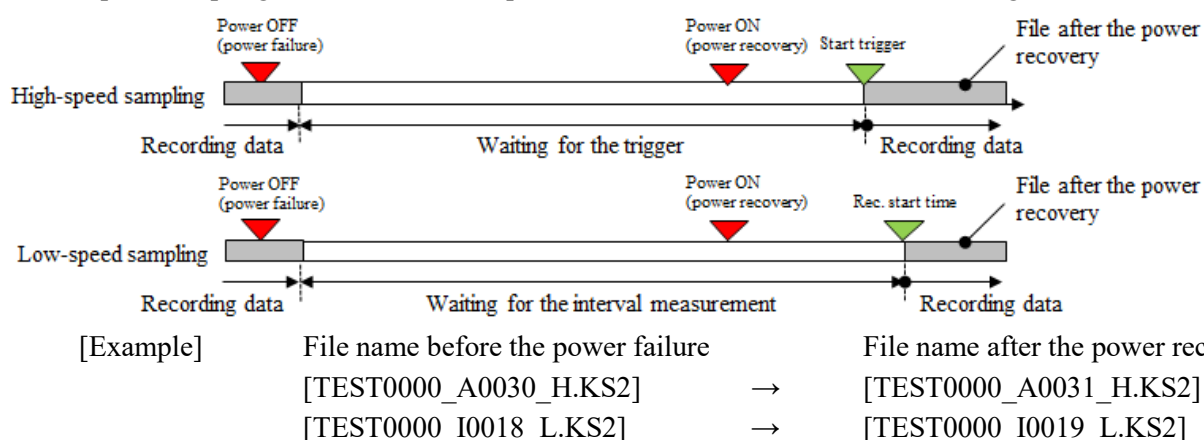
(6) High-speed sampling: Trigger measurement (analog, digital, external, complex)

Low-speed sampling: Interval measurement

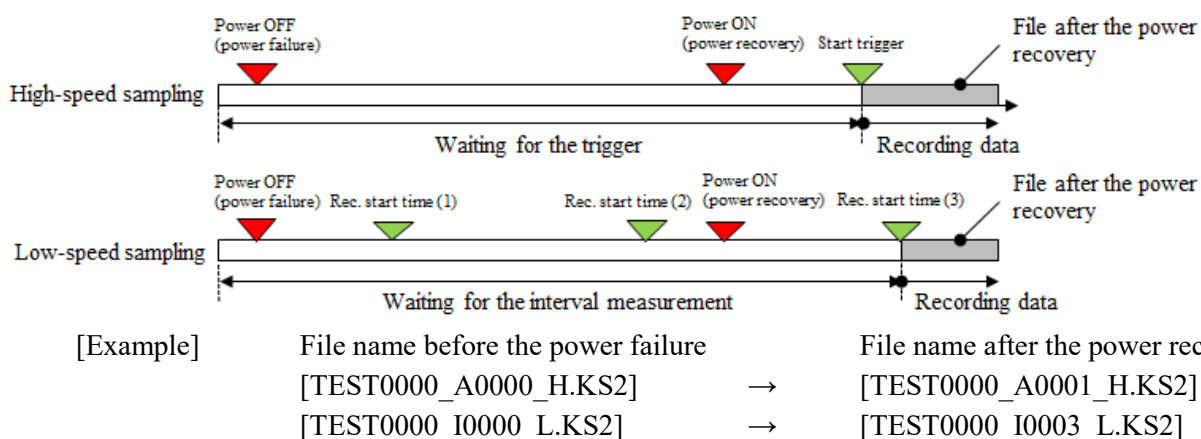
When a power failure and power recovery occur while trigger measurement (high-speed sampling) and interval measurement (low-speed sampling), the EDX-200A operates as follows.

High-speed sampling: Increments the repeat No. and starts trigger measurement again.

Low-speed sampling: Increments the repeat No. and starts interval measurement again.



When the interval start time passes during a power failure, the EDX-200A sets the repeat No. applicable to the current time.



- Recording CAN data by using ECAN-40A/EGPC-40A

When recording CAN data by using ECAN-40A/EGPC-40A, the EDX-200A creates the KS2 file and E4A file (extension: .E4A).

Normal-sampling Mode:	The E4A file is named in the same way as the KS2 file.
Dual-sampling Mode:	The E4A file is named in the same way as the KS2 file of the high-speed sampling.

When a power failure and power recovery occur while recording data, the E4A file is named in the same way as the KS2 file.

- Recording GPS data by using ETIM-40A/EGPC-40A

When recording GPS data by using ETIM-40A/EGPC-40A, the EDX-200A creates the KS2 file and NMEA file (extension: .NMEA).

Normal-sampling Mode:	The E4A file is named in the same way as the KS2 file.
Dual-sampling Mode:	The NMEA file is named in the same way as the KS2 file of the low-speed sampling.

When a power failure and power recovery occur while recording data, the NMEA file is named in the same way as the KS2 file.

NOTE

- (1) When don't receive CAN data while recording data, the E4A files aren't created.
- (2) When don't receive GPS data while recording data, the NMEA files aren't created.
- (3) When a power failure occurs while recording data, the EDX-200A saves only data before the power failure. Note that the EDX-200A does not save voice memo data.

4-10 TURNING ON/OFF THE POWER

The power is turned ON or OFF when this power supply switch is pressed to the "I" position or "O" position, respectively.

When the power is ON, the POWER LED on the front panel lights up green.

If the POWER LED is flashing red, it means that the DC power supply voltage applied to the power supply connector is less than 11 V. When using a 12 VDC battery, the POWER LED indicates that the residual capacity of the battery is small. Replace the battery with a new one or charge the battery.

After the completion of measurement, turn OFF the power switch of the EDX-200A.

NOTE

- (1) Never turn OFF the power while collecting or deleting data via the LAN or USB interface. Doing so may destroy data in the CF card or damage the card itself. When the LAN or USB interface is used for collecting data, you cannot see whether data is being collected simply through a visual check of the main unit. Therefore, before turning OFF the power, use the DCS-100A to check that data is not being collected.
- (2) If the possibility exists that a power failure may occur, be sure to use an uninterruptible power supply unit.
- (3) When using an external battery, use the one with sufficient capacity to cover the length of measuring time. For the current consumption, see "13-1 OVERALL SPECIFICATIONS".
- (4) After turning OFF the EDX-200A, wait at least 5 seconds before turning ON the power once again.
- (5) To ensure accurate measurement, turn ON the power and warm up the unit for about 30 minutes before starting the measurement.
- (6) During the synchronous operation, turn ON/OFF the power as follows.
 - When turning ON the power.
First, turn ON the slave EDX units in the order of large to small ID switch No.
Then, turn ON the master EDX (ID switch: 0).
 - When turning OFF the power.
First, turn OFF the master EDX (ID switch: 0).
Then, turn OFF the slave EDX units in the order of small to large ID switch No.
(For details, see "3-7-4 Synchronous Operation and Turning ON/OFF the Power.)

5. EXTERNAL INPUT AND EXTERNAL OUTPUT

5-1 EXTERNAL TRIGGER INPUT

By entering the external trigger signal to the EDX-200A, the data recording starts.

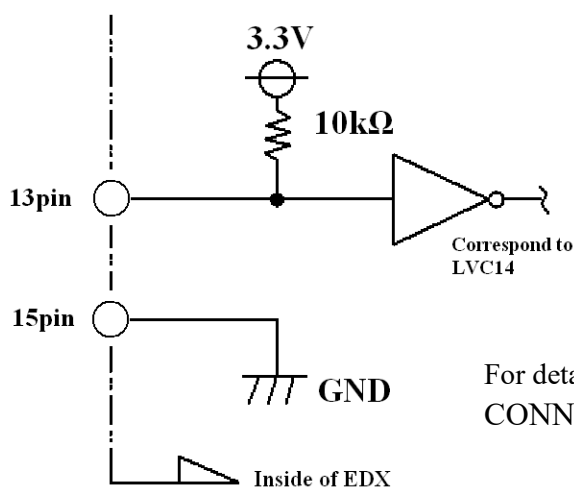
(Available when you choose the location where recorded data files should be saved to the EDX-200A CF card.) Set the external trigger by using the DCS-100A also. For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

(1) External trigger signal pins assignment and connector

External trigger pins are assigned on the connector (CONT. IN) of the EDX-200A rear panel.

Do not use pins other than the pin No. 13 and pin No. 15. The circuit diagram is described as follows.

[CONT. IN] D-sub high-density 15 male pins (EDX-200A side)



For details, see "12-2 CONT. IN CONNECTOR".

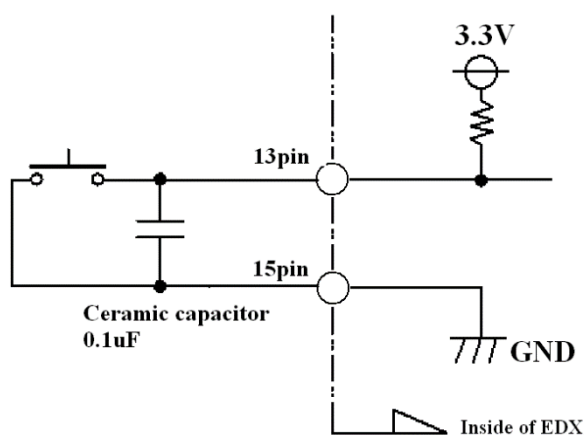
(2) Trigger input signal

Input non-voltage contact signal or open-collector signal.

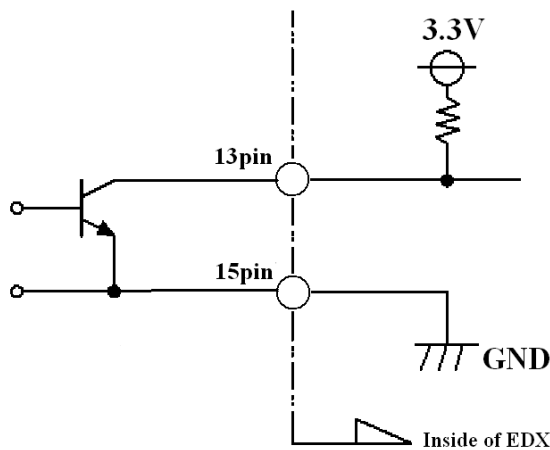
Set the rise and fall of the signal by using the DCS-100A side.

The circuit diagram is described as follows.

Non-voltage Contact Signal



Open-Collector Signal

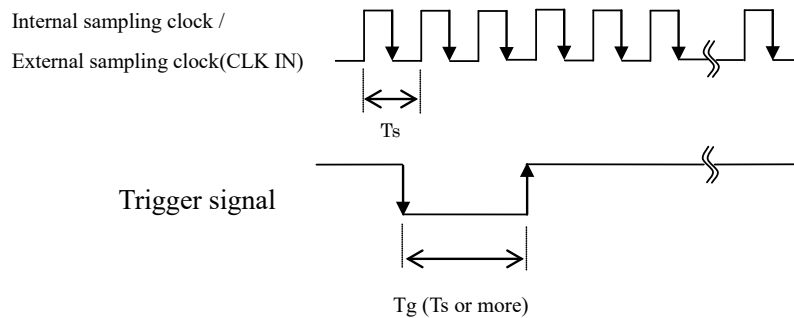


NOTE

- Take care to prevent chattering noise from entering into the trigger input signal.
- Accept trigger signal from open-collector signal to prevent disturbance of external devices from entering into the EDX-200A.

It is recommended to use insulation elements such as photocoupler, etc.

- The trigger signal is operated with time width more than 1 cycle (T_s) of the preset sampling clock.



- Input threshold value of HIGH level: 2.4 to 5.0 V and LOW level: 0 to 0.4V.
The maximum input voltage range is 0 to 5.0 V. If the input voltage exceeds this voltage range, the EDX-200A may become faulty.
- Before conducting the main test, do not forget to conduct pre-test and check whether external trigger function properly operates.
- Do not use other than pin No. 13 and pin No. 15 of the [CONT. IN] connector.
Failure to do so will pose malfunction and failure.
- Do not use the RCU-42A together with the EDX-200A.

5-2 EXTERNAL CLOCK INPUT

5-2-1 External Clock Input

By inputting the pulse signal sent from an external apparatus such as an oscillator, you can use an external clock as the sampling clock of the EDX-200A. You can record data of the EDX-200A and data of other external apparatus, such as data loggers, etc., synchronously by using the external clock signal.

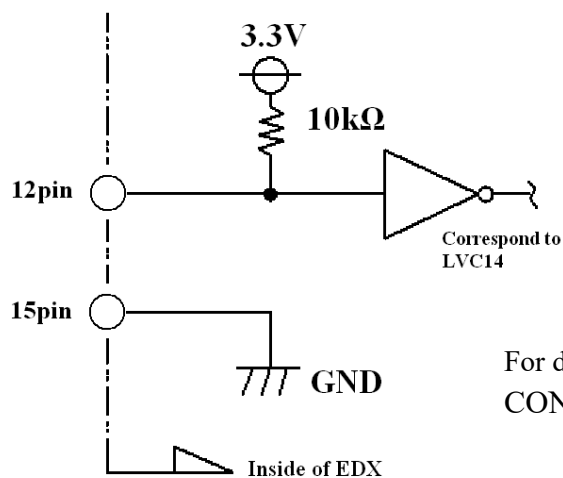
An external clock can be used with the stand-alone measurement, synchronous measurement, online measurement, and offline measurement.

(1) External trigger signal pins assignment and connector

External clock pins are assigned on the connector (CONT. IN) of the EDX-200A rear panel.

Do not use pins other than the pin No. 12 and pin No. 15. The circuit diagram is described as follows.

[CONT. IN] D-sub high-density 15 male pins (EDX-200A side)



For details, see "12-2 CONT. IN CONNECTOR".

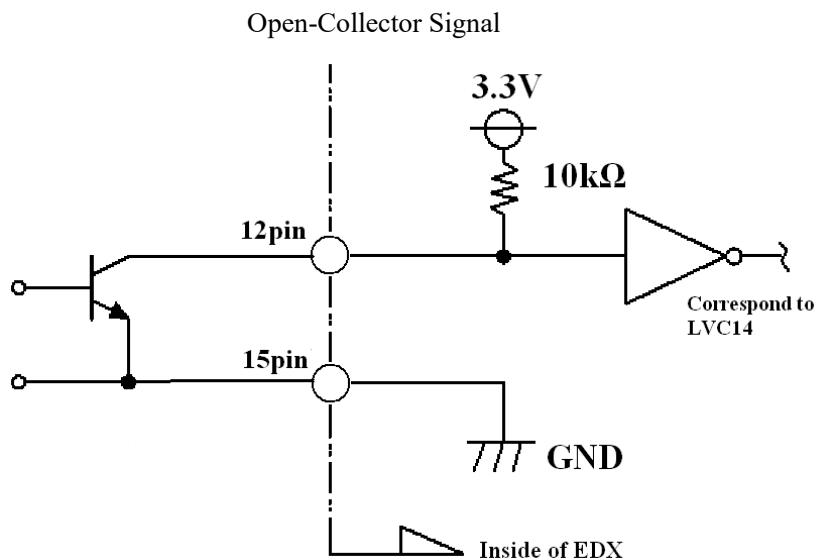
(2) Clock input signal

Suppose the pin No. 15 as the GND (0 V).

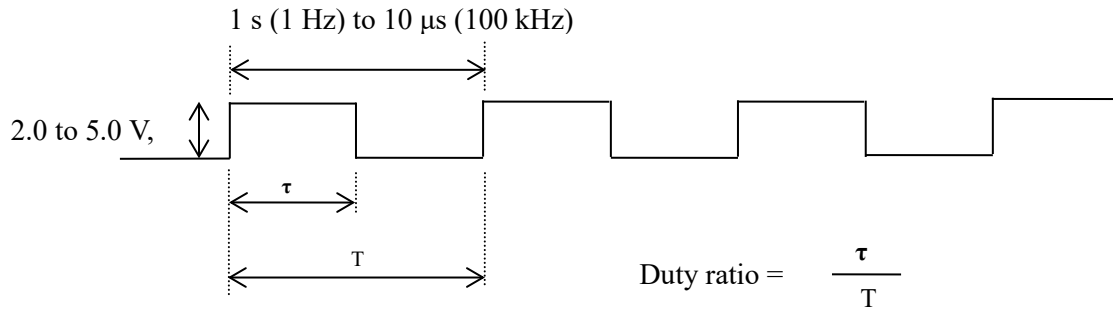
Directly input the TTL level signal (High: 2.0 to 5.0, Low: 0 to 0.8 V).

Or input an open-collector signal.

The circuit diagram is described as follows.



Note that the clock signal to be input is square wave with the specified duty ratio of 0.5 ± 0.1 ($50 \pm 10\%$).



5-2-2 Notes for External Clock Input

(1) The external clock input function is not available under the following situation.

- When the sampling mode is "Dual-sampling mode".
- When the noise-reduction function is valid.

(2) Input a steady external clock signal that will not vary with time.

(3) While the EDX-200A is measuring data, an external clock signal should be sent to the EDX-200A. When the external clock signal is not sent to the EDX-200A, the EDX-200A cannot start measuring data. If the frequency of the external clock signal exceeds $\pm 5\%$ tolerance or if the external signal is stopped during the measurement, the EDX-200A detect the "External clock error" and stops the measurement.

NOTE

- The tolerance of the external clock signal is approximately within $\pm 5\%$ of the pre-set frequency. Within the above range, the EDX-200A considers that the steady frequency is input. When the reference frequency is 8,000 Hz, the external clock signal should be 7,600 to 8,400 Hz. However, to avoid inconvenience, we recommend you transmit the external clock signal having the same frequency as the pre-set reference frequency.
- When the external clock error occurred during measurements, the EDX-200A stops recording. Recorded data, REC/PAUSE information, and voice data from the recording start point to the recognizing error point are saved in the CF card (when you choose the location where recorded data files should be saved to the CF card).

(4) You can set the frequency (range: 1 to 100,000 Hz) of the external clock signal in 1 Hz step.

Based on the number of measuring channels, whether CAN cards (CAN-40A/41A) are used or not, and whether the low pass filter of a conditioner card is set to AUTO or not, the available frequency of the external clock signal changes. The available frequency range is defined in the same manner as the internal clock.

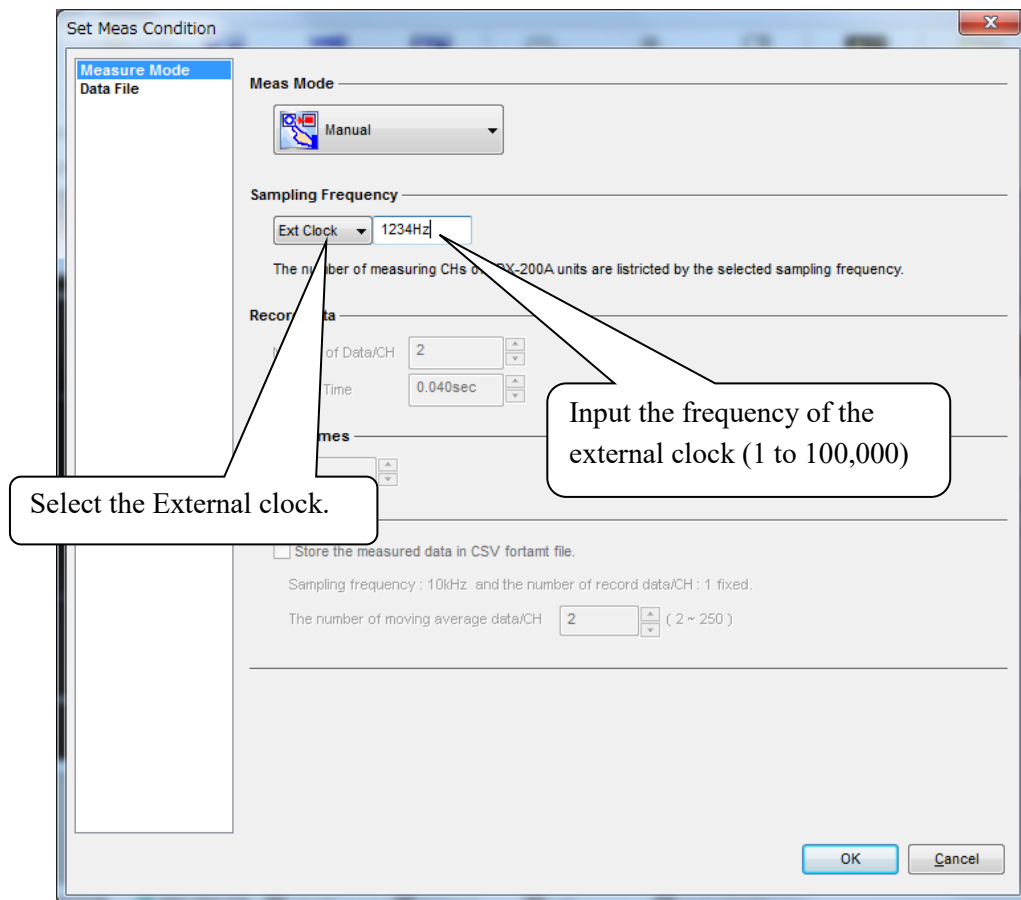
(5) When the measurement starts, the EDX-200A is checking the frequency of the transmitted external clock signal.

It takes approximately 3 cycles of the pre-set clock period. Thus, the EDX-200A starts measurement (starts monitoring data) later than the internal clock signal. Pay attention - especially when transmitting the low external clock signal like 5 Hz or less.

5-2-3 How to Set Measuring Conditions

Set the measuring conditions of the EDX-200A by using the DCS-100A. Procedures are described as follows.

- (1) Point to **Set** and select **Set Meas Mode** menu to open the **Set Meas Mode Condition** window.



- (2) Select the "External clock" from the list box. Input the frequency in the text box next to the list box. You can set the frequency (range: 1 to 100,000 Hz) in 1 Hz step. The external clock of 1234 Hz is set in the above window.

MEMO

- You cannot set the external clock when the dual-sampling mode, or noise-reduction function is valid.

- (3) Click the **OK** button to close the window.

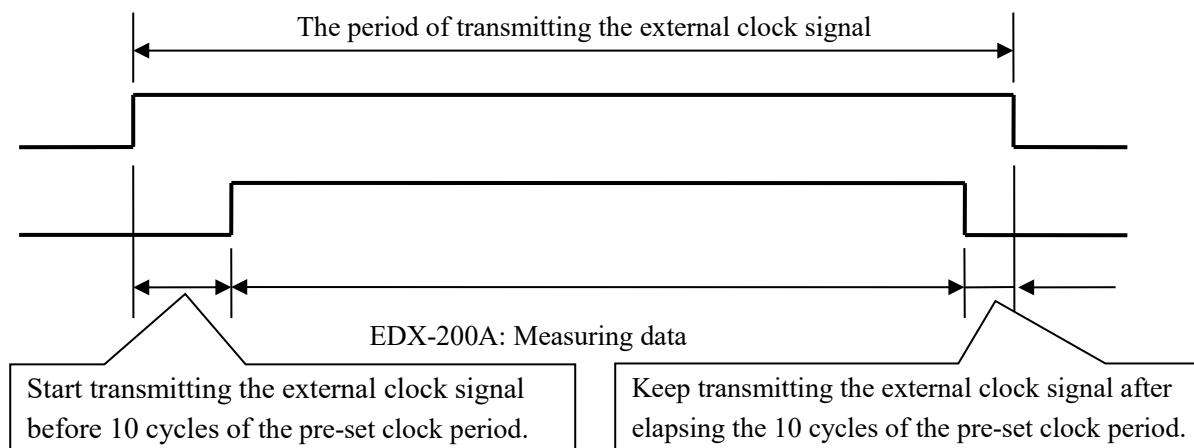
NOTE

- Based on the number of measuring channels, whether CAN cards (CAN-40A/41A) are used or not, and whether the low pass filter of a conditioner card is set to AUTO or not, the available frequency of the external clock signal changes. The available frequency range is defined in the same manner as the internal clock.

5-2-4 Measurement Procedure with External Clock

While the EDX-200A is in the measuring status, the external clock signal should be transmitted (see the following figure).

Conduct measurements in the same manner as you use the internal clock.



External clock signal transmit timing chart

Procedures are described as follows.

(1) Send the external clock signal into the CONT. IN connector of the EDX-200A.

For details, see "5-2-3 How to Set Measuring Conditions".

(2) Start the EDX-200A to measure data. Conduct the required settings.

(3) Stop the EDX-200A to measure data.

(4) When stop transmitting the external clock signal, stop the EDX-200A first.

Wait while (10 cycles of the pre-set clock period) and stop transmitting the external signal.

MEMO

- For the synchronous operation, send the external signal into the CONT IN connector of the master EDX-200A,
(The external clock signal is sent to the slave EDX-200A units through synchronous cables.)
- For details of the CONT IN connector and input signals, see "5-2-1 External Clock Input" and "12-2 CONT. IN CONNECTOR".
- After the measurement is finished, you do not need to stop the external clock signal.
- We recommend you always transmit the external clock signal for measurements while the EDX-200A is ON.

NOTE

- When conducting the trigger measurement or interval measurement, you need to input the external clock signal until all the repetitive measurements are complete. When the external clock error occurred during measurements, the EDX-200A stops recording. Recorded data, REC/PAUSE information, and voice data from the recording start point to the recognizing error point are saved in the CF card (when you choose the location where recorded data files should be saved to the CF card.)

5-2-5 External Clock Error

[For the EDX-200A-4H/EDX-200A-2H /EDX-200A-4T]

If the external clock error occurred, the SYNC LED flashes red on the EDX-200A-4H/EDX-200A-2H/EDX-200A-4T to indicate the error status. When conducting the online measurement by using the DCS-100A at that time, the error message appears on the window.

Table 5-1: The SYNC LED status and external clock error

	No error	External clock error occurred
Stand-alone	OFF	Flashes red
Synchronous master	Lights up in green	Flashes red
Synchronous slave	Lights up in orange	Lights up in orange (conservative)

When the SYNC LED flashes red, take any of the following action.

The external clock error will be cleared.

(However, the external clock error is not cleared when the same error will occur again by starting a measurement.)

- (1) When turning OFF and ON the EDX-200A.
- (2) When start recording data by using the REC/PAUSE switch on the EDX-200A.
- (3) When start monitoring data by using the STOP switch on the master EDX-200A in synchronous operation.
- (4) When loading the measuring conditions in the CF card by using the LOAD switch on the EDX-200A.
- (5) When saving the measuring conditions into the EDX-200A CF card by using the DCS-100A.
- (6) When conducting the internal sensitivity compensation or when conducting the initialization by using the DCS-100A.
- (7) When start monitoring data or when start recording data by using the DCS-100A.

[For the EDX-200A-1]

If the external clock error occurred, the REC/PAUSE LED and BUSY LED flash red on the EDX-200A-1 to indicate the error status. When conducting the online measurement by using the DCS-100A at that time, the error message appears on the window.

When the REC/PAUSE LED and BUSY LED flash red, take any of the following action. The external clock error will be cleared. (However, the external clock error is not cleared when the same error will occur again by starting a measurement.)

- (1) When turning OFF and ON the EDX-200A.
- (2) When start recording data by using the REC/PAUSE switch on the EDX-200A.
- (3) When loading the measuring conditions in the CF card by using the LOAD switch on the EDX-200A.
- (4) When saving the measuring conditions into the EDX-200A CF card by using the DCS-100A.
- (5) When conducting the internal sensitivity compensation or when conducting the initialization by using the DCS-100A.
- (6) When start monitoring data or when start recording data by using the DCS-100A.

5-3 EXTERNAL TRIGGER OUTPUT

5-3-1 About External Trigger Output

With the trigger measurement, the EDX-200A can output the trigger signal to external apparatus.

(Available only when you select the "EDX-200A CF card" as Data Save Folder.) For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation."

NOTE

- Outputting the external trigger signal is not available with the EDX-200A-1.

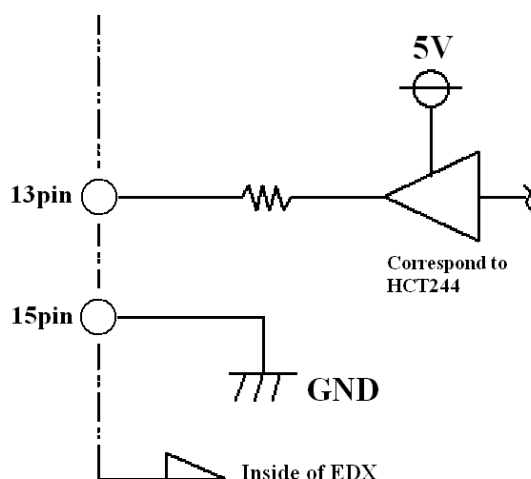
(1) External trigger signal pins assignment and connector

External trigger pins are assigned on the connector (CONT. OUT) of the EDX-200A rear panel.

Do not use pins other than the pin No. 13 and pin No. 15.

The circuit diagram is described as follows.

[CONT. OUT] D-sub high-density 15 female pins (EDX-200A side)

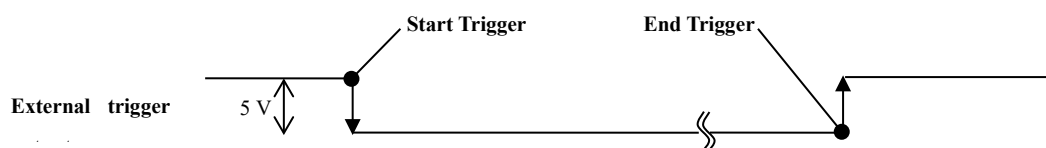


For details, see "12-3 CONT. OUT CONNECTOR".

(2) Trigger output signal

The voltage level of the output signal is 5 V for High and 0 V for Low.

In addition, the start trigger of the trigger output signal indicates negative slope, while the end trigger of the trigger output signal indicates positive slope.



5-3-2 Output Timing of External Trigger Output Signals

The output timing of the TRG OUT signal varies with the following settings.
For the timing diagrams, see examples 1 to 5.

Table 5-2: Output timing of TRG OUT signal

Type of start trigger	Sampling frequency	Output timing of the TRG OUT signal from the trigger point (Note 3)	Reference
Analog trigger (Note 1)	Less than 100 Hz	1 clock of the sampling clock	Example 1
	100Hz or more	4 clocks of the sampling clock	Example 2
Digital trigger (Note 1 and Note 2)	Less than 100 Hz	1 clocks of the sampling clock	Example 3
	100Hz or more	4 clocks of the sampling clock	Example 4
External trigger (TRG IN)	Less than 100 Hz	1 clocks of the sampling clock	Example 5
	100Hz or more		

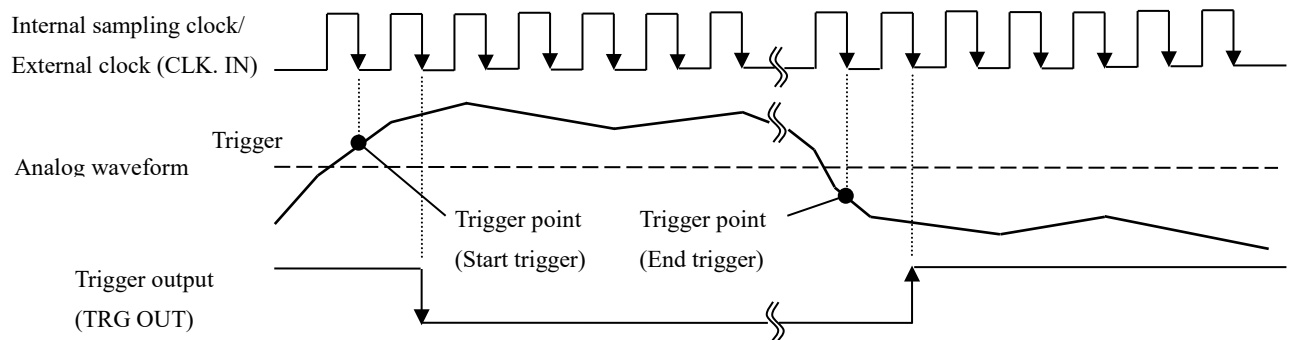
Note 1: Including start trigger of the complex trigger.

Note 2: To use the digital trigger, insert the ECAN-40A, ETIM-40A, or EGPC-40A in an optional slot and make sure the "Mode" of the target bit is "Input".

Note 3: Outputs the TRG OUT signal after satisfying the trigger conditions (after the trigger point).

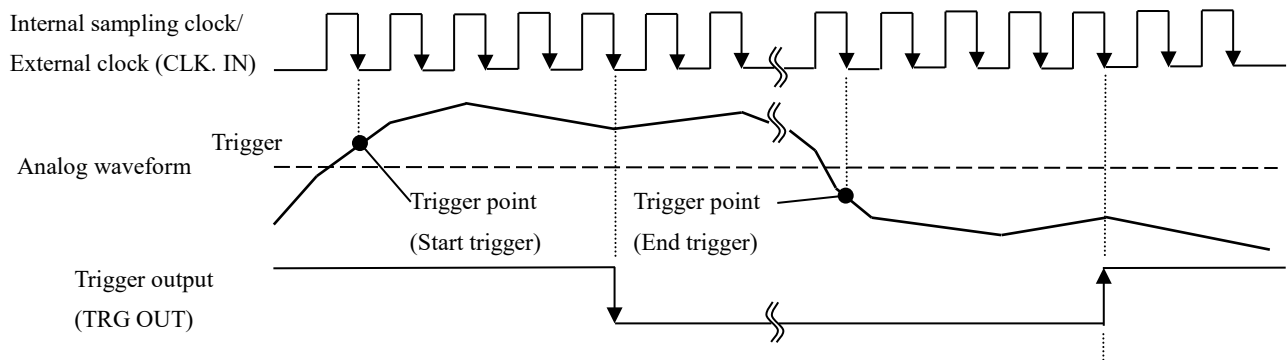
[Example 1]

Trigger mode:	Analog trigger (Start trigger: Rising edge, End trigger: Falling edge)
Sampling frequency:	Less than 100Hz
TRG OUT	Output with a delay of 1 clock cycle form the trigger point.



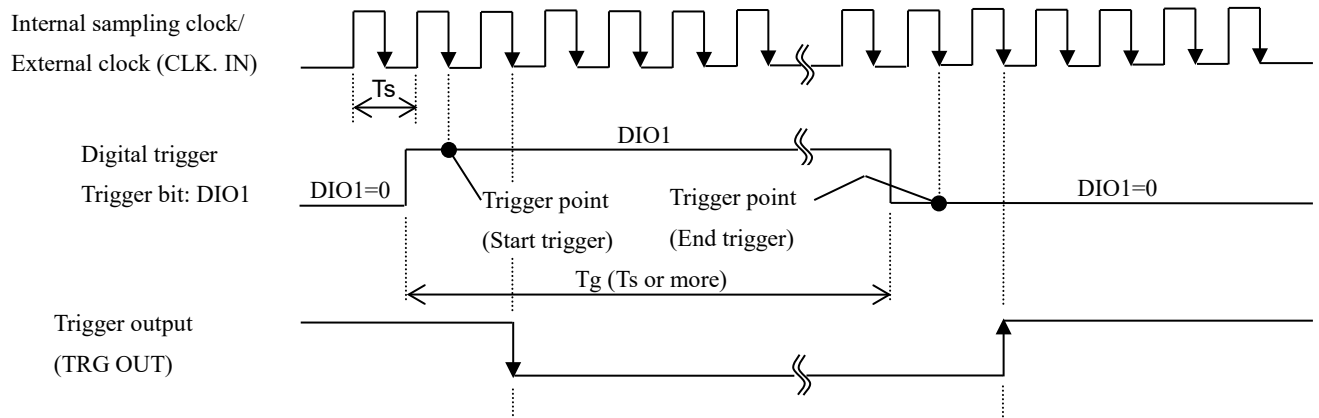
[Example 2]

Trigger mode:	Analog trigger (Start trigger: Rising edge, Falling edge)
Sampling frequency	100 Hz or more
TRG OUT	Output with a delay of 4 clock cycle form the trigger point.



[Example 3]

Trigger mode	Digital trigger (Start trigger DIO1 = "1", End trigger DIO1 = "0")
Sampling frequency:	Less than 100Hz
TRG OUT	Output with a delay of 1 clock cycle form the trigger point.

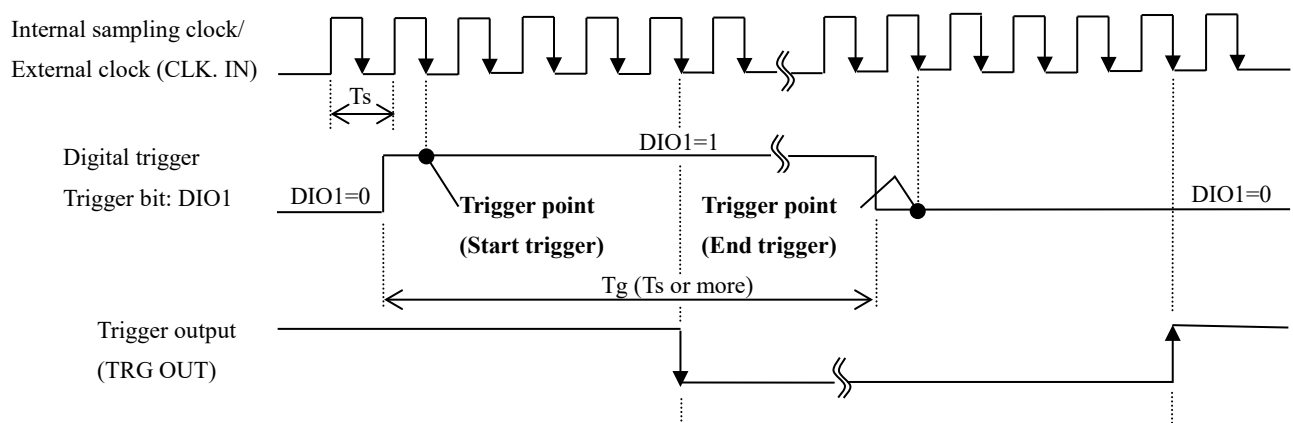


[NOTE]

It is required that the time T_g (from the start trigger to end trigger) requires 1 cycle (T_s) of the sampling clock or more.

[Example 4]

Trigger mode	Digital trigger (Start trigger DIO1 = "1", End trigger DIO1 = "0")
Sampling frequency	100 Hz or more
TRG OUT	Output with a delay of 4 clock cycle form the trigger point.

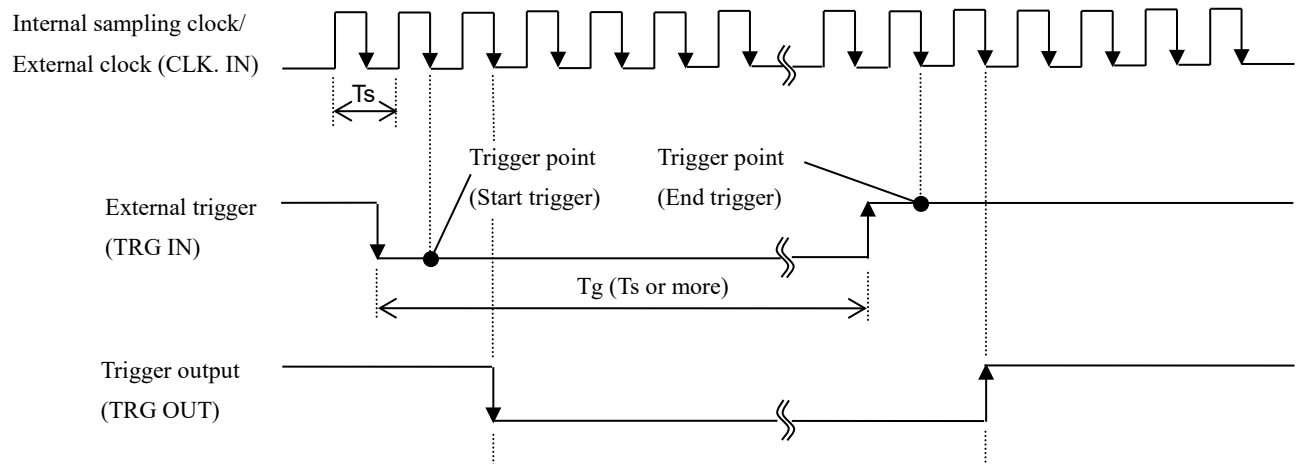


[NOTE]

It is required that the time T_g (from the start trigger to end trigger) requires 1 cycle (T_s) of the sampling clock or more.

[Example 5]

Trigger mode:	External trigger (Start trigger: Falling edge, End trigger: Rising edge)
TRG OUT	Output with a delay of 1 clock cycle from the trigger point.



[NOTE]

It is required that the time T_g (from the start trigger to end trigger) requires 1 cycle (T_s) of the sampling clock or more.

5-4 EXTERNAL CLOCK OUTPUT

The EDX-200A can output the clock signal, synchronized with the pre-set sampling frequency, into external devices.

NOTE

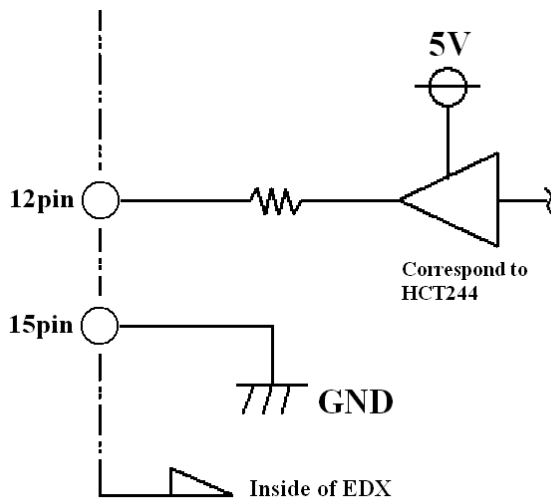
- Outputting the external clock signal is not available with the EDX-200A-1.

(1) External-clock-signal pins assignment and connector

External-clock pins are assigned on the connector (CONT. OUT) of the EDX-200A rear panel.

Do not use pins other than the pin No. 12 and pin No. 15. The circuit diagram is described as follows.

[CONT. OUT] D-sub high-density 15 female pins (EDX-200A side)

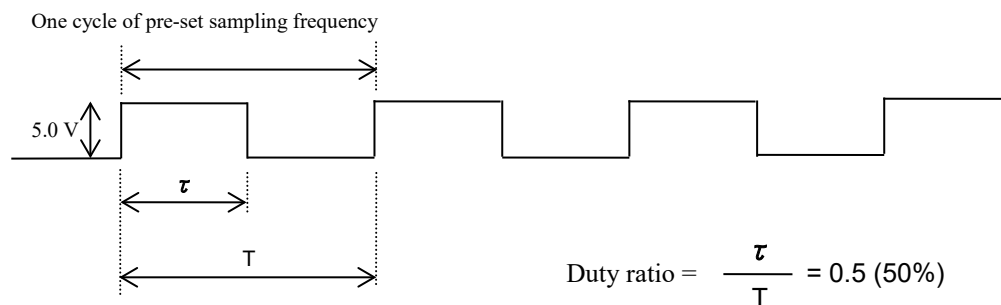


For details, see "12-3 CONT. OUT CONNECTOR"

(2) Clock output signal

The voltage level of the output signal is 5 V for High and 0 V for Low.

The duty ratio is 0.5 (50%).



6. RCU-42A REMOTE CONTROL UNIT

Parts names and various functions of the RCU-42A are described below:

A: REC/PAUSE switch:

The REC/PAUSE switch has the same functions as that of the "REC/PAUSE" on the main unit. Pressing this switch while recording data pauses the recording and pressing this switch while pausing starts recording data again. Data obtained while pausing recording is not saved in the memory. Press the STOP switch to stop the data recording.

B: STOP switch:

The STOP switch has the same functions as that of the "STOP" on the main unit. Pressing the STOP switch while recording or pausing data stops the data recording.

C: BAL. switch:

The BAL. switch has the same functions as that of the "BAL." on the main unit. Press the BAL. switch for more than 1 second to perform balancing. When using the CVM-40A/41A, balancing is performed in the strain measurement mode, while zero suppress is performed in the voltage measurement mode.

D: OPT. switch:

The OPT. switch has the same functions as that of the "OPT." on the main unit. You can set the function of the switch by using the DCS-100A.

E: VOICE MEMO switch:

You can record the voice memo by pressing the VOICE MEMO switch. See "4-8 RECORDING VOICE MEMO". While pressing this switch lets you record the voice memo.

F: REC/PAUSE LED

Indicates the state of data recording.

While recording data (REC):	Lights up in red.
While recording voice memo:	Lights up in red.
While pausing (PAUSE):	Flashes red.
While monitoring data:	Slowly flashed red.
Other than the above:	Lights out.

G: BAL. LED:

Indicates the state of balancing.

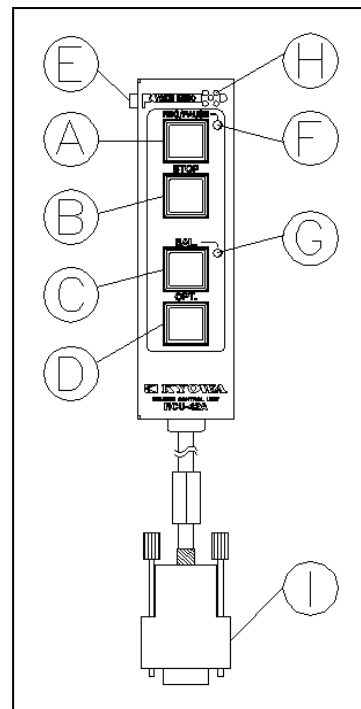
While balancing:	Lights up in orange.
Other than the above:	Lights out.

H: MIC

A built-in microphone is provided. During voice recording, keep a distance of approximately 10 cm from the microphone.

I: Connector

Connect the connector to the CONT. IN connector on the rear panel of the main unit.



NOTE

Before connecting the RCU-42A, do not forget to turn OFF the EDX-200A.

MEMO

- The RCU-42A has a built-in buzzer. The built-in buzzer emits the same beep sound as the EDX-200A. If you cannot hear the beep sound clearly from the EDX-200A, use the RCU-42A. For details, see the DCS-100A Instruction Manual.
- You can disable the pause function of the REC/PAUSE switch from the DCS-100A. For details, see the Setting environment in DCS-100A INSTRUCTION MANUAL for EDX-200A Operation.

7. MULTI-CHANNEL CAN CARD: ECAN-40A

The ECAN-40A is an optional card for the EDX-200A.

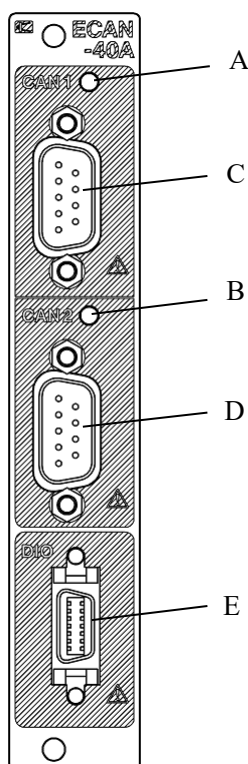
The ECAN-40A is designed to install on an optional slot on the EDX-200A-4H, EDX-200A-2H and EDX-200A-4T.

For the mounting method and replacing method, see “11-3 REPLACEMENT OF OPTIONAL CARD.”

● Features

- CAN interface card of Max. 512 channels (total of 2 ports)
- Applicable to the High Speed CAN and Low Speed CAN.
- Capable of recording CAN data without reducing the number of analog channels since the ECAN-40A does not occupy the conditioner card slot.
- Capable of outputting an arbitrary CAN data
- Equips with digital input/output port. The digital input/output port can also "Start the measurement", "Stop the measurement" and "Execute the balance" and so on with the Remote control mode.
- Applicable to the CANdb (with the optional DCS-105A)

7-1 CONTROLS AND INDICATORS



A) Status LED for the CAN port 1

Status LED for indicating the status of the CAN port 1.

For details, see the following table.

B) Status LED for the CAN port 2

Status LED for indicating the status of the CAN port 2.

For details, see the following table.

Table 7-1: Status LED and CAN port status

Color of LED	Description
Green	High Speed CAN Blinks while receiving data.
Orange	Low Speed CAN Blinks while receiving data.
Red	Lights up in red while a communication error occurs.

C) CAN port 1

Input/output port of the CAN data

For details, see “12-4 ECAN-40A: CAN PORT CONNECTOR.”

D) CAN port 2

Input/output port of the CAN data

For details, see “12-4 ECAN-40A: CAN PORT

CONNECTOR.”

E) Digital input/output port

Inputs/outputs of the digital datas.

For details, see “12-5 ECAN-40A: DIGITAL INPUT/OUTPUT
PORT CONNECTOR.”

7-2 SETTING ECAN-40A

For setting the ECAN-40A, use the DCS-100A,

For the DCS-100A operations, see DCS-100A INSTRUCTION MANUAL for EDX-200A Operation and DCS-100A INSTRUCTION MANUAL for Common Operation.

After the ECAN-40A is mounted correctly, point to **Set** - **Set ECAN Conditions...**.

On this window, set the following items.

"Receiving Cond"	Set the receiving conditions of the CAN message.
"Output Start Cond"	For outputting an arbitrary CAN data when starting the A/D conversion.
"Output Stop Cond"	For outputting an arbitrary CAN data when the A/D conversion is stopped.
"Output Interval Cond"	For outputting an arbitrary CAN data at the pre-set constant frequency.
"Output Manual Cond"	For outputting an arbitrary CAN data at arbitrary timing.
"Comm Cond"	Set the CAN communication conditions.

Operation procedures for monitoring and recording the CAN data are described as follows.

Setting CAN Communication Conditions

For details, see 7-2-1 Setting CAN Communication Conditions.

Setting CAN Receiving Conditions

For details, see 7-2-2 Setting CAN Receiving Conditions.

Setting CAN Output Conditions

- Output Start Cond
- Output Stop Cond
- Output Manual Cond
- Output Interval Cond

For details, see 7-2-3 Setting CAN Output Conditions.

MEMO

CAN message: Indicates data of each CAN frame.

CAN data: Indicates the data recorded by the ECAN-40A or CAN-40A/41A.

7-2-1 Setting CAN Communication Conditions

Set the CAN communication conditions.

For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

On this window, set the following items.

Communication conditions can be set for each port.

"CAN Comm Std" Set the CAN communication standard.
High Speed CAN or Low Speed CAN

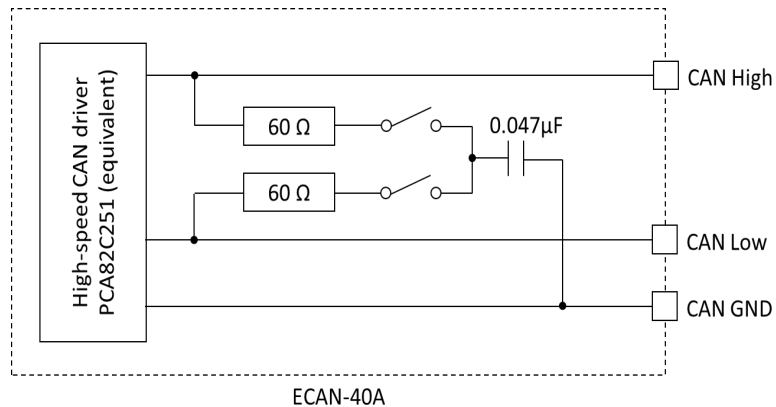
"Comm Speed" Set the communication speed.
Based on the CAN communication standard, available communication speeds are as follows.
High Speed CAN :1000/800/500/250/125/100/83.3/62.5/50/33.3/25/20/10 [kbps]
Low Speed CAN :125/100/83.3/62.5/50/33.3/25/20/10 [kbps]

"Term Resist" Set the termination resistor.
Based on the CAN communication standard, a termination resistor operates as follows.

- High Speed CAN

ON: Connect the 120ohm termination resistor.

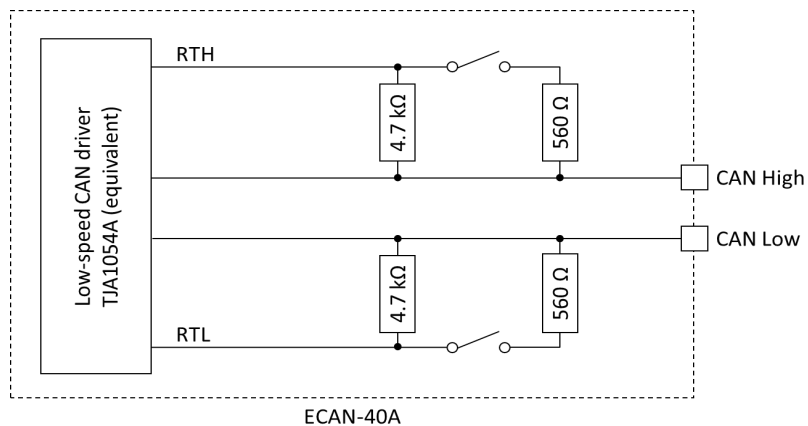
OFF: Termination resistor is not connected.



- Low Speed CAN

ON: Reduce termination resistor value to 500ohm using 560ohm and 4.7k-ohm resistors.
(Parallel connection)

OFF: Connect the 4.7k-ohm termination resistor.



7-2-2 Setting CAN Receiving Conditions

Set the CAN receiving conditions.

For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

On this window, set the following items.

"Measurement"	Set the measurement ON/OFF. Measurement ON/OFF can be set for each channel.
"CAN-ID Name (Message)"	Input the name of the CAN data frame to be received.
"Port No."	Set the CAN port.
"Format"	Select the CAN data frame format to be received. (Standard or Extended)
"Frame ID"	Set the frame ID of the CAN data frame to be received.
"Data Length (Byte)"	Set the data length of the CAN data frame to be received.
"CAN-CH Name (Signal)"	Set the channel name to be measured.
"Start Bit"	For extracting a part of CAN data in the CAN data frame to be received, set the first bit of the data to be extracted.
"Bit Length"	For extracting an individual data in the CAN data frame to be received, set the number of bits to be extracted, counted from the start bit.
"Data type"	Set the channel data type to be measured. Signed/Unsigned/Float/Double
"Endian"	Set the channel endian to be measured.
"Calibr. const."	Set the calibration constant as required.
"Unit"	Set the unit of channel to be measured.
"Maximum/Minimum"	Set the threshold value when the digital output function is "ECAN-CH exceeded" or "While exceeding (ECAN-CH)". If the CAN data is higher than or equal to a maximum threshold ,or lower than or equal to a minimum threshold value, low signal (0) is output from the digital input/output (DIO) bit, where the above function is assigned.

NOTE

If the number of CAN messages to be received per second is too many, the "ECAN overflow" may occur. For details, see "7-2-4 The number of CAN Messages that can be Received Per Second".

7-2-3 Setting CAN Output Conditions

Set the CAN output conditions.

For details, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

On this window, set the following items.

"Output"	Set the CAN output ON/OFF.
"CAN-ID Name (Message)"	Input the name of the CAN data frame to be sent.
"Port No."	Set the CAN port.
"Format"	Select the CAN data frame format to be sent. (Standard or extended)
"Frame ID"	Set the frame ID of the CAN data frame to be sent.
"Data length"	Set the data length of the CAN data frame to be sent.
"B0 to B7"	Set the data of the CAN data frame to be sent. Data of the CAN data frame can be set for each byte.
"Confirmation"	Set the response confirmation function to the CAN data frame to be sent.
"Rx Frame ID"	Set the frame ID of the response CAN data frame to be received corresponding to the CAN data frame to be sent.
"Time out [msec]"	Set the timeout period [msec] : from when the CAN data frame is sent, to when the response CAN data frame is received.
"Result"	Result of the response confirmation appears. (OK or Error)

MEMO

- After the CAN data frame (with the "Confirmation" ON) is sent, the response of the CAN data frame ID which is pre-set in the "Rx Frame ID" will be waited.

At this time, the results are as follows.

OK: Received the frame ID response within the specified "Time out (msec)" time.

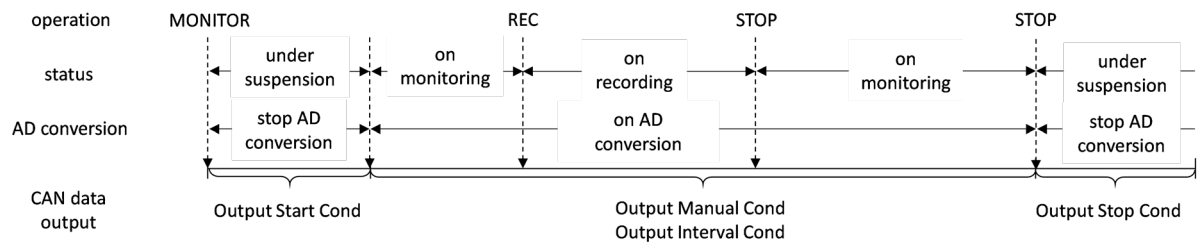
Error: Did not receive the frame ID response within the specified "Time out (msec)" time.

MEMO

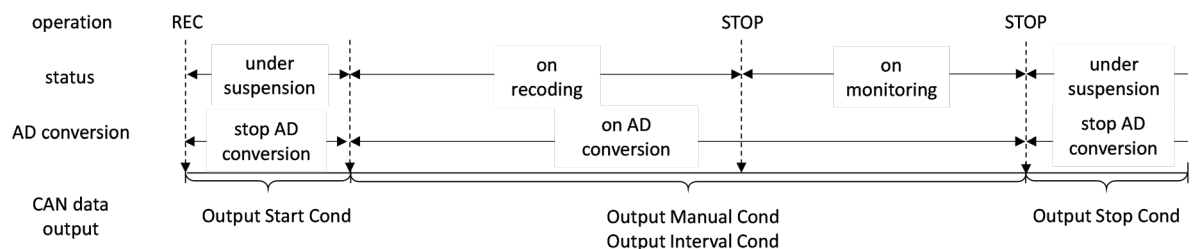
Operation timings of every CAN output are described as follows.

【DCS-100A Manual mode】

● MONITOR button → REC button → STOP button

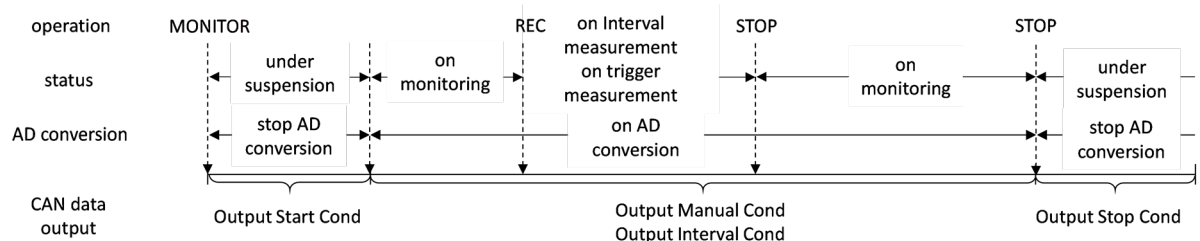


● REC button → STOP button

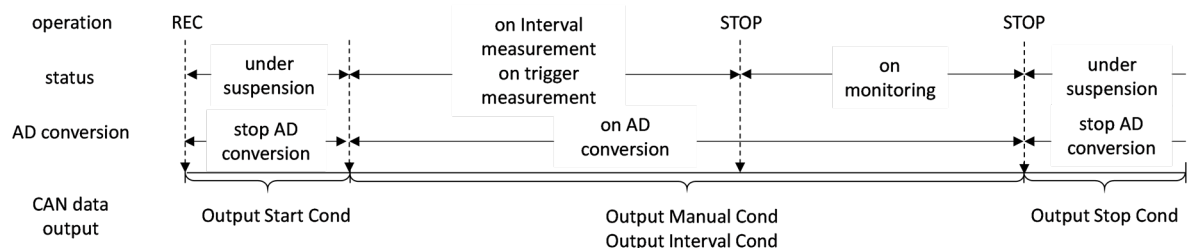


【DCS-100A: Interval mode or Trigger mode】

● MONITOR button → REC button → STOP button



● REC button → STOP button



7-2-4 The number of CAN Messages that can be Received Per Second

When you set the maximum number of channels based on each sampling frequency(see "The number of channels" on the item (5) in the 13-1 OVERALL SPECIFICATIONS), the number of CAN messages that can be received by the ECAN-40A per second is Max. 1000 per port.

If too many CAN messages, larger than the Max., are input, the EDX-200A may stop recording the CAN message temporarily. We call the phenomenon "ECAN overflow".

After the "ECAN overflow" occurs, recording the analog data will be continued. However the CAN messages will be lost. If the "ECAN overflow" occurs, make sure the number of CAN messages, to be received by the ECAN-40A, is lower than or equal to the above Max. CAN messages.

You can check the number of lost CAN messages as follows.

- Check the number of "ECAN overflow" on the small indicator. When the "ECAN overflow" occurs, the number of "ECAN overflow" appears automatically on the small indicator. (For details, see "15-4 ITEMS ON SMALL INDICATOR (Organic Light Emitting Display)")
- Check the number of "ECAN overflow" on the DCS-100A.
- Check the number of "ECAN overflow" on the DAS-200A. The number of "ECAN overflow" messages is also saved in the recorded data (.E4A).

MEMO

- Operation during the "ECAN overflow"
After too many CAN messages are received, the internal processing of the EDX-200A will become overloaded and the recording operation may become incorrect. When the overloading is detected, the EDX-200A automatically stops recording the CAN messages temporarily to avoid the overloading status and the internal processing works stable. After the internal processing becomes stable, the EDX-200A will start recording CAN messages again. (Note that the EDX-200A put a high priority on recording the analog data.)
- When the "ECAN overflow" occurs, try to do something described as follows.
There is some possibility of recording CAN messages without the "ECAN overflow".
 - Reduce the sampling frequency.
 - Reduce the number of analog channels to be recorded.
 - Set "the AD data format" to "16 Bit".

Examples are described as follows.

[Example] The number of analog channels 32 channels → 16 channels

Sampling frequency: 10 kHz, the number of analog channels: 16

The number of CAN messages per second will be Max. 2000 per port.

[Example] The number of analog channels 32 channels → 8 channels

Sampling frequency: 10 kHz, the number of analog channels: 8

The number of CAN messages per second will be Max. 4000 per port.

[Example] Sampling frequency 10kHz → 1kHz

Sampling frequency: 1 kHz, the number of analog channels: 32

The number of CAN messages per second will be Max. 10000 per port.

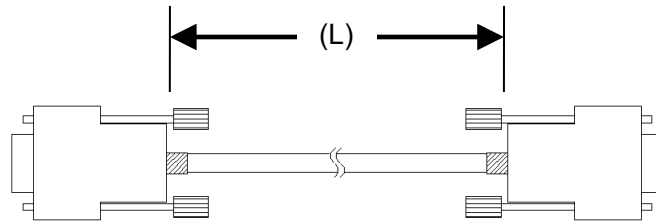
7-3 CONNECTING CAN BUS

This section describes how to connect the EDX-200A to the CAN bus with the ECAN-40A.

For details, see “12-4 ECAN-40A: CAN PORT CONNECTOR.”

You can purchase the following communication cable as optional accessories.

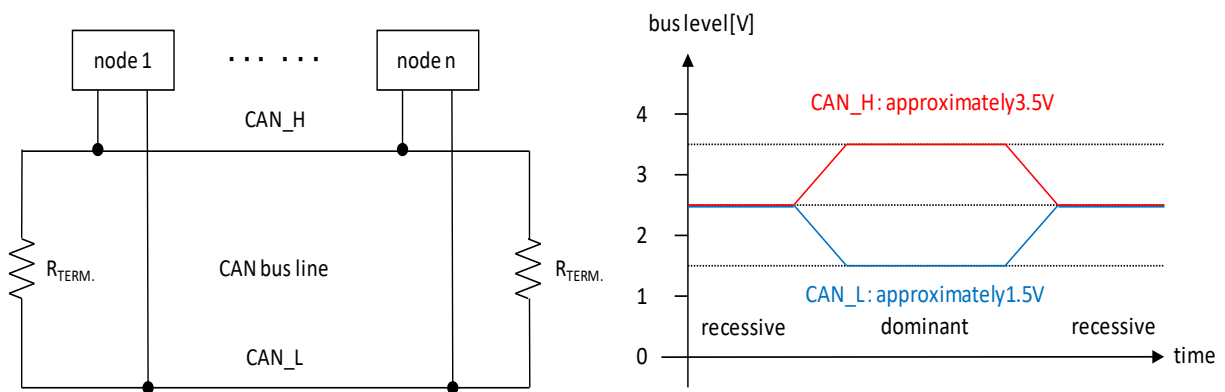
Name	Model	Cable length(L)
Communication cable	N-102	1.0 m
	H-11681	3.0 m
	H-11682	5.0 m
	H-11683	10.0 m



Communication cable

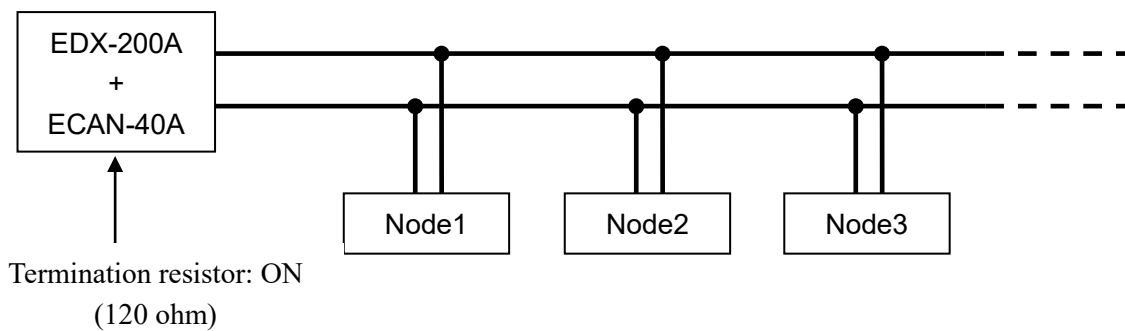
7-3-1 Connecting High Speed CAN

The bus configuration and bus level of the high Speed CAN are as follows.

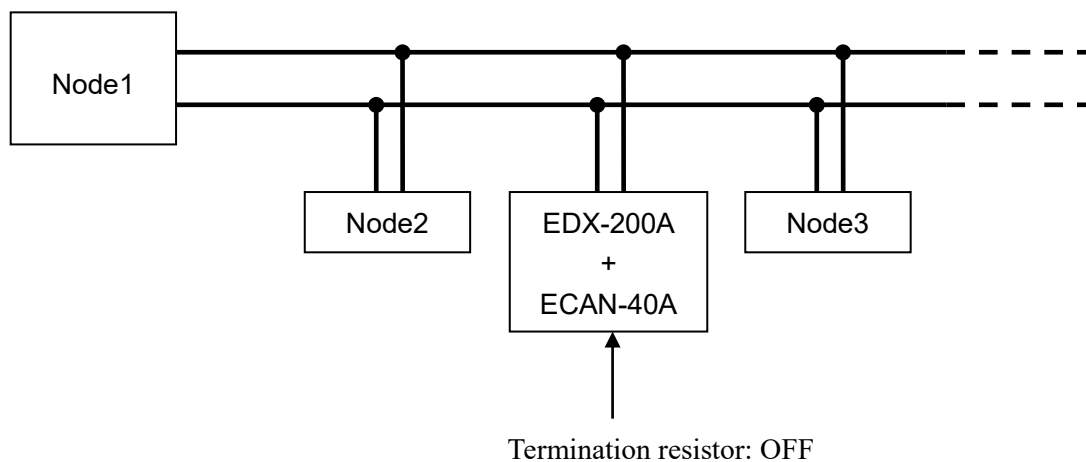


For the high speed CAN, connect termination resistors on both sides of the CAN bus.

When connecting the EDX-200A to the end of the CAN bus, turn ON the termination resistor setting from the DCS-100A.

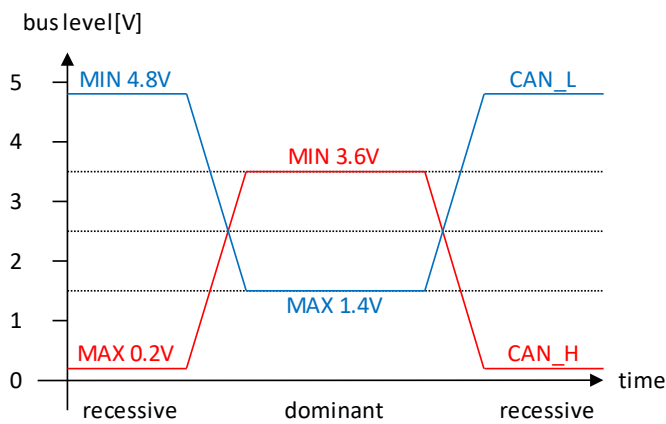
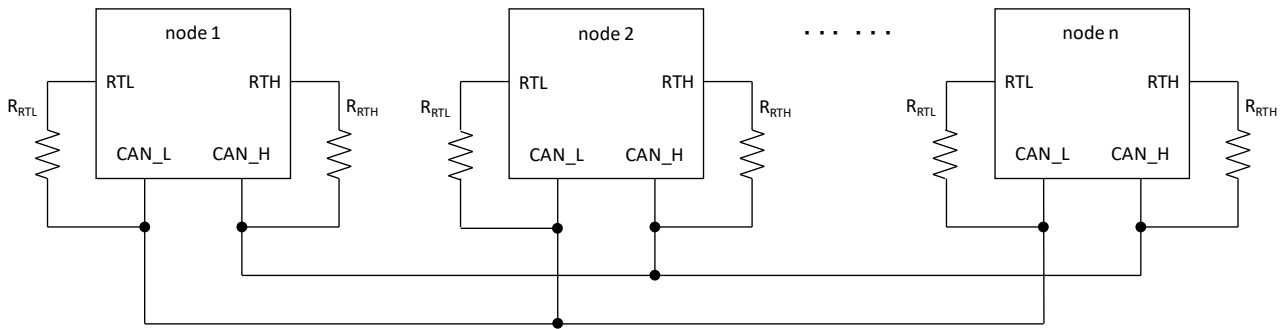


When connecting the EDX-200A in the middle of the CAN bus, turn OFF the termination resistor setting from the DCS-100A.



7-3-2 Connecting Low Speed CAN

The bus configuration and bus level of the low speed CAN are as follows.



For the low speed CAN, connect termination resistors (R_{RTH} , R_{RTL}) into every node.

Also, the combined resistance of the whole system should be within 100 to 500 ohm (*smaller is better).

When using the ECAN-40A, set the termination resistor (R_{RTH} , R_{RTL}) as follows.

Termination resistor OFF: Connect the 4.7k-ohm termination resistor to every R_{RTH} and R_{RTL} .

Termination resistor ON: Connect the 560ohm termination resistor to the 4.7k-ohm termination resistor in parallel.
(Combined resistance = Approx. 500 ohm)

Example of termination resistors is described as follows.

[Example]

Suppose there are 5 nodes and one EDX-200A exist within the system.

Every node is connected to the CAN bus of 2.2k-ohm termination resistor.

The combined resistance of 5 nodes is 440 ohm.

When connecting the EDX-200A by using the ECAN-40A, the combined resistance is as follows.

Termination resistor: ON → The combined resistance of the whole system = Approx. 234 ohm

Termination resistor: OFF → The combined resistance of the whole system = Approx. 402 ohm

Since the combined resistance of the whole system is "smaller is better", set the termination resistor ON.

7-4 DIGITAL INPUT/OUTPUT (DIO) PORTS

The ECAN-40A and ETIM-40A equip with digital input/output ports.

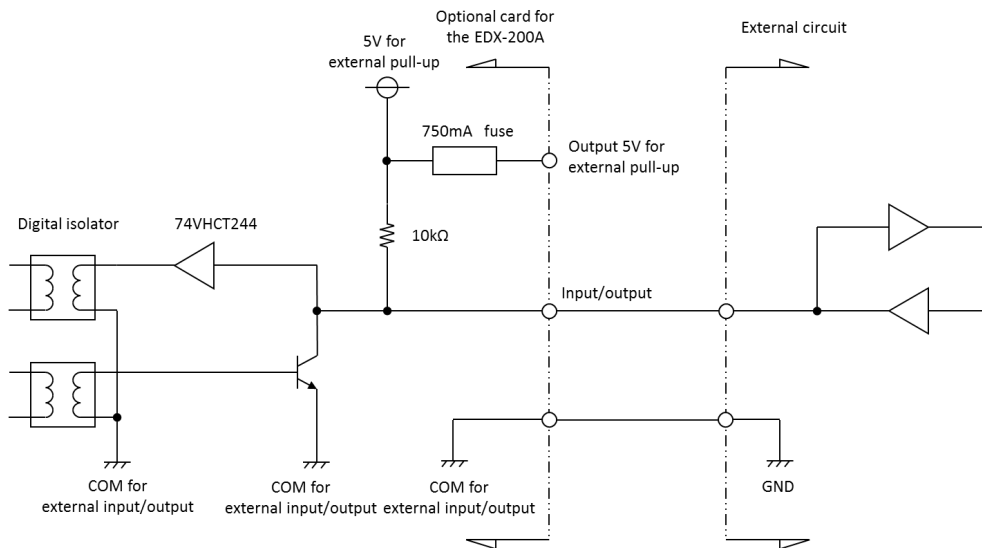
The digital input/output port has maximum 8 signals. Every signal has 3 modes; input, remote control, and output.

7-4-1 External Input/Output Circuit

The interface of input/output circuit of the digital input/output port is described as follows.

Input/output signal: TTL level, low active

Note that every signal is pulled up to 5 V power supply through the built-in pull-up resistor (10 k-ohm).



7-4-2 Setting Digital Input/Output (DIO) Conditions

This section describes how to set the digital input/output.

For details, see the DCS-100A Instruction Manual for EDX-200A Operation.

With setting digital input/output conditions window, can set the following items. Digital input/output (DIO) conditions can be set for every bit.

"Mode" Select the bit mode.

Mode	Description
--- (Not in use)	The target bit is not in use.
Input	The target bit is used for the digital input. High level signal: 1 Low level signal: 0
Remote control	The target bit is used for the remote control. "Start the measurement", "Stop the measurement", "Execute the balance" and so on.
Output	The target bit is used for the digital output. Outputs data based on the "Function". Note that the output signal is negative logic.

"Function" Select the bit function where the remote control mode or output mode is assigned.

Mode	Function	Description
Remote control	[MONITOR]	While stopping, input "Low level signal" to start monitoring data.
	[STOP]	While monitoring data or while recording data, input "Low level signal" to stop monitoring data or to stop recording data.
	[REC/PAUSE]	Manual measurement: Input "Low level signal" to start recording data. To pause recording, input "Low level signal" while recording data. To re-start recording data, input "Low level signal" again. Interval measurement and trigger measurement: Input "Low level signal" to make the EDX-200A "waiting to be recorded".
	[Balance]	While stopping or while monitoring data, input "Low level signal" to execute the balance adjustment.
	[Option switch]	Input "Low level signal" to execute the operation, assigned in the option switch. For how to set the option switch, see "DCS-100A INSTRUCTION MANUAL for EDX-200A Operation".

[NOTE]

After confirming that the [BUSY] signal is "Low level signal", set the [MONITOR]/[STOP]/[REC/PAUSE]/[Balance]/[Option switch] signal to "High level signal"

Mode	Function	Description
Output	[Recording]	Outputs "Low level signal" while recording data.
	[Trigger Signal]	Outputs the trigger signal during the trigger measurements. Start trigger: Slope (negative) End trigger: Slope (positive)
	[BUSY]	When using the "Remote control mode", the EDX-200A outputs the "Low level signal" until the next remote control signals enable. (For details, see 7-4-3-2 Digital output timing during the remote control mode)
	[A/D]	Outputs "Low level signal" while executing the A/D conversion (monitoring data and recording data).
	[While exceeding (analog-CH)]	When the analog channel measured data exceeds the threshold value, the EDX-200A outputs the "Low level signal" while the analog channel data exceeds the threshold value.
	[Analog-CH exceeded]	When the analog channel measured data exceeds the threshold value, the EDX-200A outputs the "Low level signal" and holds it.
	[While exceeding (ECAN-CH)]	When the ECAN-40A/EGPC-40A measured CAN data exceeds the threshold value, pre-set in the ECAN conditions, the EDX-200A outputs the "Low level signal" while the ECAN-40A/EGPC-40A measured CAN data exceeds the threshold value.
	[ECAN-CH exceeded]	When the ECAN-40A/EGPC-40A measured CAN data exceeds the threshold value, pre-set in the ECAN conditions, the EDX-200A outputs the "Low level signal" and holds it.

MEMO

When multiple modes ("Input" mode, "Not in use" mode, "Output" mode, or "Remote control (input)" mode) exist, recording value is "0" except "Input" mode.

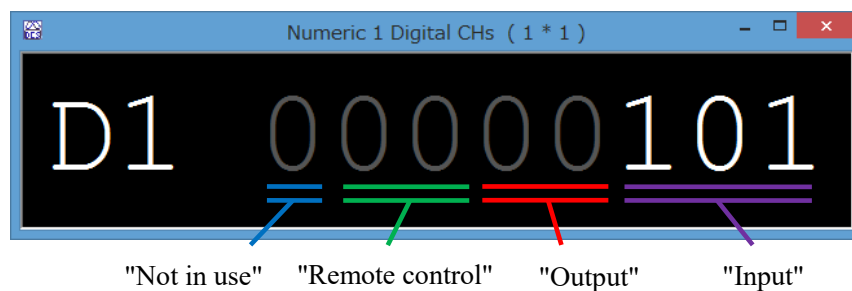
[Example]

1st bit to 3rd bit: "Input"
 4th bit to 5th bit: "Output"
 6th bit to 7th bit: "Remote Control"
 8th bit: "Not in use"

Set DIO Condition (The total number of the Digital CHs : 1)

Option Card	Terminal	Mode	Function	Name
EGPC-40A	DIO1	Input	D1_1	
	DIO2	Input	D1_2	
	DIO3	Input	D1_3	
	DIO4	Output	BUSY	***
	DIO5	Output	Recording	***
	DIO6	Remote control	REC/PAUSE	***
	DIO7	Remote control	STOP	***
	DIO8	---	---	---

Up Down OK Cancel

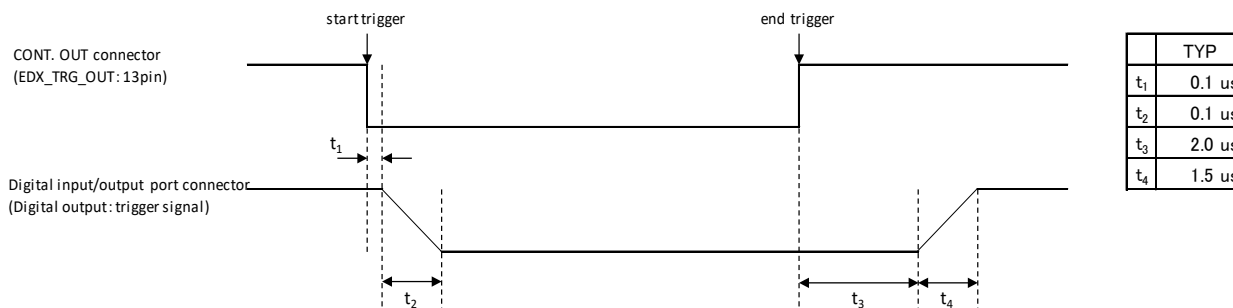


7-4-3 Timing Chart of Digital Output

7-4-3-1 Trigger signal

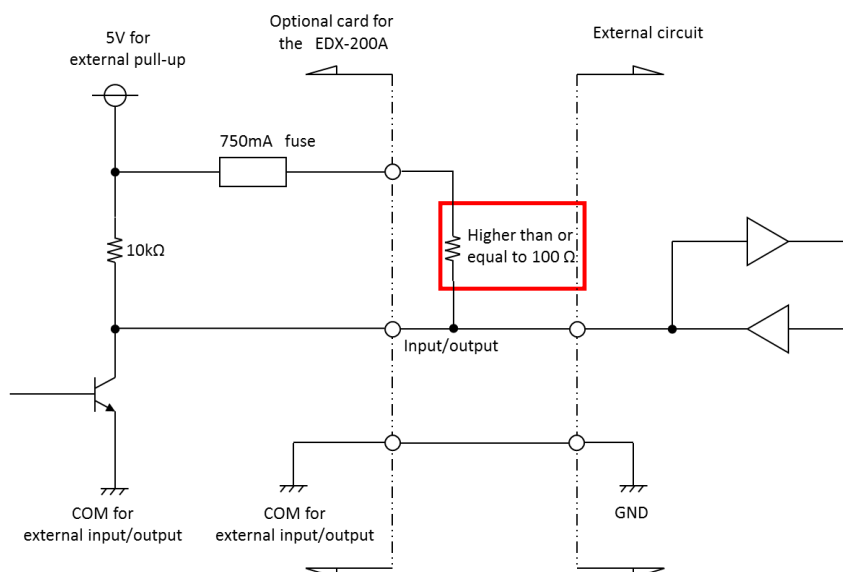
When only the built-in pull-up resistor of 10k-ohm exists in the digital input/output port, the trigger signal from the digital output and external trigger output signal from the CONT. OUT connector (EDX_TRG_OUT: pin 13) are output as follows.

• Built-in pull-up resistor of 10k-ohm only

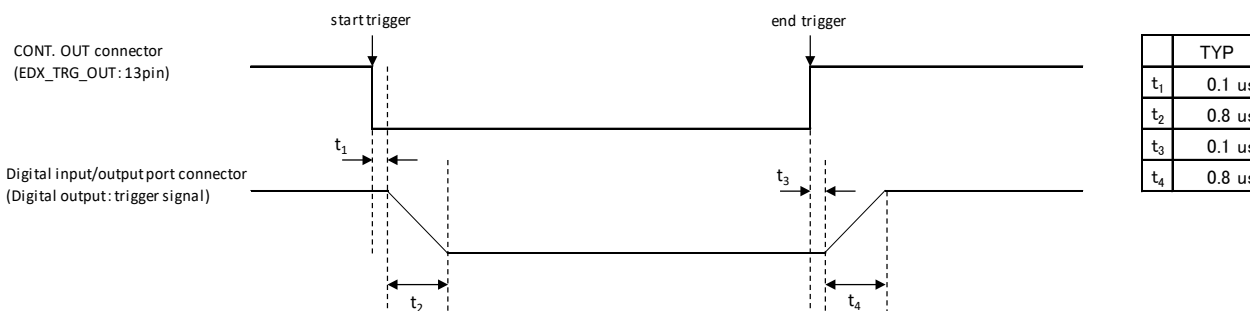


Since the digital input/output port is isolated from the internal circuit, trigger output signal from the digital output will be delayed compared to the external trigger output signal from the CONT.OUT.

To decrease the delay time described above (the end trigger output signal), decrease the pull-up resistance by connecting the external pull-up resistor as follows. Be sure to use the external pull-up resistor of 100 ohm or larger.



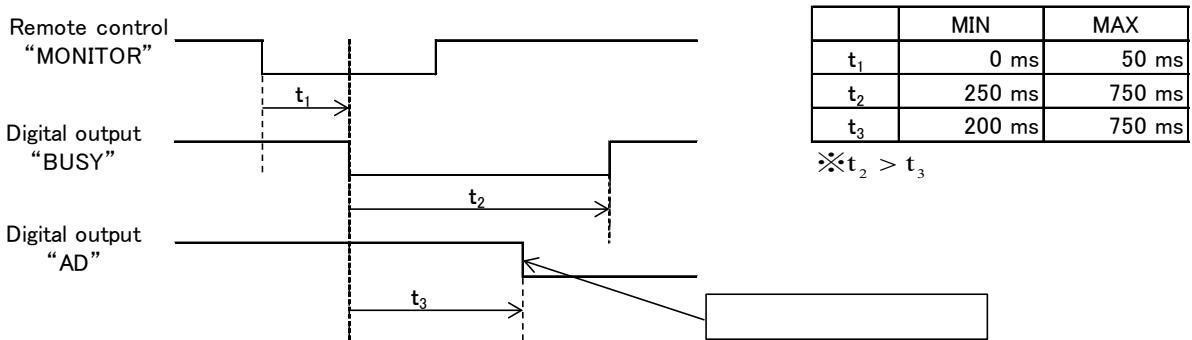
• With external pull-up resistor of 100 ohm



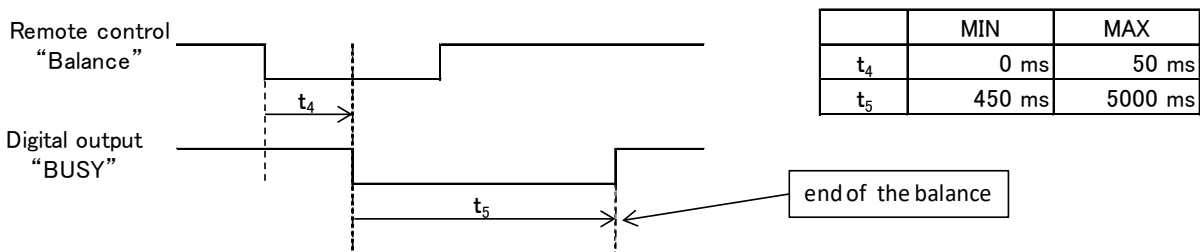
7-4-3-2 Digital output timing during the remote control mode

This section describes the Remote control mode timing: from the input of the remote control signal to the output of the digital output signal. Note that the signal is low active.

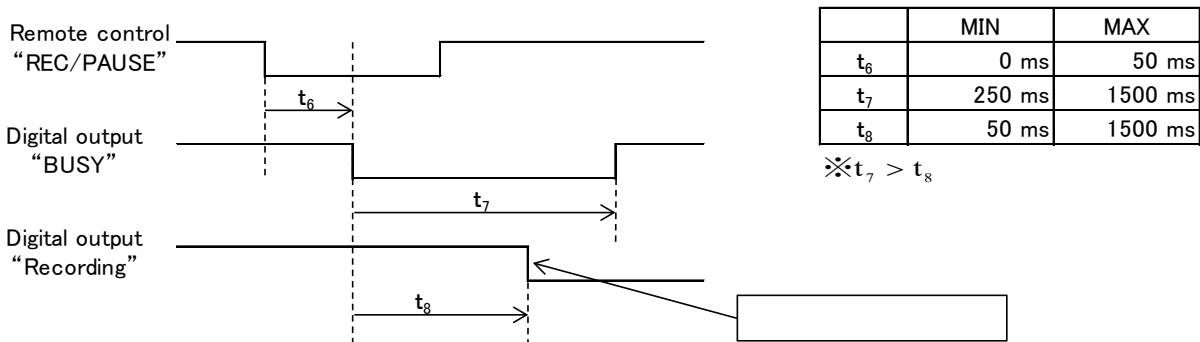
(1) Start monitoring data (online)



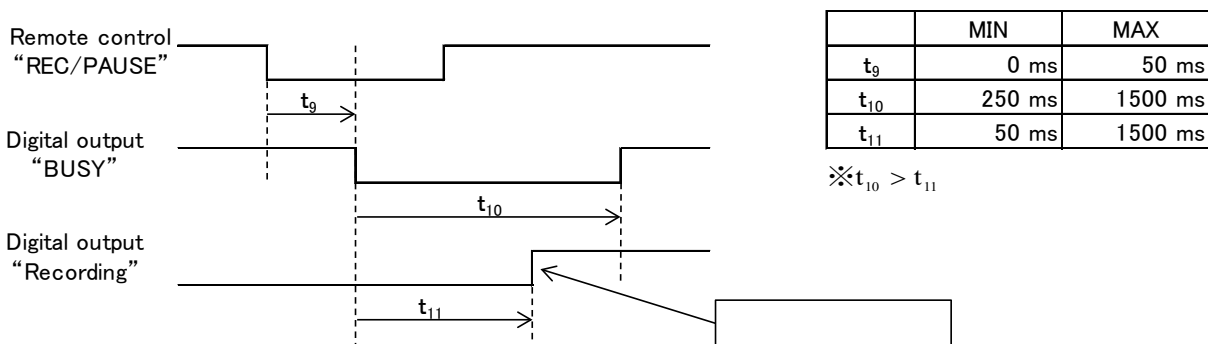
(2) Execute the balance.



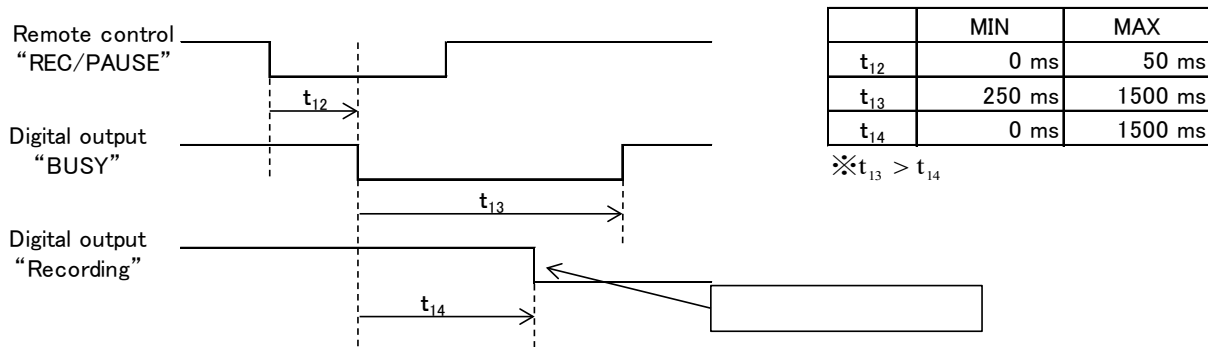
(3) Start recording data from the monitoring status.



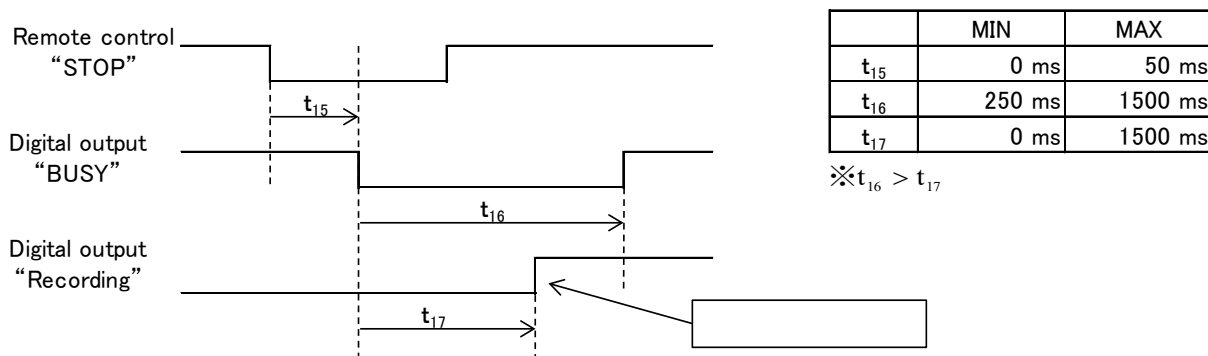
(4) Pausing



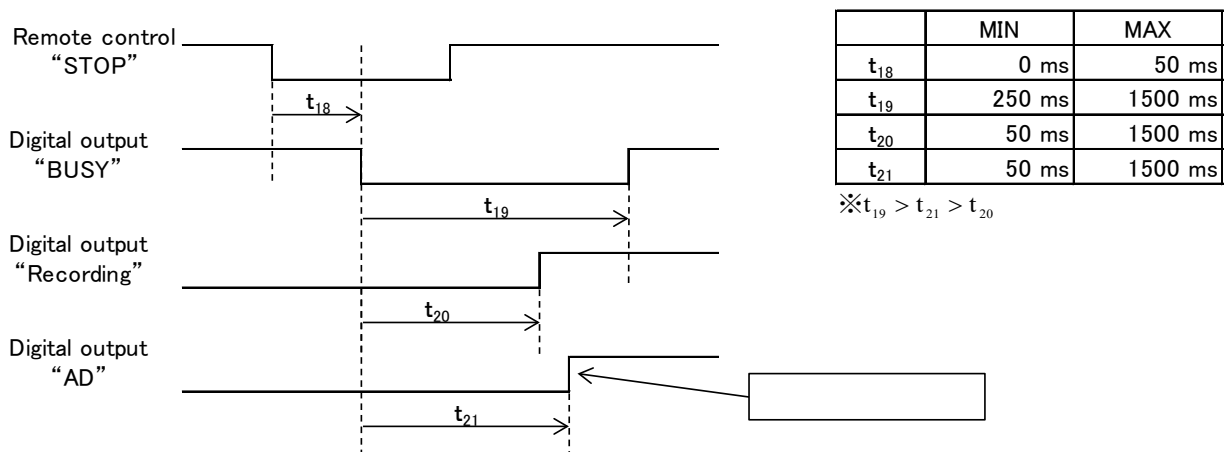
(5) Start recording data again (release pausing).



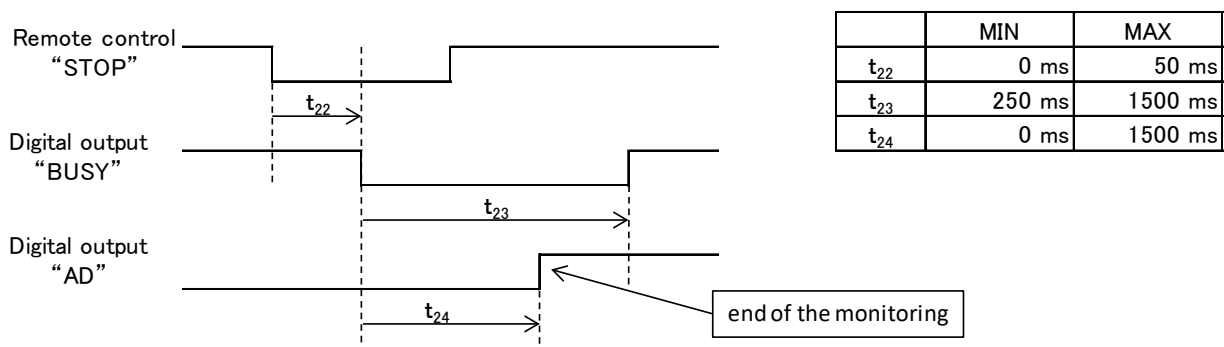
(6) Stop recording data. (online)



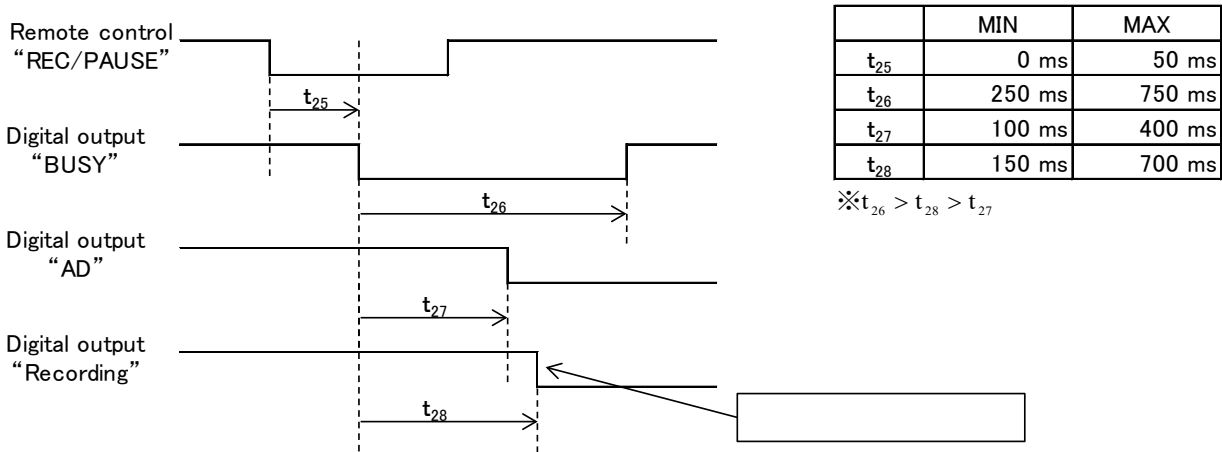
(7) Stop recording data. (offline)



(8) Stop monitoring data.



(9) Start recording data from the stopping status.



MEMO

The digital output timing, excluding the trigger signal, is controlled from software.
Therefore, digital output timing, described above, may vary.

8. TIME SYNCHRONIZATION CARD: ETIM-40A

The ETIM-40A is an optional card for the EDX-200A (optional accessories).

The ETIM-40A is designed to install on an optional slot on the EDX-200A-4H, EDX-200A-2H, or EDX-200A-4T.

For the mounting method and replacing method, see “11-3 REPLACEMENT OF OPTIONAL CARD.”

- Features

- Synchronizes the recording start time of remote EDX-200A units by using the time data received from GPS satellites.

- Records GPS data (latitude, longitude, elevation, traveling direction, speed, time, receiving conditions, the number of satellites in use, etc.).

(With the standard accessory GPS sensor)

- Equips with digital input/output port.

The digital input/output port can also "Start the measurement", "Stop the measurement" and "Execute the balance" and so on with the Remote control mode.

MEMO

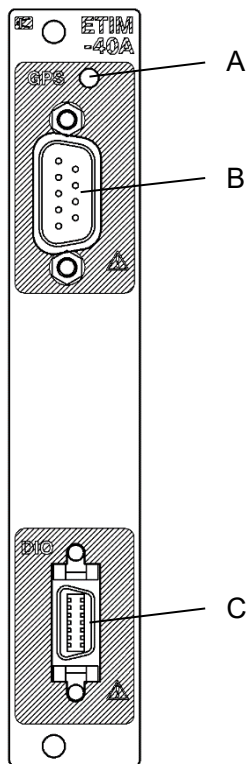
- Time synchronization function

The "Time synchronization function" starts recording data with the ETIM-40A and EGPC-40A, by using the time data received from GPS satellites.

The following measurements use the time synchronization function.

- Point ZERO (manual/ Manual number of data) measurements
- Interval (GPS synchronization) measurements

8-1 CONTROLS AND INDICATORS



- A) Status LED for the GPS port
Status LED for indicating the status of the GPS port.
For details, see the following table.

Table 8-1: Status LED and GPS port status

Color of LED	Description
Green	GPS sensor: Connected GPS status: OK Blinks while receiving data.
Orange	GPS sensor: Connected GPS status: Error Blinks while receiving data.
Red	GPS sensor: Not connected Blinks when a communication error occurs.
OFF	Not using the time synchronization function and recording GPS data function.

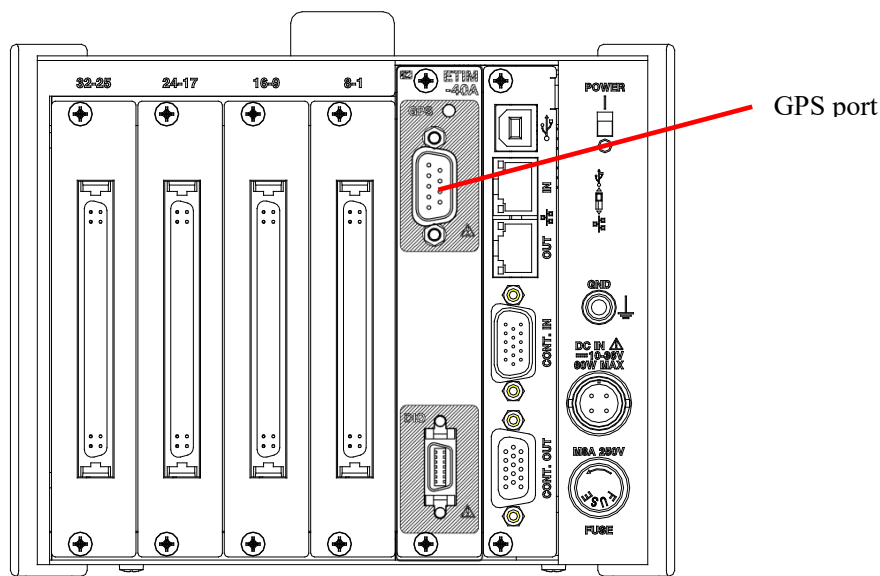
- B) GPS port
Connection port for GPS sensor
Connect the accessory GPS sensor.
- C) Digital input/output port
Inputs/outputs of the digital datas.
For details, see "7-4 DIGITAL INPUT/OUTPUT (DIO) PORTS."
For the connector pin assignments, see "12-7 ETIM-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR."

8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)

This section describes how to set the ETIM-40A by using the Dynamic Data Recording Software DCS-100A. For the DCS-100A operations, see DCS-100A INSTRUCTION MANUAL for EDX-200A Operation and DCS-100A INSTRUCTION MANUAL for Common Operation.

8-2-1 Connecting GPS Sensor

To receive the GPS signal, connect the accessory GPS sensor into the GPS port of the ETIM-40A.



NOTE

The GPS port is a connection port for the accessory GPS sensor. Never connect other sensors or modules. Failure to do so will pose the risk of deteriorated performance and system failure.

MEMO

To capture more GPS satellite signals, be sure to mount GPS sensors in areas, away from tall buildings or trees, where no obstructions exist around the GPS sensors. Note that a receiving sensitivity of the GPS satellite signal may decrease in cloud or rain.

8-3 MEASUREMENTS USING THE TIME SYNCHRONIZATION FUNCTION

This section describes the measurement using Time Synchronization Function.

- Point ZERO (manual/Manual number of data) measurements

Recording is started from zero millisecond (hh:mm:ss.000 ms) using the time data received from GPS satellites. The Point ZERO (Manual number of data) measurement is able to set the number of data/CH or recording time. The Point ZERO (manual/ Manual number of data) measurement starts recording data in approx. 2 seconds after executing the recording start operation (e.g. REC button) with the ms value "000" (hh:mm:ss.000 ms). (Synchronous operation: In approx. 5 seconds)

- Interval (GPS synchronization) measurements

Every EDX-200A starts recording data at same time by using the time data received from GPS satellites. These recording data are synchronizing at the start point.

MEMO

- Interval (GPS synchronization) measurements

The normal interval measurement starts measurements by using own EDX-200A system clock, as accurate as the PC clock. For this reason, when executing the normal interval measurements of remote EDX-200A units, every EDX-200A unit starts measurements separately.

The Interval (GPS synchronization) measurement starts recording data by synchronizing the recording start time of remote EDX-200A units by using the accurate time information from the GPS satellites and synchronous pulse signals. (The Interval (GPS synchronization) measurements do not rely on the EDX-200A system clock or EDX-200A software.)

The Interval (GPS synchronization) measurements match the start timing of every EDX-200A.

- Point ZERO (manual/ Manual number of data) measurements

The Point ZERO (Manual number of data) measurement starts recording data by synchronizing the recording start time of remote EDX-200A units by using the accurate time information from the GPS satellites and synchronous pulse signals. Therefore, the Point ZERO (manual/ Manual number of data) measurement starts recording data when the ms value is "000" (hh:mm:ss.000ms).

- Time synchronization function and synchronous sampling clock

The time synchronization function synchronizes the sampling clock by using the accurate pulse signals, output from the GPS sensor. When the recording start time comes, the time synchronization function corrects the sampling clock, falls the sampling clock edge within 3 microseconds and starts the A/D conversion.

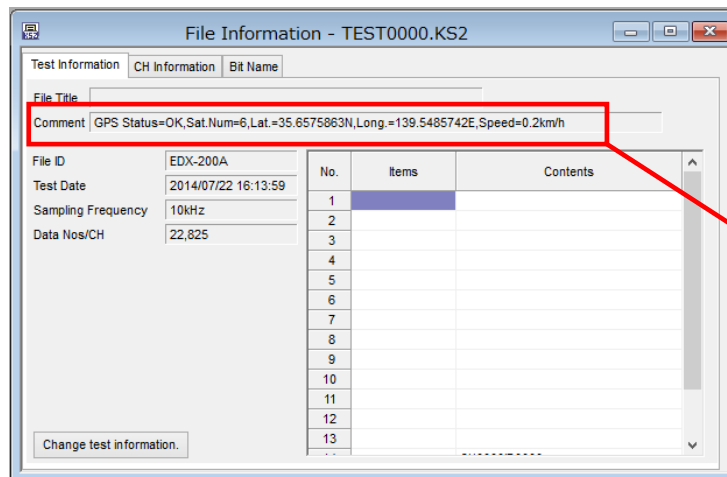
- During the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements, when the GPS status is Error or NONE at the recording start time, the EDX-200A starts recording data in 2 seconds after the true recording start time, based on the internal clock. (For details, see "8-3-5 Recording Operation when the GPS status is Error or NONE.")

MEMO

- You cannot identify whether the data file is made of the Point ZERO (manual/ Manual number of data) measurements or is made of the normal manual measurements by file names. Similarly, you cannot identify whether the data file is made of the Interval (GPS synchronization) measurements or is made of the normal interval measurements by file names.

At this time, open the data file (KS2 file) on the DAS-200A (optional). When the GPS information appears on the test information comment (as follows), the data file is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements.

*For the DAS-200A operations, see DAS-200A INSTRUCTION MANUAL.

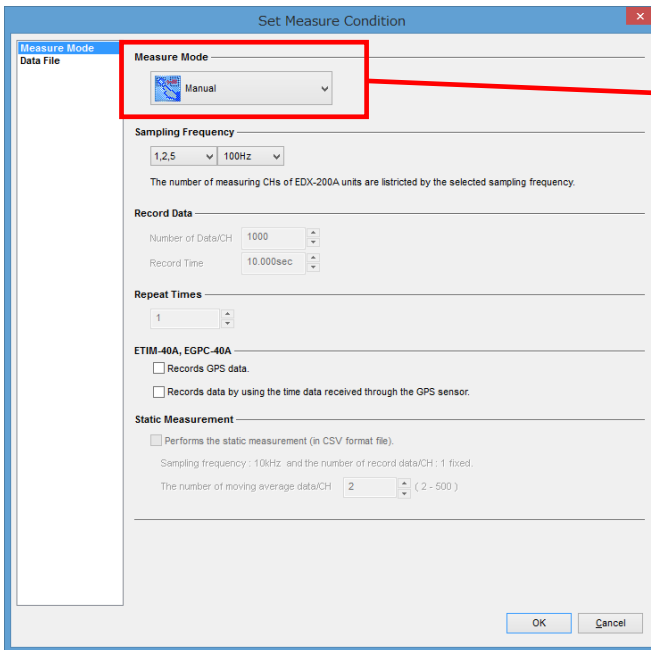


When the data file is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements, GPS information appears.

8-3-1 Setting DCS-100A for Point ZERO (manual) Measurements

Before executing the Point ZERO (manual) measurements, set the measuring mode to the "Manual."

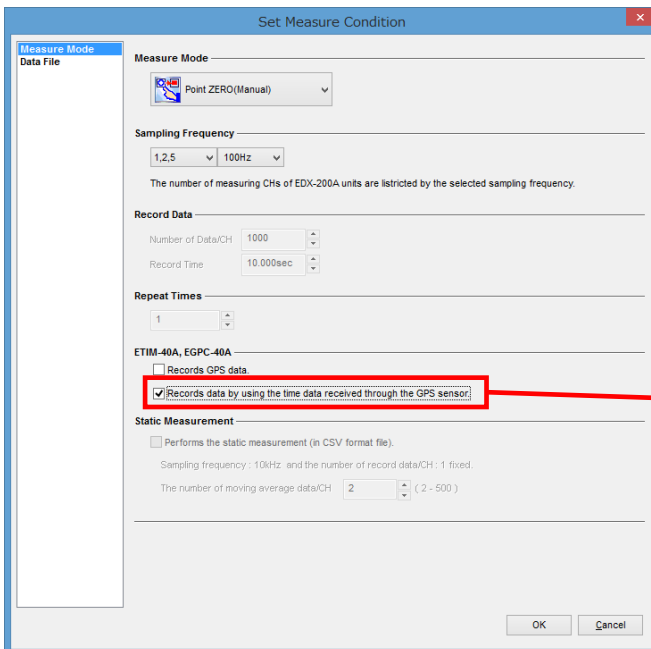
With the properly mounted ETIM-40A, point to **Set** - **Set Meas Mode** menu to set the measuring mode to the "Manual".



The screenshot shows the 'Set Measure Condition' dialog box. The 'Measure Mode' dropdown menu is highlighted with a red box and shows 'Manual' selected. A red arrow points from the text 'Select the "Manual."' to this dropdown.

Select the "Manual."

Put a check mark in the box next to the "Records data by using the time data received through the GPS sensor." The measuring mode becomes "Point ZERO (manual)."



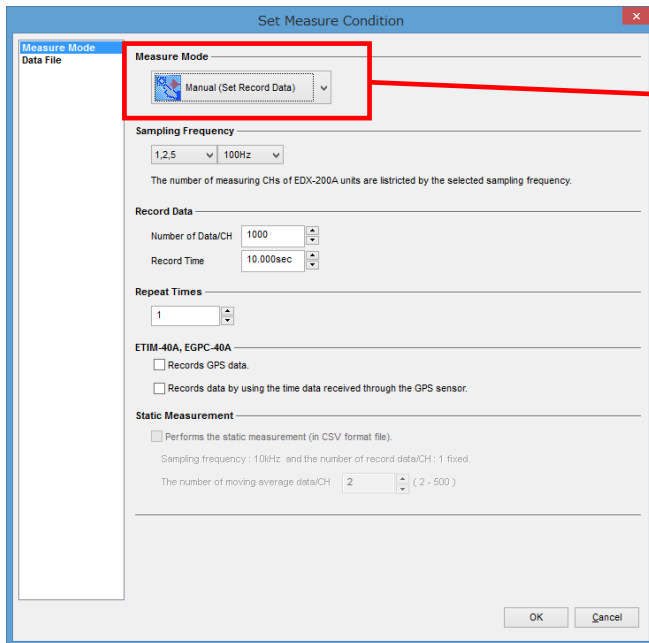
The screenshot shows the 'Set Measure Condition' dialog box. The 'Measure Mode' dropdown menu now shows 'Point ZERO(Manual)'. The checkbox 'Records data by using the time data received through the GPS sensor.' is checked and highlighted with a red box. A red arrow points from the text 'Put a check mark in the box next to the "Records data by using the time data received through the GPS sensor."' to this checkbox.

Put a check mark in the box next to the "Records data by using the time data received through the GPS sensor."

8-3-2 Setting DCS-100A for Point ZERO (Manual number of data) Measurements

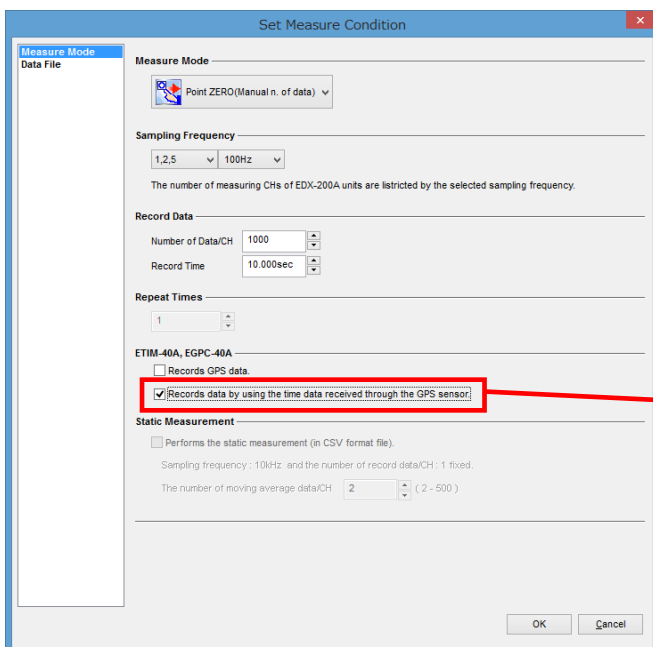
Before executing the Point ZERO (Manual number of data) measurements, set the measuring mode to the "Manual (Set Record Data)."

With the properly mounted ETIM-40A, point to **Set** - **Set Meas Mode** menu to set the measuring mode to the "Manual (Set Record Data)".



Select the "Manual (Set Record Data)."

Put a check mark in the box next to the "Records data by using the time data received through the GPS sensor." The measuring mode becomes "Point ZERO (Manual number of data)."



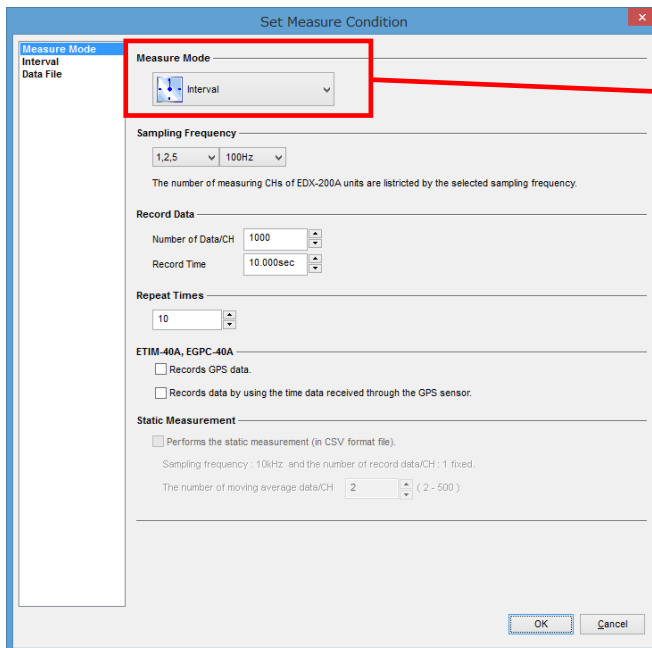
Put a check mark in the box next to the "Records data by using the time data received through the GPS sensor."

NOTE

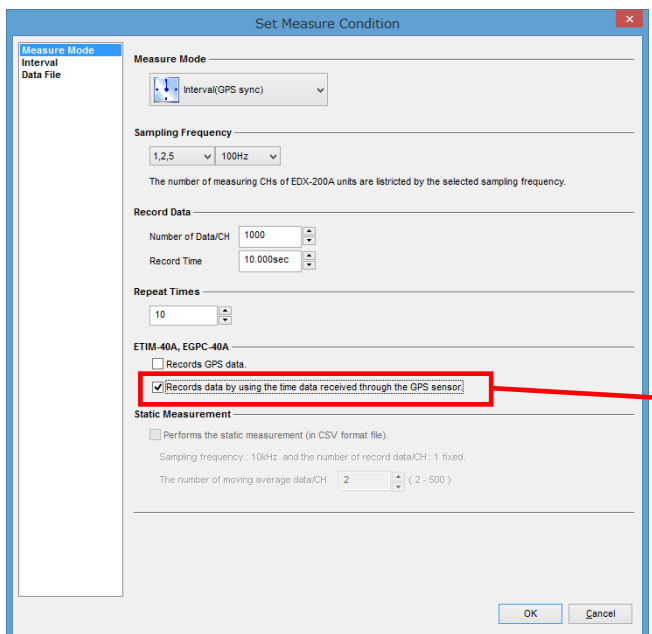
During the Point ZERO (Manual number of data) measurements, the number of repeat times is "1 (fixed)".

8-3-3 Setting DCS-100A for Interval (GPS synchronization) Measurements

Before executing the Interval (GPS synchronization) measurement, set the measuring mode to the "Interval." With the properly mounted ETIM-40A, point to **Set** - **Set Meas Mode** menu to set the measuring mode to the "Interval".

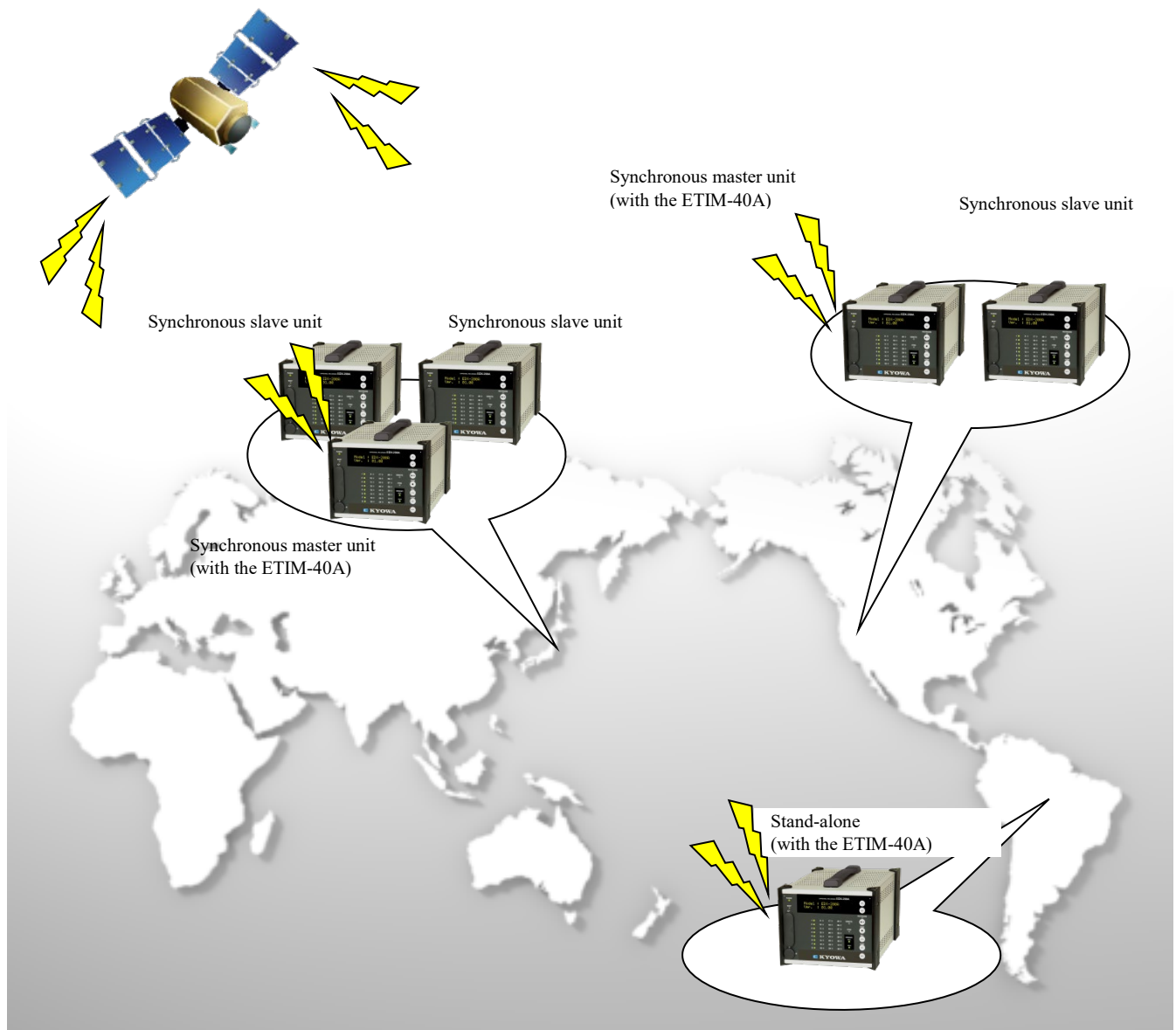


On the interval window, put a check mark in the box next to the “Records data by using the time data received through the GPS sensor.” The measuring mode becomes Interval (GPS synch).



8-3-4 Setting EDX-200A

This section describes how to install EDX-200A units for using the time synchronization function with the ETIM-40A.



The time synchronization function operates the both stand-alone units and synchronous operation units. The time synchronization function does not limit the total number of EDX-200A units. (Note that the number of EDX-200A units in one synchronous group is up to 8.)

NOTE

- When executing the synchronous operation, mount the ETIM-40A into the synchronous master unit. The time synchronization function is not available when mounting the ETIM-40A into the synchronous slave unit.
- You cannot use the EDX-100A series in this system configuration.
- When using the time synchronization function in the dual-sampling mode, the EDX-200A starts recording low-speed sampling data within ± 1 sampling of the recording start time.

8-3-5 Recording Operation when the GPS status is Error or NONE

When the GPS status is Error or NONE at the recording start time, the EDX-200A starts recording data in approx. 2 seconds after the true recording start time, based on the internal clock.

Note that the file, created by this action, has "\$_" at the head of the file name.

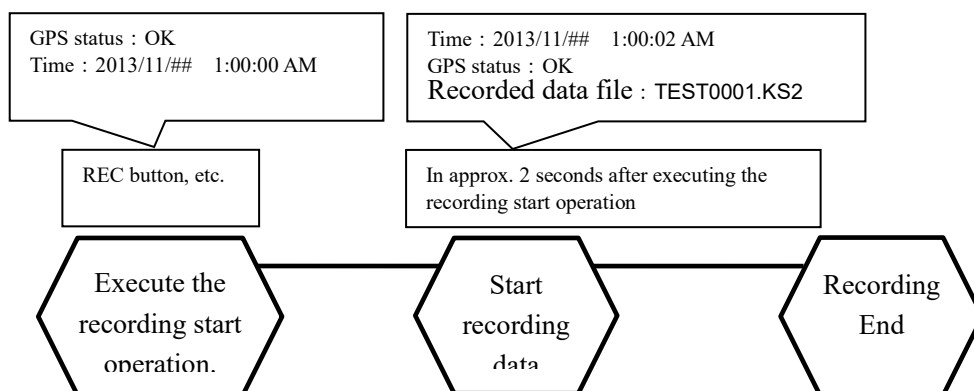
For details, see "8-5 GPS SENSOR STATUS."

Examples are described in the following.

<Example>

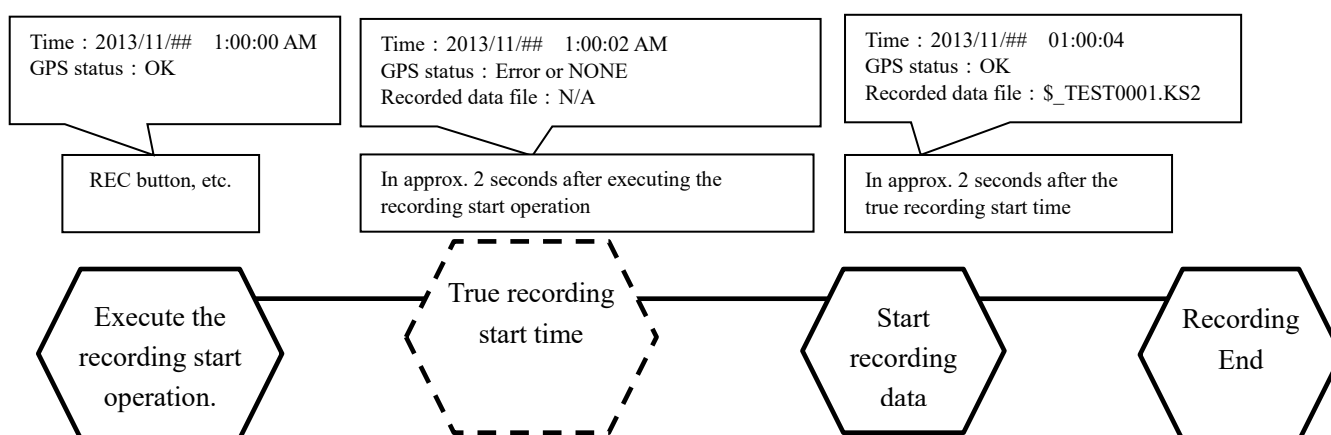
Measuring mode	Point ZERO (manual) measurements
File name	TEST
File No.	1

● When the GPS status is OK



When the GPS status is OK, the Point ZERO (manual/ Manual number of data) measurement starts recording data in approx. 2 seconds after executing the recording start operation (e.g. REC button) with the ms value "000" (hh:mm:ss.000ms).

● When the GPS status is Error or NONE

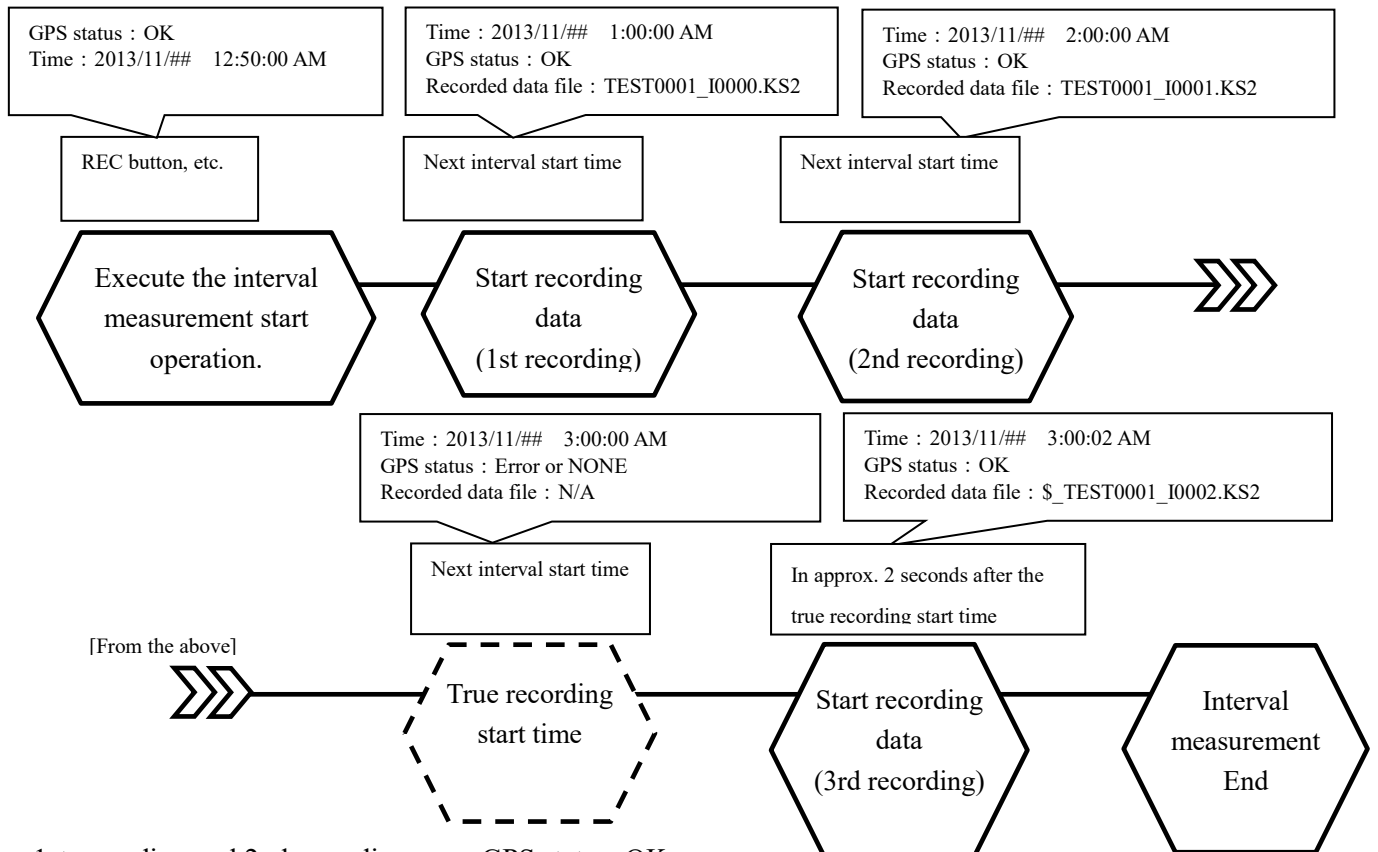


The GPS status is Error, due to bad reception conditions of the GPS satellites, or NONE, due to the disconnection of the GPS sensor, at the true recording start time.

→ The EDX-200A starts recording data in approx. 2 seconds after the true recording start time based on the internal clock.

< Example >

Measuring mode	Interval (GPS synchronization) measurement
The number of repeat times	2
Interval start time	2013/11/## 01:00:00
Interval Time	0 day 1 hour 0 minute 0 second
File name	TEST
File No.	1



1st recording and 2nd recording

GPS status: OK
Starts recording data at the pre-set interval start time.

3rd recording

The GPS status is Error, due to bad reception conditions of the GPS satellites, or NONE, due to the disconnection of the GPS sensor, at the true recording start time.

→The EDX-200A starts recording data in 2 seconds after the true recording time (interval start time) based on the internal clock.

8-4RECORDING GPS DATA

This section describes how to set the DCS-100A for recording GPS data.
The GPS data file is recorded by NMEA format.

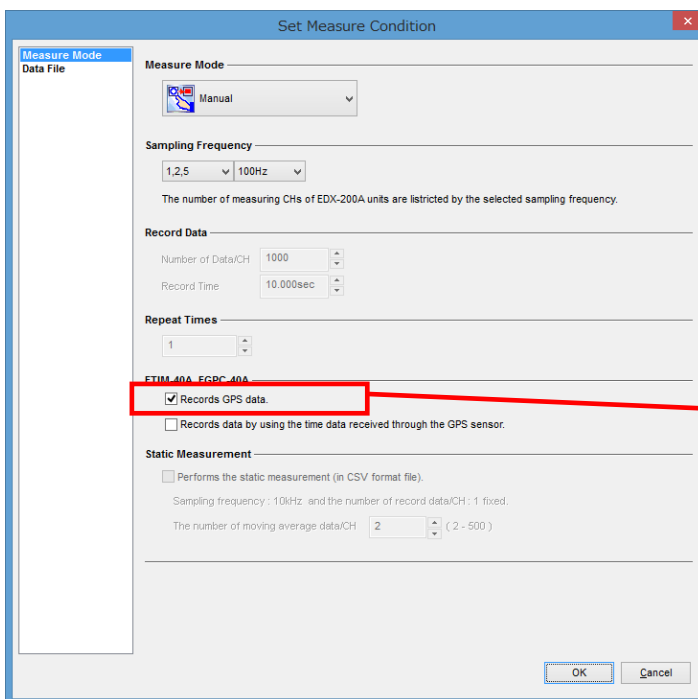
NOTE

- When recording the GPS data by using the ETIM-40A/EGPC-40A, saving the data in the "PC data file folder" is not allowed. When you select the "PC data file folder", you cannot record the GPS data.
- Irrespective of the pre-set sampling frequency, the EDX-200A records the GPS data as GPS sensors output data.
- When recording GPS data in the dual-sampling mode, the EDX-200A records GPS data as the low-speed sampling channels do.
- You cannot use the pause function while recording the GPS data.

8-4-1 Setting DCS-100A for Recording GPS Data

Before recording GPS data with the ETIM-40A or the EGPC-40A, with the properly mounted ETIM-40A or EGPC-40A, point to **Set** – **SetMeas Mode** menu.

Then Put a check mark in the box next to the “Records GPS data.”



Put a check mark in the box next to the “Records GPS data.”

8-4-2 Converting the NMEA Format Files into the KML/CSV Format Files

NMEA format files can convert into the KML/CSV format files by using the NMEA_Converter (NMEA FILE CONVERSION SOFTWARE).

The NMEA_Converter is saved in the "Tool" - "NmeaConverter" in the DVD.

For details, see INSTRUCTION MANUAL NMEA_Converter.

8-5 GPS SENSOR STATUS

After the Point ZERO (manual/ Manual number of data) measurements, interval (GPS synchronization) measurements, and after recording GPS data, you can check the GPS sensor status.

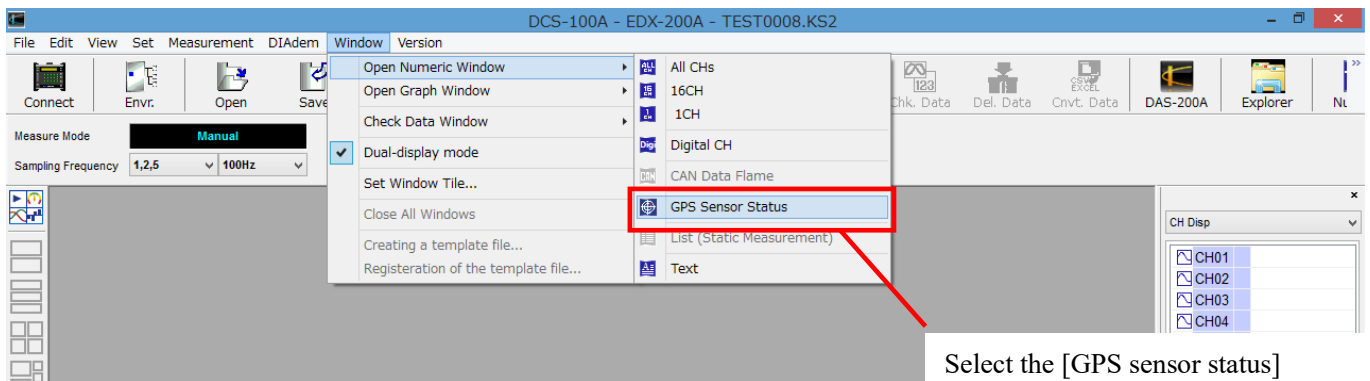
8-5-1 Details of the GPS Sensor Status

The GPS sensor status consists of the following information, obtained from the GPS sensor.

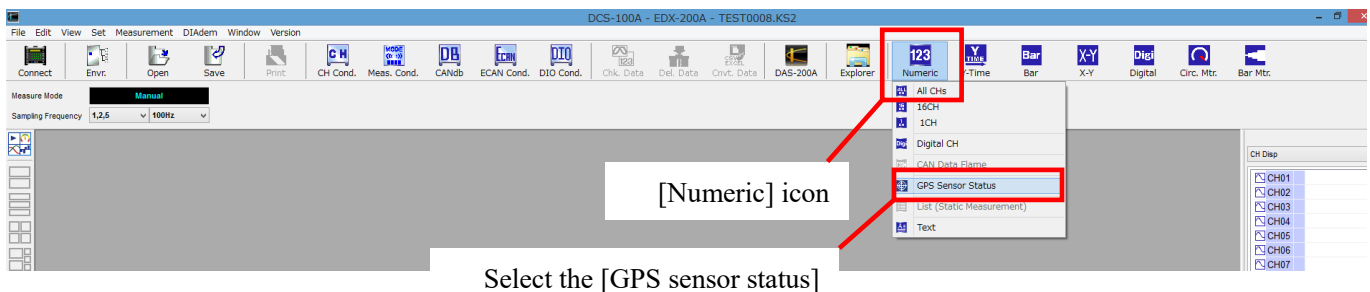
Latitude	Latitude (N: North latitude, S: South latitude)
Longitude	Longitude (E: East longitude, W: West longitude)
Speed	Speed (km/h)
GPS time	The time received from the GPS sensors.
Rec start time	Next recording start time
Num. of satellites	The number of GPS satellites in use. Use the "Num. of satellites" as a guide when checking the receiving conditions.
GPS status	OK : GPS fix available. The time synchronization function is available. Error : Fix not available. The time synchronization function is not available. NONE : GPS sensor not connected.
Traveling direction	Course over ground (degree, TN:0°)
Magnetic declination	Magnetic declination (+: East. -: West)
Altitude above sea level	Below mean sea level (m)
Geoidal height	Geoidal height (m)
HDOP	Horizontal dilution of precision
PDOP	Position dilution of precision
VDOP	Vertical dilution of precision

8-5-2 Checking the GPS Sensor Status

(1) On the DCS-100A, click the **Window** - **Open Numeric Window** - **GPS sensor status**.



Or, click the **Numeric** icon - **GPS sensor status**.

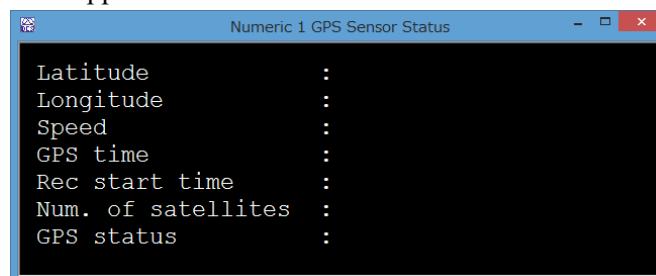


NOTE

The [GPS sensor status] does not appear when the ETIM-40A is not mounted in the EDX-200A.

The [GPS sensor status] is not able to be selected without a check mark in the box next to the "Records data by using the time data received through the GPS sensor." or without a check mark in the box next to the "Records GPS data."

(2) The GPS sensor status window appears.



MEMO

● GPS status

The required time for changing the GPS status from Error to OK varies with environments. The time is greatly affected by environments, including "the number of GPS satellites in use", "installation location of the GPS sensors", and "weather".

(3) You can also check the number of GPS satellites in use on the small indicator on the EDX-200A front panel.
 For details, see "15-4 ITEMS ON SMALL INDICATOR (Organic Light Emitting Display)."

GPS Status = OK
 Num.Sat = 8

GPS status	OK:	GPS fix available The time synchronization function is available.
	Err:	Fix not available The time synchronization function is not available.
	None:	GPS sensor not connected.

Num. Sat:	The number of GPS satellites in use. Use the "Num. of satellites" as a guide when checking the receiving conditions.
-----------	---

Rec Count [GPS:INT]
 100:3

Rec Count	Recording Count (based on the GPS time) and Recording Count (based on the internal clock). For details, see “8-3-5 Recording Operation when the GPS status is Error or NONE.”
-----------	--

9. GPS/MULTI-CHANNEL CAN CARD EGPC-40A

The EGPC-40A is an optional card for the EDX-200A. (OPTIONAL ACCESSORIES)

The EGPC-40A is designed to install on an optional slot on the EDX-200A-4H, EDX-200A-2H and EDX-200A-4T.

For the mounting method and replacing method, see “11-3 REPLACEMENT OF OPTIONAL CARD.”

Features

- Capable of recording CAN data and GPS data at the same time (up to 512 channels/card).
- Applicable to the CANdb (with the optional DCS-105A)
- Records GPS data (latitude, longitude, elevation, Course over ground, speed, time, receiving conditions, the number of satellites in use, etc.).
- Synchronizes the recording start time of remote EDX-200A units by using the time data received from GPS satellites.

(With the standard accessory GPS sensor)

- Equips with digital input/output port. The digital input/output port can also "Start the measurement", "Stop the measurement" and "Execute the balance" and so on with the Remote control (input) mode.

MEMO

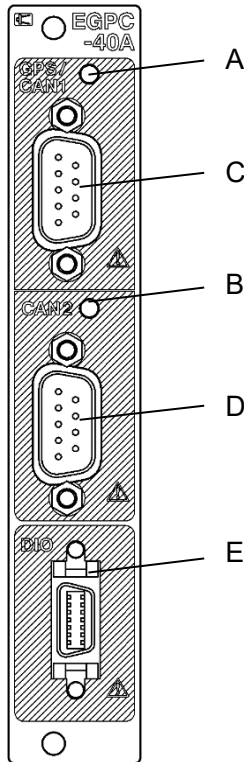
Time synchronization function

The "Time synchronization function" starts recording data with the ETIM-40A and EGPC-40A, by using the time data received from GPS satellites.

The following measurements use the time synchronization function.

- Point ZERO (manual/ Manual number of data) measurements
- Interval (GPS synchronization) measurements

9-1 CONTROLS AND INDICATORS



- A) Status LED for the GPS/CAN-1 port
Status LED for indicating the status of the GPS/CAN-1 port.
For details, see the following table 9-1.
- B) Status LED for CAN-2 port
Status LED for indicating the status of the CAN-2 port
For details, see the following table 9-1.
- C) GPS/CAN-1 port
Input/output port for GPS sensor/CAN data
To connect the GPS sensor, connect the accessory GPS sensor.
For the connector pin assignments, see “12-8 EGPC-40A: GPS/CAN-1 PORT CONNECTOR.”
- D) CAN-2 port
Input/output port of the CAN data
For the connector pin assignments, see “12-9 EGPC-40A: CAN-2 PORT CONNECTOR.”
- E) Digital input/output port
Digital input/output port
For details, see “7-4 DIGITAL INPUT/OUTPUT (DIO) PORTS.”
For the connector pin assignments, see “12-10 EGPC-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR.”

Table 9-1: Status LED and GPS/CAN port status

Measuring target	Color of LED	Description
GPS	Green	GPS sensor: Connected GPS status: OK Blinks while receiving data.
	Orange	GPS sensor: Connected GPS status: Error Blinks while receiving data.
	Red	GPS sensor: Not connected Blinks when a communication error occurs.
	OFF	Not using the time synchronization function and recording GPS data function.
CAN	Green	High-speed CAN Blinks while receiving data.
	Orange	Low-speed CAN Blinks while receiving data.
	Red	Lights up in red when a communication error occurs.

9-2 SETTING EGPC-40A

9-2-1 For Recording CAN Data

The EGPC-40A has the same functions as the ECAN-40A has.

For details, see “7-2 SETTING ECAN-40A” and “7-3 CONNECTING CAN BUS.”

9-2-2 For Using the Time Synchronization Function

The EGPC-40A has the same functions as the ETIM-40A has.

For details, see “8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)” and “8-3 MEASUREMENTS USING THE TIME SYNCHRONIZATION FUNCTION.”

9-2-3 For Recording GPS Data

The EGPC-40A has the same functions as the ETIM-40A has.

For details, see “8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)” and “8-4 RECORDING GPS DATA.”

NOTE

When using the time synchronization function or when recording GPS data, the GPS sensor is connected to the GPS/CAN-1 port. Therefore, you are able to use the CAN-2 port only for recording CAN data.

10. TROUBLE SHOOTING

In the event that the EDX-200A would not operate as expected or in a stable manner, you should trace the factor(s) that may be causing such a condition before concluding that the system has failed. Items to be checked and countermeasure against various phenomena are described in the following table. If the problem persists even after corrective action is taken, contact KYOWA or our representative.

If the system is damaged due to any causes other than as written in the Instruction Manual or if the user has disassembled or remodeled the system, Kyowa Electronic Instruments Co., Ltd. may not be able to offer repair service.

10-1 TROUBLE SHOOTING FOR THE MAIN UNIT EDX-200A

[For the EDX-200A-4H/EDX-200A-2H/EDX-200A-4T]

Phenomenon	Checked Items and Countermeasures
When the AC adapter is used, power is not supplied to the main unit. The POWER LED would not light up.	- Does the AC power outlet have the specified voltage? Check the voltage by using a tester or the like. See "3-2 CONNECTING THE POWER SUPPLY". - Is the power cord securely connected?
When the DC power supply is used, power is not supplied to the main unit. The POWER LED would not light up.	- Does the DC power supply have the specified voltage? Check the voltage by using a tester or the like. See "3-2 CONNECTING THE POWER SUPPLY". - Is the power cord securely connected? - Is the power supply connected to the correct polarity (+/-)? - Has the DC fuse blown? A spare fuse for the DC power supply is provided in the main unit. If the fuse is blown, remove the cause of the problem before replacing. - Is the capacity of the DC power supply sufficient?
The POWER LED flashes red.	If the applied DC power supply voltage is less than 11 V, the POWER LED flashes red. If the applied voltage is approximately 11 V to 36 V, the POWER LED lights up in green.
When the power is turned ON, the buzzer continues to beep and no operation is made.	Check whether the ID switch on the front panel is set to "8, 9, A, B, C, D, or E". If it is set to "8, 9, A, B, C, D, or E", no proper operation is available. Setting the ID switch → turn OFF the power → wait 5 seconds → turn ON the power once again.
The MEMORY DATA LED lights up in red, is flashing red, or lights out.	When ON: There is not enough residual capacity in the CF card for recording data. When flashing: There is not much residual capacity in the CF card for recording data. When OFF: No CF card is installed. Install the CF card. See the Table 2-4 in "2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL".
The MEMORY VOICE LED lights up in red, is flashing red, or lights out.	When ON: There is not enough residual capacity in the CF card for recording voice data When flashing: There is not much residual capacity in the CF card for recording voice data. When OFF: The EDX-200A is faulty. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives. See the Table 2-4 in "2-1 EDX-200A-4H/EDX-200A-2H/EDX-200A-4T FRONT PANEL".

Phenomenon	Checked Items and Countermeasures
The BUSY LED lights up in red and no measurement is available.	• Are measuring conditions properly set? • When offline, this state occurs after a measuring condition file is load with the LOAD switch. At this time, create a new EDX-200A measuring condition file using the DCS-100A, copy the file to the CF card and load with the LOAD switch. If the measuring conditions are properly set, the BUSY LED lights out. • When online, set measuring conditions on DCS-100A once again. If the measuring conditions are properly set, the BUSY LED lights out.
	• Did you replace the conditioner card? If the conditioner card is replaced, measuring conditions differs to cause the BUSY LED to light up. Set new measuring conditions once again.
	• Is the CF card properly inserted? If the CF card is not properly inserted, the MEMORY DATA LED on the front panel is turned OFF. Extract the CF card and insert it once again.
	• Is the residual capacity of the CF card sufficient? If the residual capacity of the CF card is not sufficient, the MEMORY DATA LED on the front panel lights up in red or flashes red. Replace the CF card with enough capacity or delete files from the CF card to secure sufficient capacity.
	• The data folder "EDX200A.99" may exist in the CF card or the number of files in the folder may be 1000 or more. Delete the folder in the CF card or format the CF card.
	• The recorded data file No. in the CF card or the file No. may be 9999. Change the recorded data file name by using the DCS-100A. See "15-1 NAME OF RECORDED DATA FILE".
The BUSY LED is flashing red.	• The built-in backup battery is reaching the end of its usable life. The used battery must be returned for replacement. Contact the KYOWA or our representatives.
The CH LED would not light up.	• Is the conditioner card properly inserted?
	• Is a card not applicable with the EDX-200A inserted? Only one CAN card (CAN-40A/41A) can be used. Make sure the CAN card is in the final slot. The DAC-40A card cannot be used. When using the ECAN-40A only, the CH LED will not light up.
	• Are all the measurement ON/OFF parameters set to OFF in Channel Conditions? Create a measuring condition file with the DCS-100A and use the LOAD switch for setup, or go online to make the setting directly.
A size '0' file exists in the CF card.	• When the power is turned OFF while recording data, a size '0' file may be created in some cases. Never turn OFF the power while recording data. If a size '0' file is found, be sure to format the CF card. • Make sure the CF card is the accessory one (1GB). Be sure to use the accessory CF card. Before using a CF card (larger than 1GB), please contact our website, business offices, or representatives.

[For the EDX-200A-1]

Phenomenon	Checked Items and Countermeasures
When the AC adapter is used, power is not supplied to the main unit. The POWER LED would not light up.	- Does the AC power outlet have the specified voltage? Check the voltage by using a tester or the like. See "3-2 CONNECTING THE POWER SUPPLY". - Is the power cord securely connected?
When the DC power supply is used, power is not supplied to the main unit. The POWER LED would not light up.	- Does the DC power supply have the specified voltage? Check the voltage by using a tester or the like. See "3-2 CONNECTING THE POWER SUPPLY". - Is the power cord securely connected? - Is the power supply connected to the correct polarity (+/-)? - Is the capacity of the DC power supply sufficient?
The POWER LED flashes red.	If the applied DC power supply voltage is less than 11 V, the POWER LED flashes red. If the applied voltage is approximately 11 V to 33 V, the POWER LED lights up in green.
The MEMORY DATA LED lights up in red, is flashing red, or lights out.	When ON: There is not enough residual capacity in the CF card for recording data. When flashing: There is not much residual capacity in the CF card for recording data. When OFF: No CF card is installed. Install the CF card. See the Table 2-6 in "2-2 EDX-200A-1 FRONT PANEL".
The BUSY LED lights up in red and no measurement is available.	- Are measuring conditions properly set? - When offline, this state occurs after a measuring condition file is load with the LOAD switch. At this time, create a new EDX-200A measuring condition file using the DCS-100A, copy the file to the CF card and load with the LOAD switch. If the measuring conditions are properly set, the BUSY LED lights out. - When online, set measuring conditions on DCS-100A once again. If the measuring conditions are properly set, the BUSY LED lights out. - Did you replace the conditioner card? If the conditioner card is replaced, measuring conditions differs to cause the BUSY LED to light up. Set new measuring conditions once again. - Is the CF card properly inserted? If the CF card is not properly inserted, the MEMORY DATA LED on the front panel is turned OFF. Extract the CF card and insert it once again. - Is the residual capacity of the CF card sufficient? If the residual capacity of the CF card is not sufficient, the MEMORY DATA LED on the front panel lights up in red or flashes red. Replace the CF card with enough capacity or delete files from the CF card to secure sufficient capacity. - The data folder "EDX200A.99" may exist in the CF card or the number of files in the folder may be 1000 or more. Delete the folder in the CF card or format the CF card. - The recorded data file No. in the CF card or the file No. may be 9999. Change the recorded data file name by using the DCS-100A. See "15-1 NAME OF RECORDED DATA FILE."
The BUSY LED is flashing red.	The built-in backup battery is reaching the end of its usable life. The used battery must be returned for replacement. Contact the KYOWA or our representatives.

Phenomenon	Checked Items and Countermeasures
The MEMORY LED is flashing green.	• No CF card inserted. Mount the CF card. • The internal voice-recording PCB may be damaged. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives.
The MEMORY LED is flashing orange.	• The internal voice-recording PCB may be damaged. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives.
The MEMORY LED is flashing red.	• Is the residual capacity of the CF card sufficient? If the residual capacity of the CF card is not sufficient, the MEMORY DATA LED on the front panel lights up in red or flashes red. Replace the CF card with enough capacity or delete files from the CF card to secure sufficient capacity. • The internal voice-recording PCB may be damaged. The faulty product must be returned to the KYOWA for troubleshooting and repair. Contact the KYOWA or our representatives.
The CH LED would not light up.	• Is the conditioner card properly inserted?
	• Is a card not applicable with the EDX-200A inserted? Only one CAN card (CAN-40A/41A) can be used. Make sure the CAN card is in the final slot. The DAC-40A card cannot be used.
	• Are all the measurement ON/OFF parameters set to OFF in Channel Conditions? Create a measuring condition file with the DCS-100A and use the LOAD switch for setup, or go online to make the setting directly.
A size '0' file exists in the CF card.	• When the power is turned OFF while recording data, a size '0' file may be created in some cases. Never turn OFF the power while recording data. If a size '0' file is found, be sure to format the CF card. • Make sure the CF card is the accessory one (1GB). Be sure to use the accessory CF card. Before using a CF card (larger than 1GB), please contact our website, business offices, or representatives.

10-2 TROUBLESHOOTING FOR THE CVM-40A, CVM-41A

Phenomenon	Checked Items and Countermeasures (* is content about the only CVM-41A)
The CH LED would not light up even if the card is installed.	• See "The CH LED would not light up" in "10-1 TROUBLE SHOOTING FOR THE MAIN UNIT EDX-200A." • Extract the conditioner card and check whether or not connector pins on the other side of the panel is bent. If they are bent, correct the problem and install the card. Then, check the card model is displayed by using the DCS-100A. (When you use the EDX-200A-4T, you can not insert and extract the conditioner card.)
A balance cannot be achieved.	• Is OFF or NONE selected for the Balance ON/OFF item in Channel Conditions? If "OK" would not appear even if "ON" is selected, it is assumed that no sensor is connected to the input, sensor is faulty or sensor input is unstable. • Check that the input does not exceeding the balancing range. When the excitation voltage is 2 V: Within $\pm 50000 \mu\text{m/m}$ When the excitation voltage is 5 V: Within $\pm 20000 \mu\text{m/m}$ * When the excitation voltage is 10 V: Within $\pm 10000 \mu\text{m/m}$ • Check the excitation voltage and connected sensors. When the excitation voltage is 2 V: Applicable bridge resistance is 120 to 1000 ohm When the excitation voltage is 5 V: Applicable bridge resistance is 350 to 1000 ohm * When the excitation voltage is 10 V: Applicable bridge resistance is 500 to 1000 ohm • Check for excessive noise. See the following "Noise interference is exceeding".
Noise interference is exceeding.	• Is the GND terminal of the EDX-200A grounded? When using the strain gage, noise can be reduced by connecting the GND terminal of the EDX-200A to the test specimen to which the strain gage is attached. See "3-3 CONNECTING SENSORS". • Is there an inverter motor, machining equipment, welder or AC power supply for power systems placed near the input cable for the EDX-200A? At this time, set the input cable far apart from the power source. • A low pass filter can be provided to reduce noise. Set cutoff frequency of the low pass filter to about 2 to 5 times the frequency of the input signal. (Example: If the input is DC to 100 Hz, select a cutoff frequency of 300 Hz.) If input signals change abruptly, set the parameter to about 10 times the frequency of the input signal.

10-3 TROUBLESHOOTING FOR THE DPM-42B/A (-F), DPM-42B-I (-F)

Phenomenon	Checked Items and Countermeasures
When conducting the internal sensitivity compensation, "Error" appears.	- Check if the sensors are correctly connected. Check for any fault sensors. The bridge resistance of the connected sensor is within 120 to 10000 ohm. - Check the oscillator settings. For the stand-alone measurement (1 unit): The oscillator is "Internal". For the synchronous master unit with a synchronous cable: The oscillator is "Internal". For the synchronous slave unit with a synchronous cable: The oscillator is "External". For the synchronous master unit with a LAN cable: The oscillator is "Internal". For the synchronous slave unit with a LAN cable: The oscillator is "Internal". See "3-7-1 Synchronous Operation by Using Synchronous cables N-95/N-128", "3-7-2 Synchronous Operation by Using LAN Cables (without using synchronous cables)", and "3-7-3 Synchronous Operation by Using DPM-42B/A (-F), DPM-42B-I (-F)".
A balance cannot be achieved.	- Is OFF selected for the Balance ON/OFF item in Channel Conditions? If "OK" would not appear even if "ON" is selected, it is assumed that no sensor is connected to the input, sensor is faulty or sensor input is unstable. - Check the oscillator settings. For the stand-alone measurement (1 unit): The oscillator is "Internal". For the synchronous master unit with a synchronous cable: The oscillator is "Internal". For the synchronous slave unit with a synchronous cable: The oscillator is "External". For the synchronous master unit with a LAN cable: The oscillator is "Internal". For the synchronous slave unit with a LAN cable: The oscillator is "Internal". - Check for excessive noise. See the following "Noise interference is exceeding".
Noise interference is exceeding.	- Is the GND terminal of the EDX-200A grounded? When using the strain gage, noise can be reduced by connecting the GND terminal of the EDX-200A to the test specimen to which the strain gage is attached. See "3-3 CONNECTING SENSORS". - Is there an inverter motor, machining equipment, welder or AC power supply for power systems placed near the input cable for the EDX-200A? At this time, set the input cable far apart from the power source. - A low pass filter can be provided to reduce noise. Set cutoff frequency of the low pass filter to about 2 to 5 times the frequency of the input signal. (Example: If the input is DC to 100 Hz, select a cutoff frequency of 300 Hz.) If input signals change abruptly, set the parameter to about 10 times the frequency of the input signal.

10-4 TROUBLESHOOTING FOR THE ECAN-40A

Phenomenon	Checked Items and Countermeasures
CAN data cannot be received.	• Check if the CAN cables are correctly connected and have no connection error. • Check if the CAN communication conditions are correctly set. Make sure the conditions are correct by referring to "7-2-1 Setting CAN Communication Conditions". • Check if the CAN receiving conditions are correctly set. Make sure the conditions are correct by referring to "7-2-2 Setting CAN Receiving Conditions".
CAN data cannot be output.	• Check if the CAN cables are correctly connected and have no connection error. • Check if the CAN communication conditions are correctly set. Make sure the conditions are correct by referring to "7-2-1 Setting CAN Communication Conditions". • Check if the CAN communication conditions and CAN output conditions are correctly set. Make sure the conditions are correct by referring to "7-2-3 Setting CAN Output Conditions".
Digital input/output cannot be executed.	• Make sure the digital input/output ports are connected correctly by referring to "7-4-1 External Input/Output Circuit" and "12-5 ECAN-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR". • Check if the digital input/output (DIO) conditions are correctly set. Make sure the conditions are correct by referring to "7-4-2 Setting Digital Input/Output (DIO) Conditions".
The "ECAN overflow" occurs.	• Check if the number of CAN messages to be received per second is too many. Make sure the CAN messages input is within the restriction by referring to "7-2-4 The number of CAN Messages that can be Received Per Second".
	• Try to decrease the number of analog channels to be recorded. • Try to lower the sampling frequency. • Try to set "the AD data format" to "16 Bit". Make sure the CAN messages input is within the restriction by referring to "7-2-4 The number of CAN Messages that can be Received Per Second".

10-5 TROUBLESHOOTING FOR THE ETIM-40A

Phenomenon	Checked Items and Countermeasures
Measurements cannot be started.	• Check if the GPS sensor is correctly connected and have no error. When the box next to the "Use time synchronization (ETIM-40A)" is checked without connecting the GPS sensor, the EDX-200A will not start measurements.
The GPS status is Error.	• Check if the GPS sensor is correctly connected and have no error. Make sure there is no obstacle around the GPS sensor.
Status LED for the GPS port is OFF.	● For Point ZERO (manual/ Manual number of data)measurements or Interval (GPS synchronization) measurements Make sure the measuring mode is Manual, Manual (Set Record Data), or Interval. Make sure the box next to the "Records data by using the time data received through the GPS sensor." is checked. Make sure the conditions are correct by referring to "8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)" and "8-3 MEASUREMENTS USING THE TIME SYNCHRONIZATION FUNCTION." ● For recording GPS data Make sure the box next to the "Records GPS data." is checked. Make sure the conditions are correct by referring to "8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)" and "8-4 RECORDING GPS DATA."
Digital input/output cannot be executed.	• Make sure the digital input/output ports are connected correctly by referring to "7-4-1 External Input/Output Circuit" and "12-7 ETIM-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR." • Check if the digital input/output (DIO) conditions are correctly set. Make sure the conditions are correct by referring to "7-4-2 Setting Digital Input/Output (DIO) Conditions."

10-6 TROUBLESHOOTING FOR THE EGPC-40A

Phenomenon	Checked Items and Countermeasures
CAN data cannot be received.	• Check if the CAN cables are correctly connected and have no connection error. • Check if the CAN communication conditions are correctly set. Make sure the conditions are correct by referring to "7-2-1 Setting CAN Communication Conditions". • Check if the CAN receiving conditions are correctly set. Make sure the conditions are correct by referring to "7-2-2 Setting CAN Receiving Conditions".
CAN data cannot be output.	• Check if the CAN cables are correctly connected and have no connection error. • Check if the CAN communication conditions are correctly set. Make sure the conditions are correct by referring to "7-2-1 Setting CAN Communication Conditions". • Check if the CAN communication conditions and CAN output conditions are correctly set. Make sure the conditions are correct by referring to "7-2-3 Setting CAN Output Conditions".
The "ECAN overflow" occurs.	• Check if the number of CAN messages to be received per second is too many. Make sure the CAN messages input is within the restriction by referring to "7-2-4 The number of CAN Messages that can be Received Per Second". • Try to decrease the number of analog channels to be recorded. • Try to lower the sampling frequency. • Try to set "the AD data format" to "16 Bit". Make sure the CAN messages input is within the restriction by referring to "7-2-4 The number of CAN Messages that can be Received Per Second".
Measurements cannot be started.	• Check if the GPS sensor is correctly connected and have no error. When the box next to the "Use time synchronization (ETIM-40A)" is checked without connecting the GPS sensor, the EDX-200A will not start measurements.
The GPS status is Error.	• Check if the GPS sensor is correctly connected and have no error. Make sure there is no obstacle around the GPS sensor.

Phenomenon	Checked Items and Countermeasures
Status LED for the GPS port is OFF.	● For Point ZERO (manual/ Manual number of data)measurements or Interval (GPS synchronization) measurements Make sure the measuring mode is Manual, Manual (Set Record Data), or Interval. Make sure the box next to the “Records data by using the time data received through the GPS sensor.” is checked. Make sure the conditions are correct by referring to “8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)” and “8-3 MEASUREMENTS USING THE TIME SYNCHRONIZATION FUNCTION.” ● For recording GPS data Make sure the box next to the “Records GPS data.” is checked. Make sure the conditions are correct by referring to “8-2 PREPARATION FOR MEASUREMENT (ETIM-40A)” and “8-4 RECORDING GPS DATA.”
Digital input/output cannot be executed.	• Make sure the digital input/output ports are connected correctly by referring to "7-4-1 External Input/Output Circuit" and "12-10 EGPC-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR". • Check if the digital input/output (DIO) conditions are correctly set. Make sure the conditions are correct by referring to "7-4-2 Setting Digital Input/Output (DIO) Conditions".

11. MAINTENANCE

11-1 MAINTENANCE DESCRIPTIONS

For the EDX-200A, the following items should be serviced for scheduled maintenance.
Maintenance service should be performed at the intervals specified below.

Table 11-1: Calibration of apparatus

Item	Content	Service intervals
Evaluation of accuracy of the built-in conditioner card	An annual maintenance inspection is recommended to ensure the accuracy of the built-in conditioner card. Must be returned to KYOWA for the scheduled maintenance inspection.	Once a year
Evaluation of operation of the EDX-200A	An annual maintenance inspection is recommended to ensure the operation of the EDX-200A. Must be returned to KYOWA for the scheduled maintenance inspection.	Once a year

Table 11-2: Replacement of limited life parts

Item	Content	Service intervals
Replacement of built-in backup battery	Service life of a built-in backup battery, depends on the frequency of use and ambient temperature, is approximately 5 years. If more than 5 years have elapsed, the battery capacity will deteriorate. Replace it. Must be returned to KYOWA for the replacement.	Once in 5 years
Built-in electric double-layer capacitor	Service life of a built-in electric double-layer capacitor, depends on the frequency of use and ambient temperature, is approximately 5 years. If more than 5 years have elapsed, the back up time will short. Replace it. Must be returned to KYOWA for the replacement.	Once in 5 years
Small indicator	Service life of the small indicator, depends on the frequency of use and ambient temperature, is approximately 5 years. If more than 5 years have elapsed, the small indicator will not display characters properly. Replace it. Must be returned to KYOWA for the replacement. [NOTE] The small indicator is not included in the EDX-200A-1.	Once in 5 years
CF card (accessory)	The CF card is a limited life part. Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. We recommend you purchase a new AC adapter every 5 years.	Once in 5 years
AC adapter (optional)	The AC adapter is a limited life part. Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. We recommend you purchase a new AC adapter every 5 years.	Once in 5 years

The replacement frequency of limited-life parts is about five years, assuming eight hours of use, 365 days a year. The above figure is only a rough indication. We do not promise or guarantee that the EDX-200A is error-free or will be repaired at no additional cost in the above period.

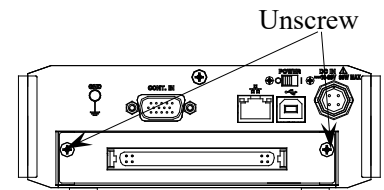
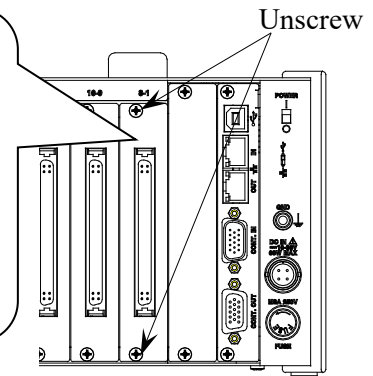
To operate the EDX-200A normally, finding a sign of the EDX-200A failure early by daily/periodic inspections and taking the corrective action are required. Particularly if the EDX-200A is used continuously for long periods of time, early replacement of parts is required for the purposes of safety and stable operation.

11-2 REPLACEMENT OF CONDITIONER CARD

To replace the conditioner, turn OFF the power and take the following steps:

- (1) Unscrew the screws located on both sides of the conditioner panel.
- (2) Slowly pull toward the conditioner card.
- (3) Slowly push in the new replacement card along the guide rail in the casing, and then tighten the screws at the top and bottom of the conditioner.
- (4) After replacing the conditioner card, turn ON the EDX-200A and set measuring conditions. If the CH LED corresponding to the slot for which the conditioner card was replaced lights up, it means that it is properly replaced. If the EDX-200A is not operating properly, the CH LED remains OFF even if the measuring conditions are set. At this time, extract the conditioner card and re-insert once again.

Remove the screws located on both sides of the card you want to replace and pull out the card.



NOTE

- When you use the EDX-200A-4T, you can not insert and extract the conditioner card.
- When the power is turned ON after the conditioner card is replaced with a new one or after a conditioner card is first inserted, the CH LED for that conditioner card remains OFF and the BUSY LED lights up in red indicating that the EDX-200A is not ready for measurement. At this time, set measuring conditions.

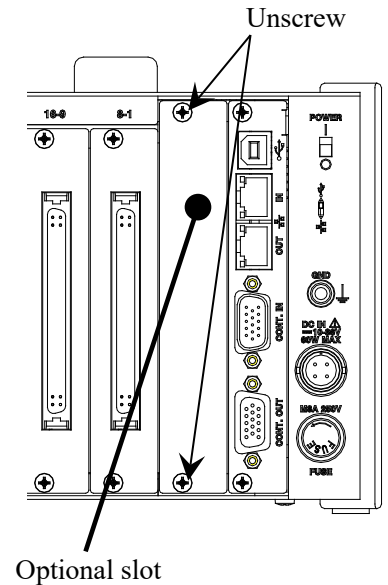
11-3 REPLACEMENT OF OPTIONAL CARD

Mount an optional card on the optional slot of the EDX-200A-4H or EDX-200A-2H.

Before mounting or changing an optional card, be sure to turn OFF the EDX-200A.

Change optional card as follows.

- (1) Unscrew the screws located on both sides of the optional card panel.
- (2) When an optional card is already mounted, slowly pull the optional card toward yourself.
- (3) Slowly insert the new optional card along the guide rail.
Tighten the screws at the both sides of the optional card panel.



- (4) Turn ON the EDX-200A.
Point to **File** - **Environment...** - **Configuration...** - **Read the configuration of the connecting devices...** on the DCS-100A.

Make sure the optional card is recognized correctly.

If the optional card is not recognized, turn OFF the EDX-200A and re-insert the optional card again.

NOTE

- When you use the EDX-200A-4T, you can not insert and extract the conditioner card.
- After changing (or mounting) an optional card and turning ON the power, since conditions are not set, measurement cannot be executed.

At this time, set measuring conditions again.

11-4 INITIALIZING EDX-200A

You can initialize the EDX-200A to factory default by conducting the following procedures.

[For the EDX-200A-4H/EDX-200A/2H/ EDX-200A-4T]

- (1) Turn OFF the EDX-200A.
- (2) Set the ID switch "F".
- (3) With the STOP switch and OPT. switch pressed, turn ON the EDX-200A.
- (4) If you hear the buzzer issuing a "bip, bip, bip, bip" sound, stop pressing the 2 switches.
- (5) The REMOTE LED and SYNC LED start flashing green at the same time.
The EDX-200A starts initializing.
- (6) Wait a few moments. If you hear the buzzer issuing a "bip, bip, bip" sound, the REMOTE LED and SYNC LED light up in green at the same time.
- (7) Turn OFF the power, wait for about 5 seconds, then turn ON the power once again to initialize the EDX-200A to factory default.

MEMO

[Factory Default of LAN Settings of the EDX-200A]

IP address	192.168.200.200
Subnet mask	255.255.255.0
Default gateway	0.0.0.0

[For the EDX-200A-1]

- (1) Turn OFF the EDX-200A.
- (2) With the STOP switch and OPT. switch pressed, turn ON the EDX-200A.
- (3) If you hear the buzzer issuing a "bip, bip, bip, bip" sound, stop pressing the 2 switches.
- (4) The REC/PAUSE LED and CH2 LED start flashing orange at the same time.
The EDX-200A starts initializing.
- (5) Wait a few moments. If you hear the buzzer issuing a "bip, bip, bip" sound, the REC/PAUSE LED and CH2 LED light up in green at the same time.
- (6) Turn OFF the power, wait for about 5 seconds, then turn ON the power once again to initialize the EDX-200A to factory default.

MEMO

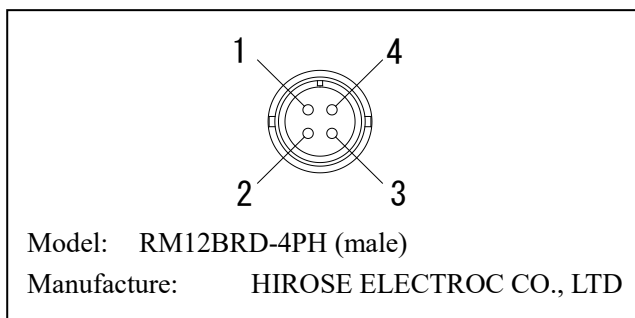
[Factory Default of LAN Settings of the EDX-200A]

IP address	192.168.200.200
Subnet mask	255.255.255.0
Default gateway	0.0.0.0

12. CONNECTOR PIN ASSIGNMENT

12-1 POWER SUPPLY CONNECTOR

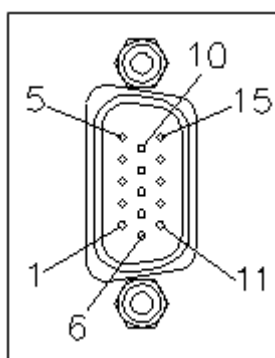
Pin No	Name
1	Positive side
2	Positive side
3	Negative side
4	Negative side



Adaptable plug (cable side): RM12BPE-4S (HIROSE ELECTROC CO., LTD female)

12-2 CONT. IN CONNECTOR

Pin No	Name	Description
1	reserve	Connect nothing.
2	reserve	Connect nothing.
3	reserve	Connect nothing.
4	OSC+	Oscillator input and output for the DPM card
5	5 V	Power supply of 5 V (Connect nothing.)
6	reserve	Connect nothing.
7	reserve	Connect nothing.
8	reserve	Connect nothing.
9	reserve	Connect nothing.
10	OSC-	Oscillator input and output for the DPM card
11	reserve	Connect nothing.
12	EXT_CLK_IN	External clock input
13	EXT_TRG_IN	External trigger input
14	reserve	Connect nothing.
15	GND	GND (COM for external inputs)

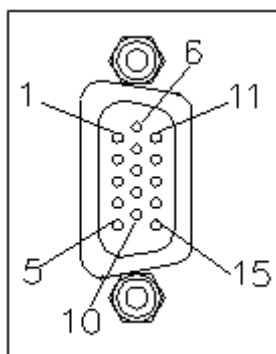


Model: XM4K-1542-502 (male)
 Manufacture: OMRON Corporation

Adaptable connector (cable side): DHW20-151F200 (Technical electron co. Ltd. female)
 Hood: 17JE-09H2-1C4 (DDK Ltd. unified screw thread)

12-3 CONT. OUT CONNECTOR

Pin No	Name	Description
1	reserve	Connect nothing.
2	reserve	Connect nothing.
3	reserve	Connect nothing.
4	OSC+	Oscillator input and output for the DPM card
5	5 V	Power supply of 5 V (Connect nothing.)
6	reserve	Connect nothing.
7	reserve	Connect nothing.
8	reserve	Connect nothing.
9	reserve	Connect nothing.
10	OSC-	Oscillator input and output for the DPM card
11	reserve	Connect nothing.
12	EXT_CLK_OUT	External clock output
13	EXT_TRG_OUT	External trigger output
14	reserve	Connect nothing.
15	GND	GND (COM for external inputs)



Model: XM4L-1542-502 (female)
 Manufacture: OMRON Corporation

Adaptable connector (cable side): DHW10-151F200 (Technical electron co. Ltd. male)
 Hood: 17JE-09H2-1C4 (DDK Ltd. unified screw thread)

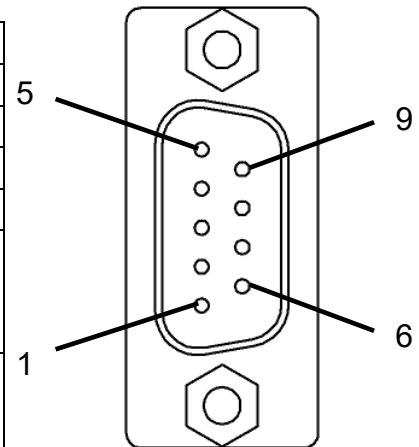
NOTE

- The EDX-200A-1 does not have the CONT. OUT connector.

12-4 ECAN-40A: CAN PORT CONNECTOR

The pin assignment of the CAN port connector (port 1 and port 2) are as follows.

Pin No	Name	Description
1	Reserve	Connect nothing.
2	CAN_L	Input/output the CAN low signal.
3	CAN_GND	GND of the CAN
4	Reserve	Connect nothing.
5	(GND)	GND (Internally short-circuited with the pin No. 3 or pin No. 6.)
6	(GND)	GND (Internally short-circuited with the pin No. 3 or pin No. 5.)
7	CAN_H	Input/output the CAN high signal.
8	Reserve	Connect nothing.
9	Reserve	Connect nothing.



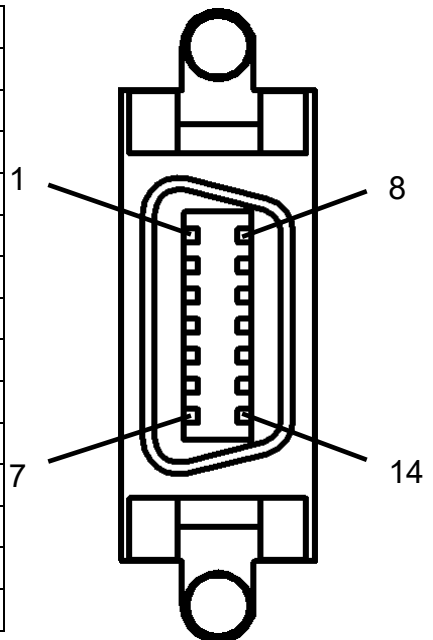
Manufacture: ITT CANON

Model: ESDE-9P-R1N-F

12-5 ECAN-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR

The pin assignment of the digital input/output port connector is as follows.

Pin No	Name	Description
1	I+5V	5 V power supply for external pull-up
2	DIO_1	Digital input/output, first bit
3	DIO_2	Digital input/output, second bit
4	DIO_3	Digital input/output, third bit
5	DIO_4	Digital input/output, forth bit
6	DIO_5	Digital input/output, fifth bit
7	DIO_6	Digital input/output, sixth bit
8	Reserve	Connect nothing.
9	Reserve	Connect nothing.
10	Reserve	Connect nothing.
11	Reserve	Connect nothing.
12	DIO_7	Digital input/output, seventh bit
13	DIO_8	Digital input/output, eighth bit
14	ICOM	COM for external inputs



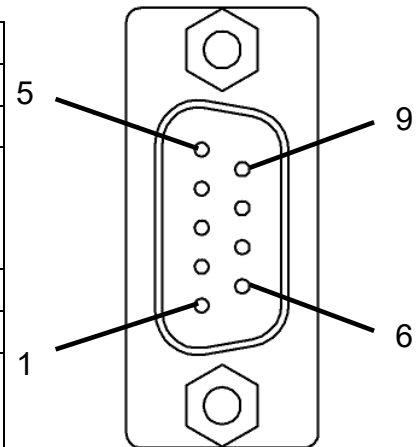
Manufacture: 3M

Model: 10214-52A2PL

12-6 ETIM-40A: GPS PORT CONNECTOR

The pin assignment of the GPS port connector is as follows.

Pin No.	Name	Description
1	D5V	5 V power supply for GPS sensor
2	Reserve	Connect nothing.
3	(GND)	GND (Internally short-circuited with the pin No. 5 and pin No. 6.)
4	TxD	Transmit exchange data
5	DCOM	GND for GPS sensor
6	(GND)	GND (Internally short-circuited with the pin No. 3 and pin No. 5.)
7	Reserve	Connect nothing.
8	RxD	Received exchange data
9	PPS	GPS-synchronous pulse signal

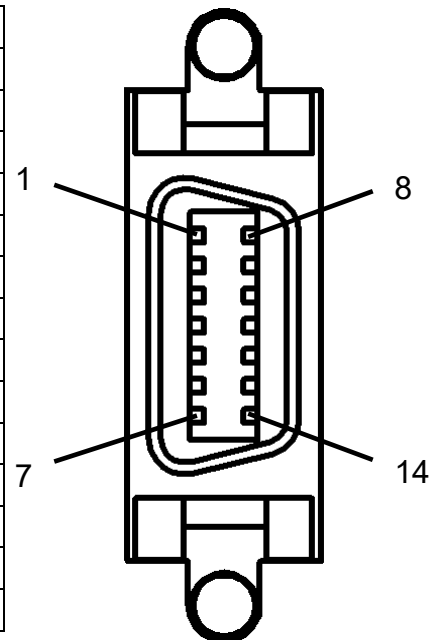


Manufacture: ITT CANON
Model: ESDE-9P-R1N-F

12-7 ETIM-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR

The pin assignment of the digital input/output port connector is as follows.

Pin No.	Name	Description
1	I+5V	5 V power supply for external pull-up
2	DIO_1	Digital input/output, first bit
3	DIO_2	Digital input/output, second bit
4	DIO_3	Digital input/output, third bit
5	DIO_4	Digital input/output, forth bit
6	DIO_5	Digital input/output, fifth bit
7	DIO_6	Digital input/output, sixth bit
8	Reserve	Connect nothing.
9	Reserve	Connect nothing.
10	Reserve	Connect nothing.
11	Reserve	Connect nothing.
12	DIO_7	Digital input/output, seventh bit
13	DIO_8	Digital input/output, eighth bit
14	ICOM	COM for external inputs

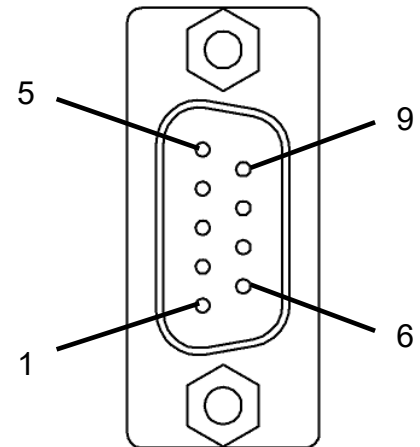


Manufacture: 3M
Model: 10214-52A2PL

12-8 EGPC-40A: GPS/CAN-1 PORT CONNECTOR

The pin assignment of the GPS/CAN-1 port connector is as follows.

Pin No.	Name	Description
1	D5V	5V power supply for GPS sensor
2	CAN_L	Input/output the CAN low signal
3	CAN_GND	GND of the CAN
4	TxD	Transmit exchange data
5	DCOM	GND for GPS sensor
6	(GND)	GND (Internally short-circuited with the pin No. 3 or pin No. 5.)
7	CAN_H	Input/output the CAN high signal
8	RxD	Received exchange data
9	PPS	GPS-synchronous pulse signal

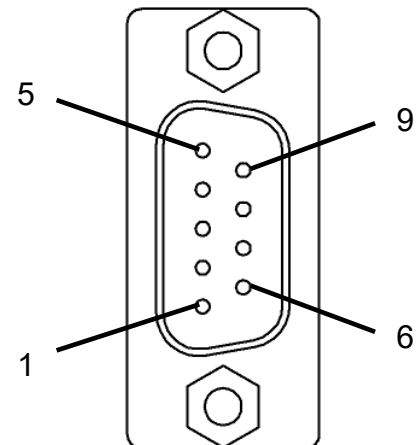


Manufacture: ITT CANON
Model: ESDE-9P-R1N-F

12-9 EGPC-40A: CAN-2 PORT CONNECTOR

The pin assignment of the CAN-2 port connector is as follows.

Pin No.	Name	Description
1	Reserve	Connect nothing.
2	CAN_L	Input/output the CAN low signal
3	CAN_GND	GND of the CAN
4	Reserve	Connect nothing.
5	(GND)	GND (Internally short-circuited with the pin No. 3 or pin No. 6.)
6	(GND)	GND (Internally short-circuited with the pin No. 3 or pin No. 5.)
7	CAN_H	Input/output the CAN high signal
8	Reserve	Connect nothing.
9	Reserve	Connect nothing.

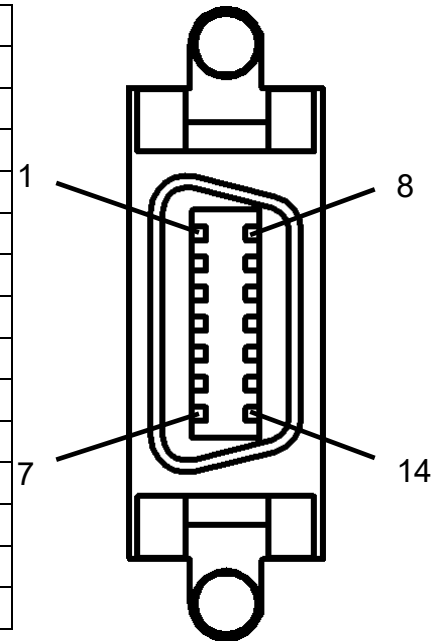


Manufacture: ITT CANON
Model: ESDE-9P-R1N-F

12-10 EGPC-40A: DIGITAL INPUT/OUTPUT PORT CONNECTOR

The pin assignment of the digital input/output port connector is as follows.

Pin No.	Name	Description
1	I+5V	5 V power supply for external pull-up
2	DIO_1	Digital input/output, first bit
3	DIO_2	Digital input/output, second bit
4	DIO_3	Digital input/output, third bit
5	DIO_4	Digital input/output, forth bit
6	DIO_5	Digital input/output, fifth bit
7	DIO_6	Digital input/output, sixth bit
8	Reserve	Connect nothing.
9	Reserve	Connect nothing.
10	Reserve	Connect nothing.
11	Reserve	Connect nothing.
12	DIO_7	Digital input/output, seventh bit
13	DIO_8	Digital input/output, eighth bit
14	ICOM	COM for external inputs



Manufacture: 3M
Model: 10214-52A2PL

13. HARDWARE SPECIFICATIONS

13-1 OVERALL SPECIFICATIONS

(1) Model

Model name	Maximum input channels	Number of slots for conditioner cards	Number of slots for optional functions	Remarks
EDX-200A-4H	32	4	1	With handle
EDX-200A-2H	16	2	1	With handle
EDX-200A-1	8	1	—	Without handle
EDX-200A-4T	32	4	1	With handle

[Note] Maximum input channels: When inserting 8-CH conditioner cards

(2) Conditioner cards for analog inputs

Strain/Voltage/Acceleration Measurement Card:	CVM-40A, CVM-41A
Strain/Voltage Measurement Card:	CDV-40B/A and CDV-40B/A-F
Dynamic strain amplifier card:	DPM-42B/A, DPM-42B/A-F, DPM-42B-I, and DPM-42B-I-F
Thermocouple card:	CTA-40A
F/V Converter card:	CFV-40A
Charge amplifier card:	CCA-40A and CCA-40A-F
Strain/Voltage Measurement Card:	CDV-44AS
Signal Conditioner Card (120ohm):	CDA-44AS
Signal Conditioner Card (350ohm):	CDA-45AS

[Note] The EDX-200A-4T can use only the CVM-40A, CVM-41A, CDV-40B/A and CDV-40B/A-F which performed temperature extension processing.

When you use the EDX-200A-4T, you cannot replace any conditioner cards.

[Note] The EDX-200A limits the number of CFV-40A.

EDX-200A-1/2H: The number of CFV-40A is up to 1.

EDX-200A-4H/4T: The number of CFV-40A is up to 2.

(3) Conditioner cards for CAN data inputs

CAN card (1 port, maximum 128 channels):	CAN-40A
CAN card (2 ports, maximum 256 channels):	CAN-41A

[Note] Can install one CAN-40A or CAN-41A to the final slot.

[Note] The EDX-200A-4T can use only the CAN-40A and CAN-41A which performed temperature extension processing.

When you use the EDX-200A-4T, you cannot replace any conditioner cards.

(4) Voice memo input

1 channel (Voice memo can be recorded with measured data.)

The RCU-42A (optional) is necessary.

To playback the recorded voice memo, use the DAS-200A (optional).

(5) Sampling

Sampling method Simultaneously all channels

Sampling mode Normal: Records all channels' data at the same sampling clock.

Dual: Enables high-speed sampling or low-speed sampling to every CH for recording.

Sampling Frequency

○Normal-sampling Mode

1/2/5 system	1 Hz to 100 kHz	
	1 Hz to 2 kHz	When using CAN-40A/41A
2 ⁿ system	2 Hz to 65536 Hz	
	2 Hz to 2048 Hz	When using CAN-40A/41A

○Dual-sampling Mode

High-speed Sampling [Sf]

1/2/5 system	1 Hz to 100 kHz
2 ⁿ system	2 Hz to 65536 Hz

Low-speed Sampling [Ss]

1/2/5 system: Divide the 1/2/5 system of the high-speed sampling, where $Ss \leq Sf/4$

2ⁿ system: Divide the 2ⁿ system of the high-speed sampling, where $Ss \leq Sf/4$

The number of channels

○Normal-sampling Mode

320,000/Integer part of the pre-set sampling frequency (maximum 32 channels)

○Dual-sampling Mode

320,000/Integer part of the pre-set high-speed sampling frequency (maximum 64 channels)

○When using CAN-40A/41A

EDX-200A-4H: Maximum 24 channels + The number of channels of CAN data

EDX-200A-2H: Maximum 8 channels + The number of channels of CAN data

EDX-200A-1: The number of channels of CAN data

EDX-200A-4T: Maximum 24 channels + The number of channels of CAN data

(6) Digital Filter Butterworth filter (IIR)

Filter type: Low-pass filter, high-pass filter

Order of filter: 1 to 8

Amplitude ratio of cutoff point: -3 dB

Attenuation characteristics: $-6 \times N$ dB/oct. (N: Order of filter)

Note: The digital filter can be used with the built-in low pass filter of conditioner cards.

The digital filter is not applied to the CAN data.

(7) Data recording unit CF card

Capacity: 128 MB to 16 GB (our recommended only)

Maximum data file size (available data file size to be recorded)

When the number of repeat times is 1: 4 GB/data file

When the number of repeat times is 2: 1 GB/data file

(1GB = 1,000,000,000 bytes)

(8) Indicator	Number of channel status LEDs		: EDX-200A-4H	32
			: EDX-200A-2H	16
			: EDX-200A-1	8
			: EDX-200A-4T	32
	Number of EDX-200A status LEDs		: EDX-200A-4H	7
			: EDX-200A-2H	7
			: EDX-200A-1	4
			: EDX-200A-4T	7
	Number of EDX-200A status small indicators		: EDX-200A-4H	1
			: EDX-200A-2H	1
			: EDX-200A-1	None
			: EDX-200A-4T	1
(9) Control switches	UP/DOWN:	Changes the display on the small indicator.		
	REC/PAUSE:	Starts and pauses data recording.		
	STOP:	Stops data recording.		
	BAL.:	Execute the balance.		
	LOAD:	Loads and sets conditions.		
	OPT.:	Conducts the pre-set arbitrary function.		
	ID:	Sets the EDX-200A identification No.		
	POWER:	POWER switch		
	USB/LAN:	Selects a communication interface (USB /LAN)		
	[NOTE] The EDX-200A-1 does not have the UP/DOWN switch and ID switch.			
(10) External control connector	CONT. IN and CONT. OUT (for remote control and synchronous operation)			
	[NOTE] The EDX-200A-1 does not have the CONT. OUT connector for the synchronous operation.			
(11) Communication interfaces	USB(USB2.0 High Speed)		1 port	
	Connector: Series B receptacle connector			
	LAN(10/100BASE-T)		2 ports	
	LAN IN connector:		For PC communication	
	LAN OUT connector		For synchronous operation	
	Connector:		RJ45 modular jack connector	
	[NOTE] The EDX-200A-1 does not have the LAN OUT connector for the synchronous operation.			
	(12) Synchronous operation	Maximum 8 EDX-200A units can be connected for synchronous operation by using synchronous cables N-95/N-128.		
Maximum 8 EDX-200A units can be connected for synchronous operation by using LAN cables.				
[NOTE] The synchronous operation is not available with the EDX-200A-1.				

- (13) How to set conditions Online setting: Set measuring conditions on the PC via the LAN or USB interface.
Offline setting: Set measuring conditions by allowing the EDX-200A to read measuring conditions in the CF card. (Use DCS-100A to set measuring conditions.)
- (14) Saving conditions Store the conditioner cards' setting conditions and measuring conditions in nonvolatile memory in the EDX-200A.
When turning ON the EDX-200A, the user can immediately start data recording with previously set conditions.

- (15) Measuring mode Manual measurement/Trigger measurement/Interval measurement
- Manual measurement:
The user starts and stops data recording, or data recording is stopped according to the previously set parameters.
Voice memo can be recorded simultaneously when measuring in this mode.
 - Trigger measurement:
Data is automatically recorded with preset trigger conditions.
Note: Trigger measurement is not available by CAN data of the CAN-40A/41A.
 - Interval measurement:
Data is automatically recorded with preset interval conditions.

Available measurements in the dual-sampling mode

High-speed sampling channel	Low-speed sampling channel
Manual measurement	Manual measurement
Trigger measurement	Manual measurement
	Interval measurement
Interval measurement	Interval measurement

- (16) Starting and stopping data recording Data recording starts/stops by using the PC, panel switches or the RCU-42A.
- (17) Balance operation Adjust the balance of the strain input channel and conduct the zero suppress of the voltage input CH of the CVM-40A/41A by using the PC, control switches (on the front panel) or the RCU-42A.
- (18) Format of recorded data KYOWA's standard KS2 format
Data in this format can be analyzed using the optional DAS-200A Data Analysis Software.
- (19) Data collection Online data collection using the PC or offline data collection by allowing the PC to directly read the CF card
- (20) TEDS function TEDS function is available only when online control from the PC.
TEDS compatible conditioner cards: CDV-40B/A (-F), DPM-42B/A (-F), DPM-42B-I (-F), CCA-40A (-F), CDV-44AS, CDA-44AS, CDA-45AS, CVM-40A and CVM-41A

- (21) Power supply
- EDX-200A-4H: 10 to 36 VDC
EDX-200A-2H: 10 to 36 VDC
EDX-200A-1: 10 to 33 VDC
EDX-200A-4T: 10 to 36 VDC
- Connector type: RM12BRD-4PH
(HIROSE ELECTRO CO., LTD)
- (22) Current consumption
- EDX-200A-4H: Approx. 2.6 A (12 VDC with four CDV-40B cards installed)
EDX-200A-2H: Approx. 1.6 A (12 VDC with two CDV-40B cards installed)
EDX-200A-1: Approx. 1.0 A (12 VDC with one CDV-40B card installed)
EDX-200A-4T: Approx. 2.6 A (12 VDC with four CDV-40B cards installed)
- (23) Operating temperature range
- EDX-200A-4H: 0 to 50°C
EDX-200A-2H: 0 to 50°C
EDX-200A-1: 0 to 50°C
EDX-200A-4T: -20 to 65°C
- (24) Operating humidity range:
- 20 to 90%RH (Noncondensing)
- (25) Storage temperature range
- EDX-200A-4H: -20 to 60°C
EDX-200A-2H: -20 to 60°C
EDX-200A-1: -20 to 60°C
EDX-200A-4T: -30 to 70°C
- (26) Vibration resistance
- 49.0m/s² (5G), 5 to 55 Hz (when not in operation)
29.4 m/s² (5G), 5 to 55 Hz (when in operation)
- (27) Impact resistance:
- EDX-200A-4H: 196.1 m/s² (20 G)/11 msec
EDX-200A-2H: 196.1 m/s² (20 G)/11 msec
EDX-200A-1: 294.2 m/s² (30 G)/11 msec
EDX-200A-4T: 196.1 m/s² (20 G)/11 msec
- (28) Outside dimensions
- EDX-200A-4H: 165 (W) × 132.5 (H) × 255 (D) mm Protruded portion not included
EDX-200A-2H: 120 (W) × 132.5 (H) × 255 (D) mm Protruded portion not included
EDX-200A-1: 148 (W) × 53 (H) × 257 (D) mm Protruded portion not included
EDX-200A-4T: 185.2 (W) × 142.8 (H) × 255 (D) mm Protruded portion not included
- (29) Weight
- EDX-200A-4H Main unit: Approx. 2.1 kg (Approx. 2.6 kg with four CDV-40B cards installed.)
EDX-200A-2H Main unit: Approx. 1.8 kg (Approx. 2.0 kg with two CDV-40B cards installed.)
EDX-200A-1 Main unit: Approx. 0.9 kg (Approx. 1.1 kg with one CDV-40B card installed.)
EDX-200A-4T Main unit: Approx. 3.7 kg (Approx. 4.2 kg with four CDV-40B cards installed.)
- (30) Compliance
- Directive 2014/30/EU (EMC) (Excluding EDX-200A-4T)
Directive 2011/65/EU,(EU)2015/863(10 restricted substances) (RoHS) (Excluding EDX-200A-4T)

13-2 REMOTE CONTROL UNIT SPECIFICATIONS

(1) Model: RCU-42A

(2) Control functions	1."REC":	Start data recording.
	2."PAUSE":	Pause data recording.
	3."STOP":	Stop data recording.
	4."BAL.":	Adjust the balance (balance) or conduct the zero suppress.
	5."OPT.":	Arbitrary function An arbitrary function, such as the "start monitoring", "output CAL", etc., is assigned by using the DCS-100A.
	6."VOICE MEMO":	Record voice memo.

(3) Indicator The LED display allows the user to distinguish whether data recording is in progress, data recording is paused, data recording has been stopped.
The LED display allows the user to know the balance status.

(4) Buzzer The same beep sound as the EDX-200A.

(5) Cable length: Approx. 1.5 m

(6) Dimensions 35 mm (W) × 125 mm (H) × 22 mm (D) (Protruded portion not included)

(7) Weight Approx. 220 g

13-3 MULTI-CHANNEL CAN CARD SPECIFICATIONS

(1) Name	Multi-channel CAN card		
(2) Model	ECAN-40A		
(3) Applicable model	Mounted on the optional slot of the EDX-200A-4H, EDX-200A-2H, and EDX-200A-4T.		
(4) The number of CAN ports	2 (low speed or high speed for every port)		
(5) The number of input channels	Max. 512 channels		
(6) CAN version compatibility	CAN2.0A/B (ISO-11898 and ISO-11519-2 compatible)		
(7) Communication speed	High Speed CAN 1000/800/500/250/125/100/83.3/62.5/50/33.3/25/20/10 [kbps] Low speed CAN 125/100/83.3/62.5/50/33.3/25/20/10 [kbps]		
(8) CAN data output	Output Start Cond: Output an arbitrary CAN data when starting the A/D conversion. Output Stop Cond: Output an arbitrary CAN data when the A/D conversion is stopped. Output Manual Cond: Output an arbitrary CAN data at arbitrary timing. Output Interval Cond: Output an arbitrary CAN data at the pre-set constant frequency.		
(9) Digital input/output	The number of input/output: Max. 8 Input/output setting: Digital input/Digital output/Remote control for every bit (COMMON: The same) *Remote control mode: "Start the measurement", "Stop the measurement", "Execute the balance" and so on. Input format: Isolation-type, TTL level input Input voltage: Max. 5 VDC Isolation type: Digital isolator Output format: Isolation-type, Open collector output (with built-in pull-up resistor of 10k-ohm) Output voltage: 5 VDC Output current: Max. 25 mA per point Isolation type: Digital isolator		
(10) Connector	CAN port	Dsub connector (male)	9 pins
	Digital input/output port	MDR connector (female)	14 pins
(11) Operating temperature and humidity ranges	0 to 50 °C, 20 to 90% (noncondensing)		
(12) Storage temperature range	-20 to 60 °C		
(13) Dimensions	22.0 (W)×128.0 (H)×221.5 (D) mm		
Weight	Approx. 170 g		

(14) Accessories

Connector plug for digital input/output port, shell case
DCS-105A (DCS-100A optional software for loading CANdb)

(15) Compliance

Directive 2014/30/EU (EMC) (Excluding EDX-200A-4T)

Directive 2011/65/EU,(EU)2015/863(10 restricted substances) (RoHS) (Excluding EDX-200A-4T)

*1 To mount the optional card in the EDX-200A-4T, be sure to use the ECAN-40AM72.

*2 ECAN-40AM72: -20 to 65°C, 20 to 90 %

*3 ECAN-40AM72: -30 to 70°C

13-4 TIME SYNCHRONIZATION CARD SPECIFICATIONS

(1) Name	Time Synchronization Card		
(2) Model	ETIM-40A		
(3) Applicable model	Mounted on the optional slot of the EDX-200A-4H, EDX-200A-2H, and EDX-200A-4T. (*1)		
(4) Time synchronization	Synchronizes the recording start time of remote EDX-200A units by using the time data received from GPS satellites.		
(5) Digital input/output	The number of input/output: Max. 8 Input/output setting: Digital input/Digital output/Remote control for every bit (COMMON: The same) * Remote control mode: "Start the measurement", "Stop the measurement", "Execute the balance" and so on. Input format: Isolation-type, TTL level input Input voltage: Max. 5 VDC Isolation-type: Digital isolator Output format: Isolation-type, Open collector output (with built-in pull-up resistor of 10k-ohm) Output voltage: 5 VDC Output current: Max. 25 mA per point Isolation-type: Digital isolator		
(6) Connector	GPS port	Dsub connector (male)	9 pins
	Digital input/output port	MDR connector (female)	14 pins
(7) Operating temperature and humidity ranges	0 to 50°C, 20 to 90% (noncondensing) (*2)		
(8) Storage temperature range	-20 to 60 °C (*3)		
(9) Dimensions	22.0 (W)×128.0 (H)×221.5 (D) mm		
Weight	Approx. 160 g		
(10) Accessories	GPS sensor (cable length: 5m) Connector plug for digital input/output port, shell case		
(11) Compliance	Directive 2014/30/EU (EMC) (Excluding EDX-200A-4T) Directive 2011/65/EU,(EU)2015/863(10 restricted substances) (RoHS) (Excluding EDX-200A-4T)		

*1 To mount the optional card in the EDX-200A-4T, be sure to use the ETIM-40AM72.

*2 ETIM-40AM72: -20 to 65°C, 20 to 90 %

*3 ETIM-40AM72: -30 to 70°C

GPS/multi-channel CAN card EGPC-40A Specifications

- (1) Name GPS/multi-channel CAN card
- (2) Model EGPC-40A
- (3) Applicable model Mounted on the optional slot of the EDX-200A-4H, EDX-200A-2H, and EDX-200A-4T.(*1)
- (4) Input/output port
GPS/CAN common port ×1 Dsub connector (9-pin, male)
CAN port ×1 Dsub connector (9-pin, male)
Digital input/output port ×1 MDR connector (14-pin, female)
- (5) The number of CAN channels Max.512 channels
- (6) CAN version compatibility CAN 2.0A/B (ISO-11898 and ISO 11519-2 compatible)
- (7) CAN Communication speed
High speed CAN
1000/800/500/250/125/100/83.3/62.5/50/33.3/25/20/10 [kbps]
Low speed CAN
125/100/83.3/62.5/50/33.3/25/20/10 [kbps]
- (8) CAN data output
Output Start Cond: Output an arbitrary CAN data when starting the A/D conversion.
Output Stop Cond: Output an arbitrary CAN data when A/D conversion is stopped.
Output Manual Cond: Output an arbitrary CAN data at arbitrary timing.
Output Interval Cond: Output an arbitrary CAN data at the pre-set constant frequency.
- (9) GPS data
Latitude, longitude, elevation, Course over ground, speed, time, receiving conditions, the number of satellites in use, etc.
Saving format: NMEA format
- (10) Synchronization
Synchronizes the recording start time of EDX-200A units by using the time data received from GPS satellites.

[Function to be used and ports]

Function			Connect		Supplement
Recording CAN Output CAN	Recording GPS data	Time Synchronization	GPS/CAN1 Port	CAN2 Port	
✓			CAN Bus	CAN Bus	【Recording CAN】 Can Use both ports by CAN. 512 channels in total for 2 port (Max. 512 channels for CAN by 1 Port)
			CAN Bus(Either Port)		
	✓		GPS Sensor		【Recording GPS data】
		✓			【Time Synchronization】
	✓	✓			【Recorind GPS data and Time Synchronization】
✓		✓		CAN Bus	【Recording CAN and Time Synchronization】 Max. 512 channels for CAN
✓	✓				【Recording CAN and Recording GPS data】 Max. 512 channels for CAN
✓	✓	✓			【All Functions】 Max. 512 channels for CAN

- | | |
|--|---|
| (11) Digital input/output | <p>The number of input/output:Max. 8</p> <p>Input/output setting:Digital input/Digital output/Remote control (input) for every bit (COMMON: The same)
 * Remote control (input) mode: "Start the measurement", "Stop the measurement", "Execute the balance" and so on.</p> <p>Input format: Isolation-type, TTL level input
 Input voltage: Max. 5 VDC
 Isolation-type: Digital isolator</p> <p>Output format: Isolation-type, Open collector output
 (with built-in pull-up resistor of 10k-ohm)
 Output voltage: 5 VDC
 Output current: Max. 25 mA per point
 Isolation-type: Digital isolator</p> |
| (12) Operating temperature and humidity ranges | 0 to 50°C, 20 to 90%(noncondensing) (*2) |
| (13) Storage temperature range | -20 to 60 °C (*3) |
| (14) Dimensions | <p>22.0 (W)×128.0 (H)×221.5 (D) mm</p> <p>Approx. 170 g</p> |
| (15) Accessories | <p>GPS sensor (cable length: 5m)</p> <p>Connector plug for digital input/output port, shell case</p> <p>DCS-105A (DCS-100A optional software for loading CANdb)</p> |
| (16) Compliance | <p>Directive 2014/30/EU (EMC) (Excluding EDX-200A-4T)</p> <p>Directive 2011/65/EU,(EU)2015/863(10 restricted substances) (RoHS) (Excluding EDX-200A-4T)</p> |

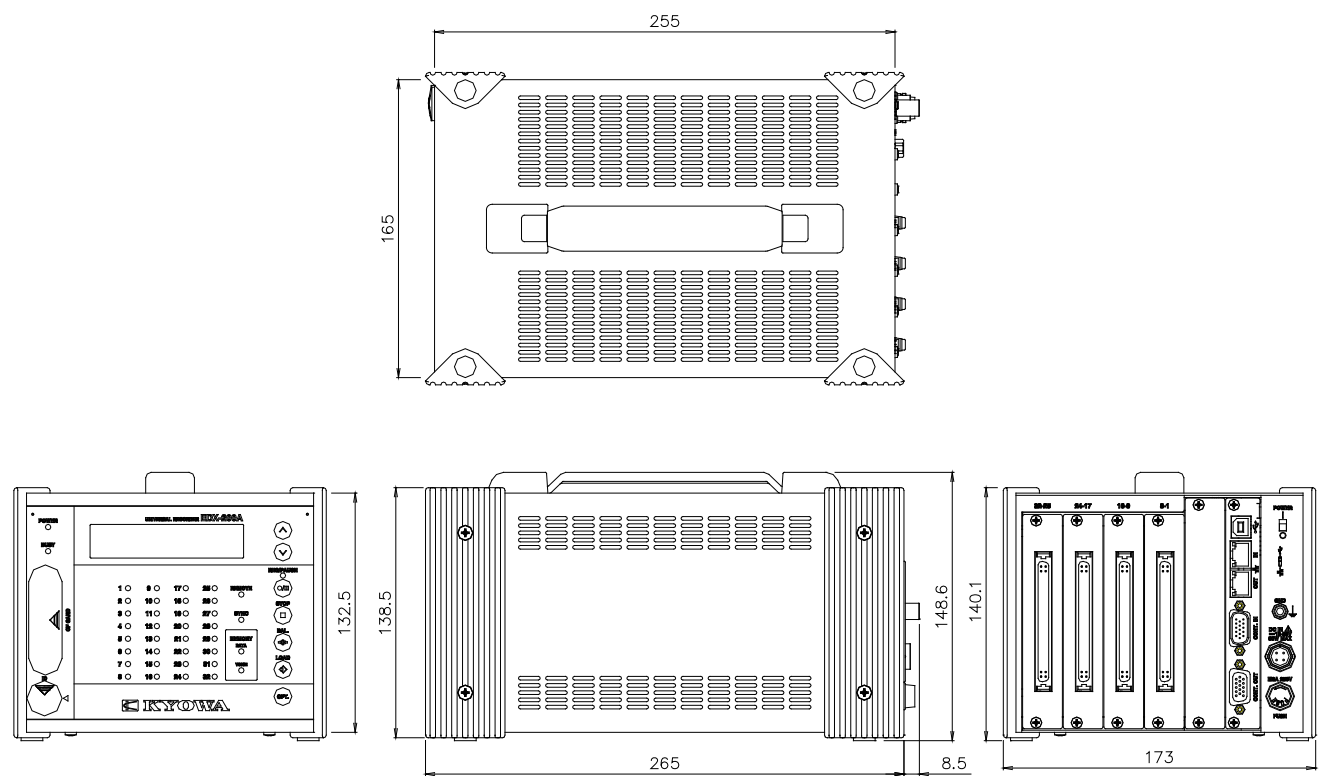
*1 To mount the optional card in the EDX-200A-4T, be sure to use the EGPC-40AM72.

*2 EGPC-40AM72: -20 to 65 °C, 20 to 90 %

*3 EGPC-40AM72: -30 to 70 °C

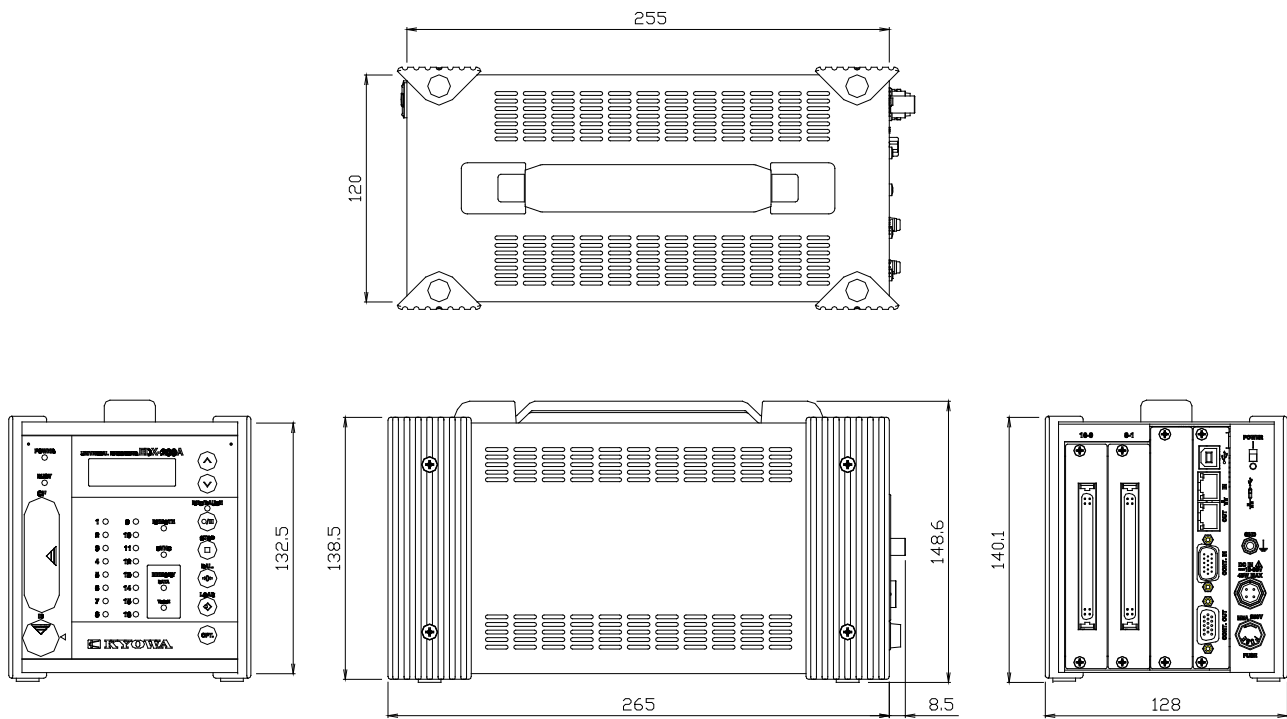
14. OUTSIDE DRAWING

14-1 UNIVERSAL RECORDER: EDX-200A-4H



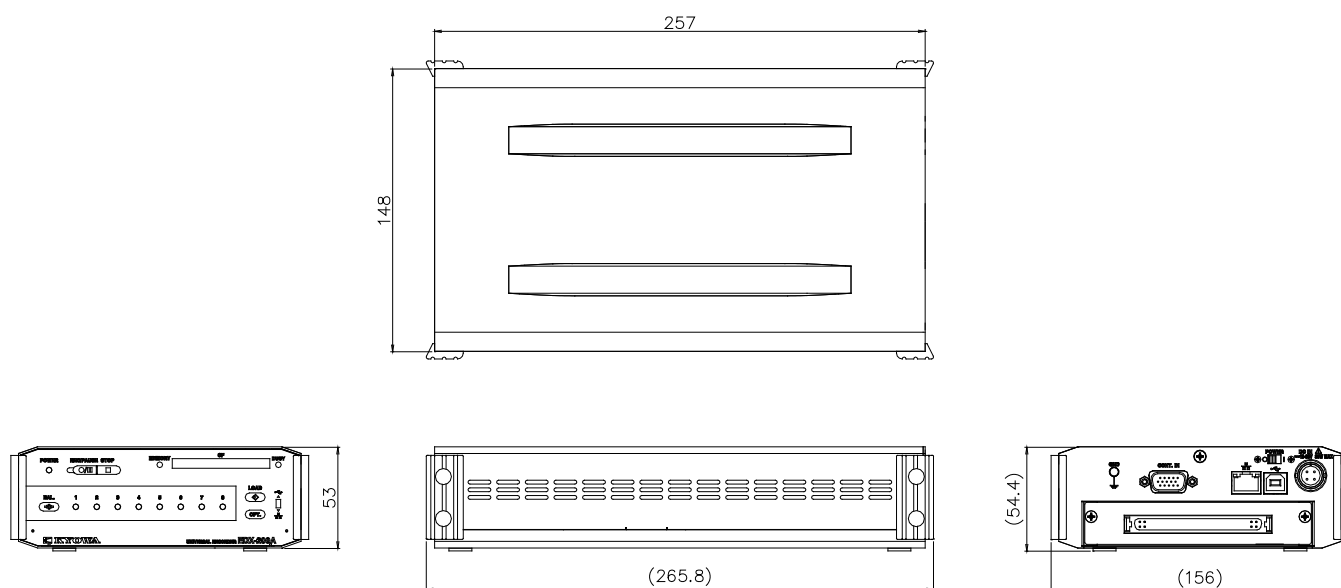
Unit mm

14-2 UNIVERSAL RECORDER: EDX-200A-2H



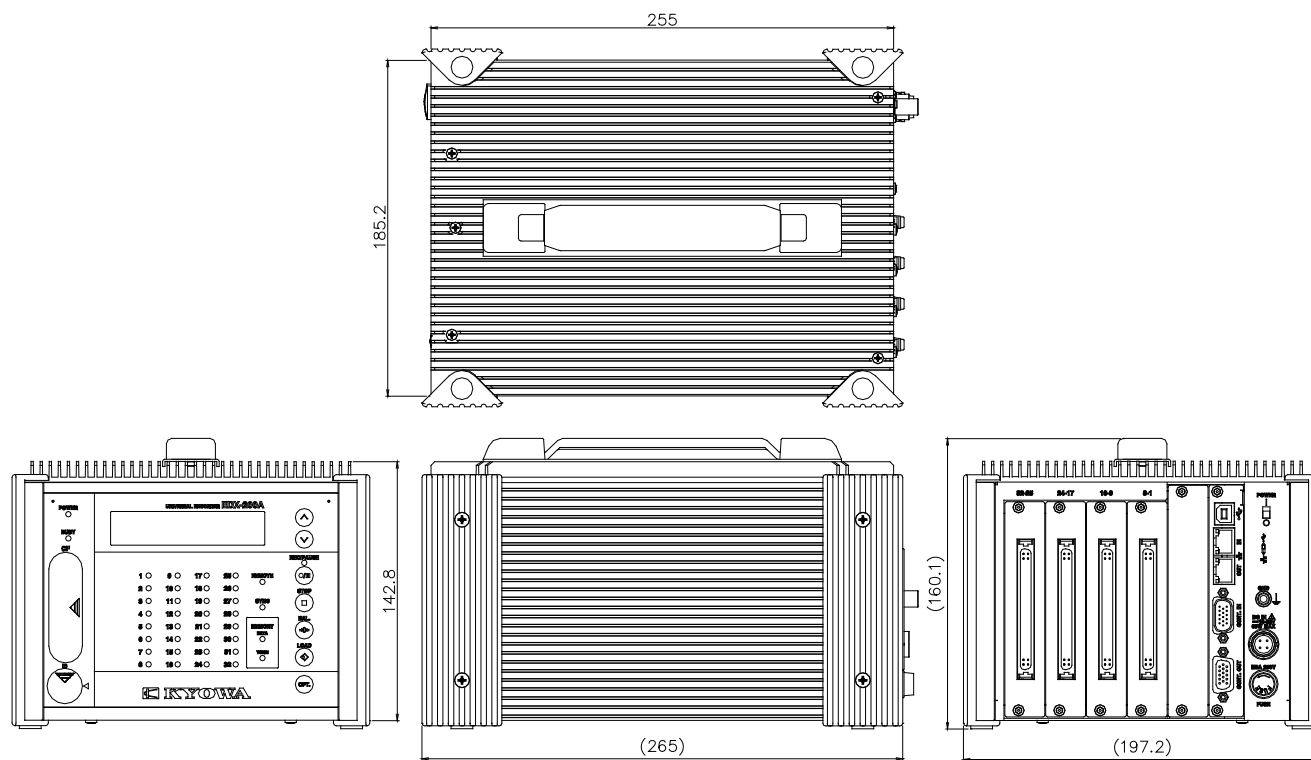
Unit mm

14-3 UNIVERSAL RECORDER: EDX-200A-1



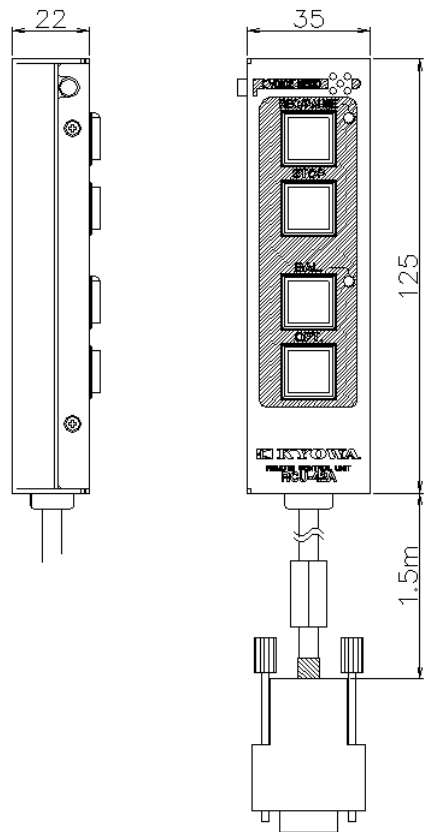
Unit: mm

14-4 UNIVERSAL RECORDER: EDX-200A-4T



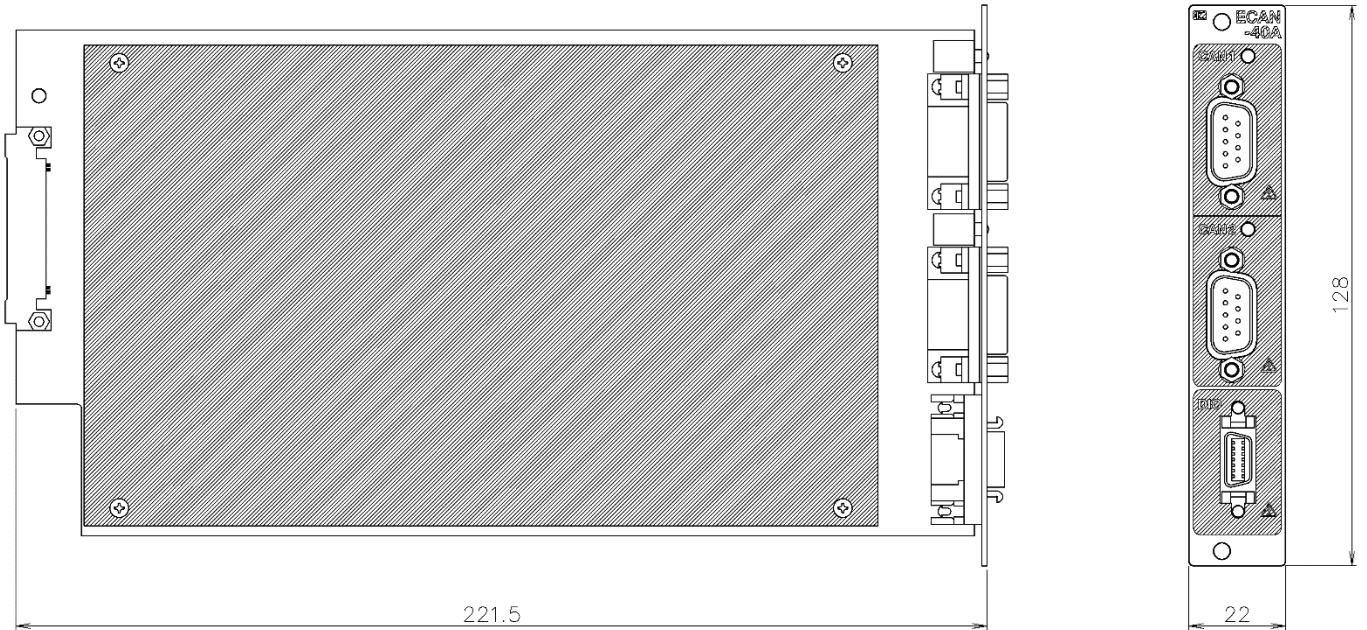
Unit: mm

14-5 REMOTE CONTROL UNIT: RCU-42A



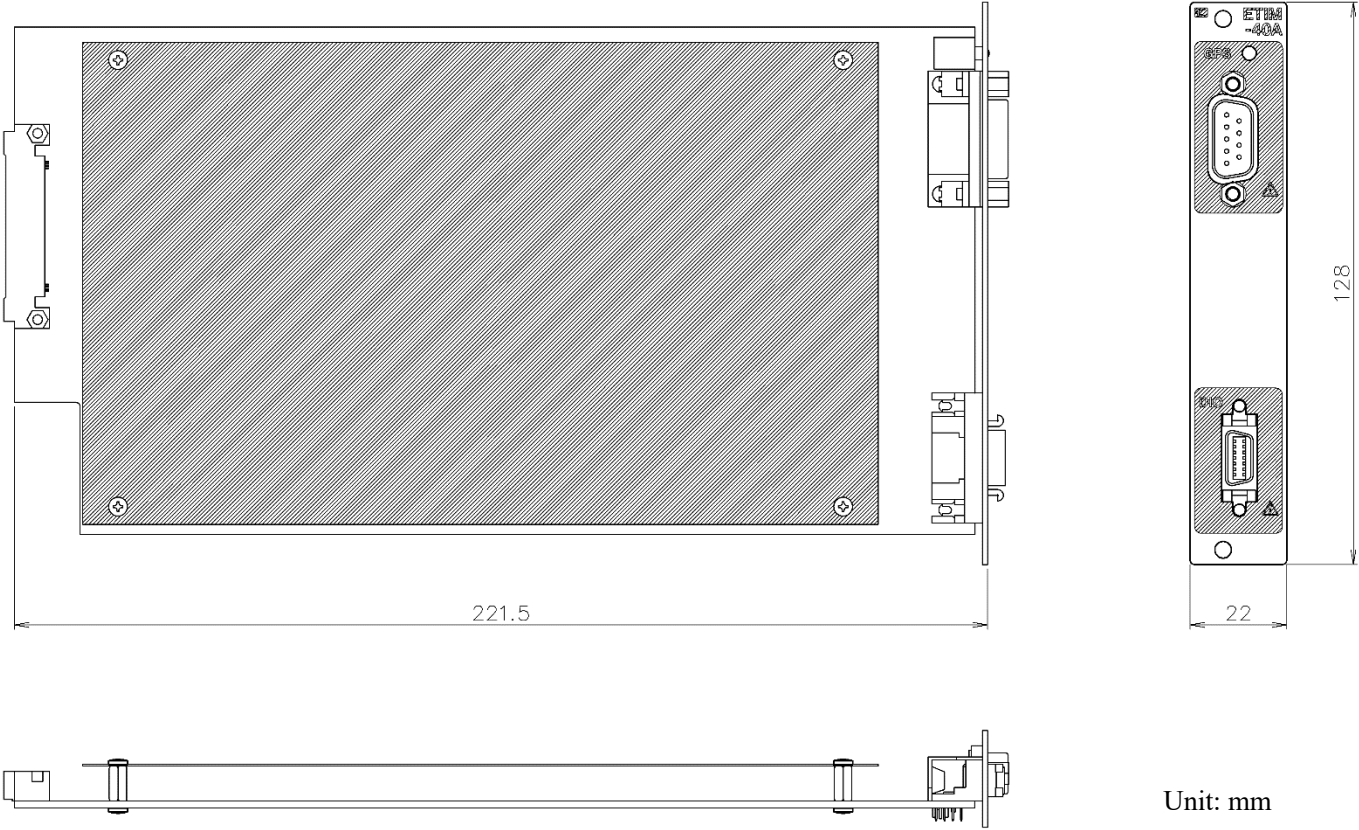
Unit mm

14-6 MULTI-CHANNEL CAN CARD: ECAN-40A

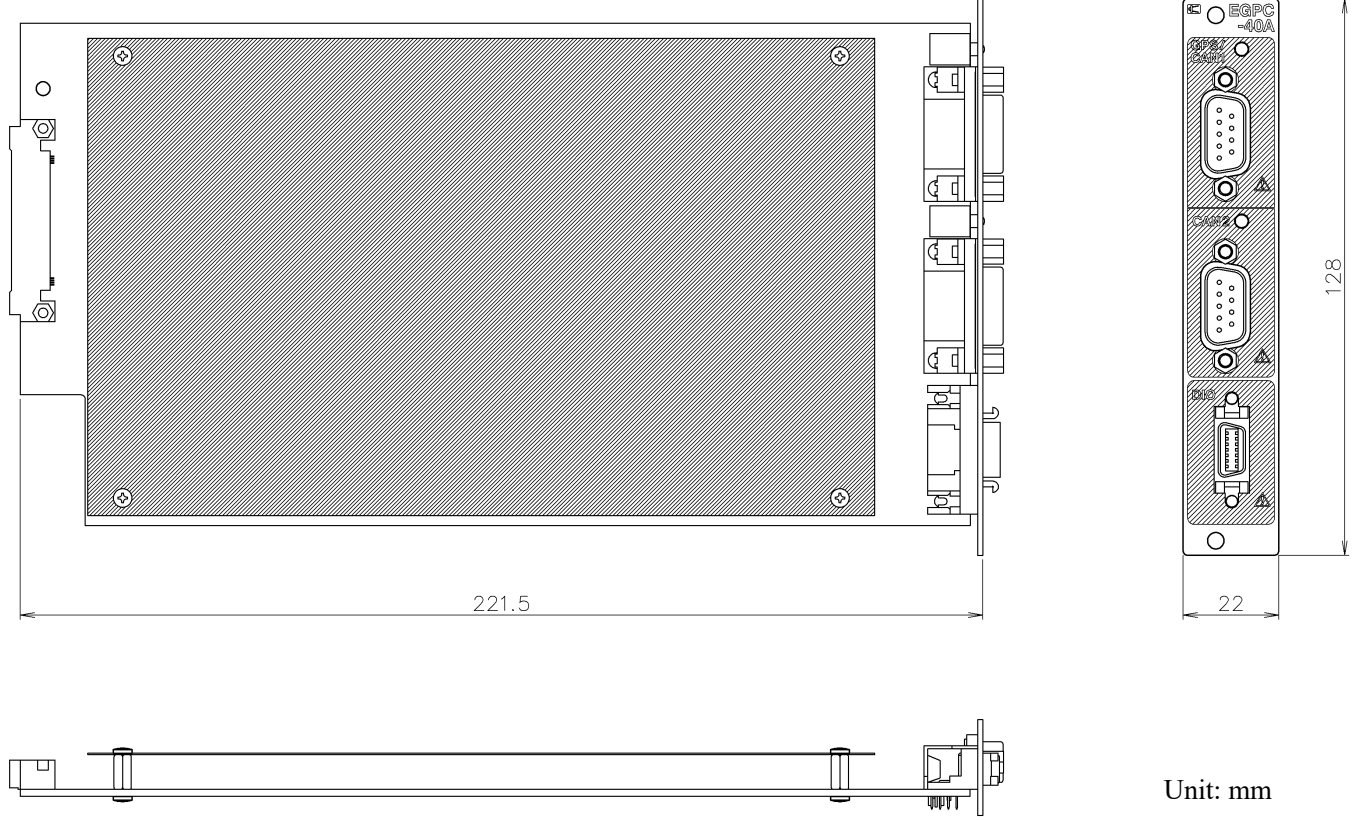


Unit mm

14-7 TIME SYNCHRONIZATION CARD: ETIM-40A



14-8 GPS/MULTI-CHANNEL CAN CARD: EGPC-40A



15. APPENDIX

15-1 NAME OF RECORDED DATA FILE

The name of a recorded data file can be set by using the DCS-100A.

The name of the recorded data file consists of a file name and a file No., and is expressed in the following format.

NAME OF RECORDED DATA FILE = ○····○■ ■ ■ ■ _ △ □ □ □ □ _ ◇ _ ▲ .KS2

- → File name: Within 20 characters (1)
- ■ ■ ■ → 0000 to 9999: File No. (2)
Automatically incremented when data recording is completed.
- △ → Measuring mode for manual, interval, and trigger measurements (3)
Nothing: Manual measurement
M: Manual measurement (repetitive measurement)
I: Interval measurement
A: Analog trigger measurement
E: External trigger measurement
C: Complex trigger measurement
- □ □ □ → 0000 to 9999: Number of repeat times of manual measurement (repetitive measurement), interval measurement, and trigger measurement (4)
- ◇ → Nothing: Stand-alone measurement (5)
0~7: ID switch Nos. of the EDX-200A for synchronous operation
- ▲ → Nothing: Normal-sampling mode and noise-reduction function (6)
H: High-speed sampling mode
L: Low-speed sampling mode
- Extension → .KS2: Data files other than the ".E4A" and ".NMEA".
.E4A: CAN data file recorded by the ECAN-40A.
.NMEA: GPS data file recorded by the ETIM-40A or EGPC-40A.

MEMO

Before using the time synchronization function with the ETIM-40A or EGPC-40A, check the "GPS status" and "GPS sensor". When the "GPS status" is Error or "GPS sensor" is not connected, append "\$_" to beginning of the file name. For details, see "8-3-5 Recording Operation when the GPS status is Error or NONE."

The EDX-200A saves the recorded data file in the [EDX200A] folder in the CF card.

For the description on the recorded data file name, see the above items (1) to (6).

Item (1) [File name] and item (2) [File No.] of the recorded data file name are set using the DCS-100A.

The EDX-200A checks the [Name of recorded data file in the CF card] and [Name of recorded data file from the DCS-100A].

In addition, for interval measurement and trigger measurement, items (3) and (4), for synchronous measurements, item (5), and for high-speed/low-speed sampling mode, item (6) are added.

Basic method for checking the name of the recorded data file and the name of the recorded data file obtained from the check are described in the following. (1) (2)

[1] If there is no same [File name] (1) in the CF card, write the recorded data file with the preset name into the CF card.

[Example] Preset file name: TEST0000.KS2
 Name of the recorded data file: TEST0000.KS2

[2] After data recording is complete, if START (start data recording) and STOP (stop data recording) are performed, the [File No.] (2) is automatically incremented and written to the CF card.

[Example] Name of the recorded data file of the 1st data recording: TEST0100.KS2
 Name of the recorded data file of the 2nd data recording: TEST0101.KS2
 Name of the recorded data file of the 3rd data recording: TEST0102.KS2

[3] If there is a file with the same [File name] (1) in the CF card, and if the relevant recorded data in the CF card has a [File No.] (2) larger than the preset [File No.] (2), the name of the recorded data file shall be [File No.] (2) with [larger File No. +1].

[Example] Preset file name: TEST0000.KS2
 File name that already exists in the CF card: TEST0100.KS2
 Name of the recorded data file: TEST0101.KS2

[4] If the CF card contains the name of the recorded data file with the same [File name] (1) + [File No.] (2) = 9999, an error occurs (the BUSY LED lights up in red) under the following conditions, thus disabling the data recording.

- When the EDX-200A is turned ON with the CF card inserted...
- When the CF card is inserted...
- When the new data recording starts...

At this time, change the [File name] (1) by using the DCS-100A or replace the CF card with the one containing no recorded data.

If data is recorded with the CF card with no recorded data, the [File No.] (2) in the name of the recorded data file shall be "0000".

[5] Synchronous operation: For manual measurement with synchronous master (ID=0), the name of the recorded data file shall be as follows.

TEST0000_0.KS2

[6] Stand-alone measurement: For interval measurement, the name of the recorded data file shall be as follows.

TEST0000_I0000.KS2

[7] Synchronous operation: For interval measurement with synchronous slave (ID=1), the name of the recorded data file shall be as follows.

TEST0000_I0000_1.KS2

[8] When selecting the dual-sampling mode under the situation of the item (7), data file names become as follows. Data file name of the high-speed sampling mode:

TEST0000_I0000_1_H.KS2

Data file name of the low-speed sampling mode: TEST0000_I0000_1_L.KS2

[9] For synchronous operation, processing of the above items (3) and (4) are not conducted and the name of the recorded data file name shall be the file name of the preset file No.

Therefore, if the same file name exists, the file name is overwritten and updated.

Before start recording data with synchronous operation, do not forget to set the files in the CF card in proper order.

[10] You cannot identify whether the data file is made of the Point ZERO (manual/ Manual number of data) measurements by using the ETIM-40A/EGPC-40A or is made of the normal manual measurements by file names. Similarly, you cannot identify whether the data file is made of the Interval (GPS synchronization) measurements or is made of the normal interval measurements by file names.

(Example 1) File name TEST0000.KS2

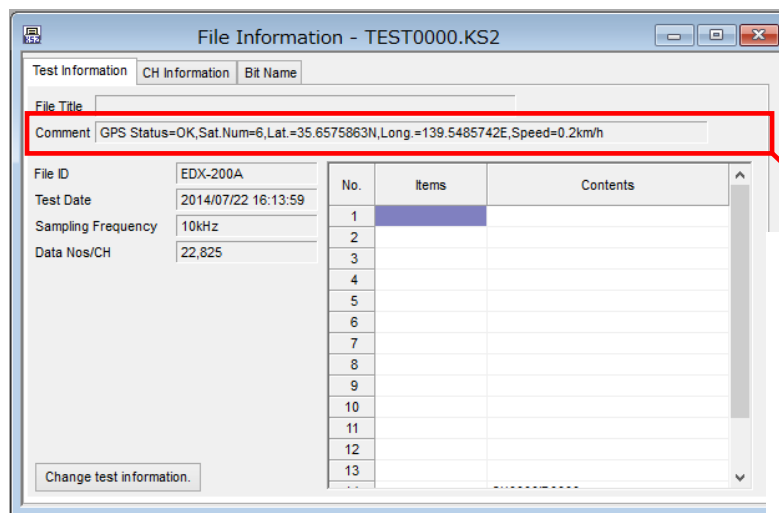
The measuring mode is "Point ZERO (manual)", "Point ZERO (Manual number of data)", "Manual", or "Manual (Set Record Data)".

(Example 2) File name: TEST0000_I0000.KS2

The measuring mode is "Interval (GPS synchronization)" or "Interval".

To identify whether the data file (KS2 file) is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements, operate as follows.

- Open the data file (KS2 file) on the DAS-200A (optional). When the GPS information appears on the test information comment, the data file is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements. For the DAS-200A operations, see DAS-200A INSTRUCTION MANUAL.



When the data file is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements, GPS information appears.

*GPS information saved in the data file (KS2 file)

When the data file is made of the Point ZERO (manual/ Manual number of data) measurements or Interval (GPS synchronization) measurements, GPS information includes the following items.

GPS Status: GPS status

OK	GPS fix available The time synchronization function is available.
Error	Fix not available The time synchronization function is not available.
NONE	GPS sensor not connected.
Sat.Num	The number of GPS satellites in use.
Lat.	Latitude (N: North latitude, S: South latitude)
Long.	Longitude (E: East longitude, W: West longitude)
Speed	Speed (km/h)

[Example]

GPS Status=OK,Sat.Num=6,Lat.=35.6575863N,Long.=139.5485742E,Speed=0.2km/h

15-2 DATA FOLDERS IN THE CF CARD

Data folders, created in the CF card, varies with the software version of the EDX-200A.

15-2-1 The Software Version of the EDX-200A is Before 01.40.

The EDX-200A creates single data folder. The folder name is "EDX200A" fixed.

<Folder structures>

[CF card]

└─ [EDX200A] Normal data folder

The number of files is not limited.

*Note that as the number of data files increases, depending on the measuring conditions, an error may occur while recording data.

15-2-2 The Software Version of the EDX-200A is 01.40 or Later.

The EDX-200A creates multiple data folders. The EDX-200A creates up to 1000 files within single data folder. After the number of file exceeds 1000, the EDX-200A automatically creates new data folder for creating files.

The folder names are as follows.

- First data folder EDX200A
- Second data folder EDX200A. ■■

■■: Folder No. (01 to 99)

Automatically incremented every time the EDX-200A creates a new data folder.

<Folder structures>

[CF card]

└─ [EDX200A] Normal data folder

Saves data up to 1000 files.

└─ [Test0000.KS2] data file

└─ [Test0000.E4A] data file

└─ [Test0000.NMEA] data file



The number of total files is 1000.

└─ [EDX200A.01] Expansion data folder

Saves data up to 1000 files.

└─ [EDX200A.02] Expansion data folder

Saves data up to 1000 files.

└─ [EDX200A.99] Expansion data folder

Saves data up to 1000 files.

NOTE

- When the number of files is 1000 or less, the folder structure is same before software version 01.40 of the EDX-200A.
- Make sure a CF card does not have multiple data files with the same name. Or, the DCS-100A will not able to collect/delete the data file.

MEMO

- When inserting a CF card, when setting measuring conditions, and when starting measurements, the EDX-200A checks whether a CF card has multiple data files with the same name or not. At this case, the EDX-200A checks all data files, saved in the CF card. Therefore the greater the number of files and the expansion data, the more time-consuming to duplicate check.

15-3 MAXIMUM SAMPLING FREQUENCY AND RECORDABLE TIME

15-3-1 Maximum Sampling Frequency, Recordable Time and the Number of Channels

(1) CF card with capacity 1 GB (reference)

AD data format: 16-bit						
Sampling Frequency (Hz)	Number of measuring channels					
	1	3	8	16	24	32
100 kHz	83 minutes	27 minutes				
50 k	2.7 hours	55 minutes				
20 k	6.9 hours	2.3 hours	52 minutes	26 minutes		
10 k	13.8 hours	4.6 hours	1.7 hours	52 minutes	34 minutes	26 minutes
5 k	27.7 hours	9.2 hours	3.4 hours	1.7 hours	69 minutes	52 minutes
2 k	2.8 days	23.1 hours	8.6 hours	4.3 hours	2.8 hours	2.1 hours
1 k	5.7 days	1.9 days	17.3 hours	8.6 hours	5.7 hours	4.3 hours
500	11.5 days	3.8 days	1.4 days	17.3 hours	11.5 hours	8.6 hours
200	28.9 days	9.6 days	3.6 days	1.8 days	28.9 hours	21.7 hours
100	57 days	19.2 days	7.2 days	3.6 days	2.4 days	1.8 days
50	115 days	38 days	14.4 days	7.2 days	4.8 days	3.6 days
20	289 days	96 days	36 days	18.0 days	12.0 days	9.0 days
10	578 days	192 days	72 days	36 days	24.1 days	18.0 days
5	1157 days	385 days	144 days	72 days	48 days	36 days
2	2893 days	964 days	361 days	180 days	120 days	90 days
1	3000 days or more	1929 days	723 days	361 days	241 days	180 days

AD data format: 24-bit						
Sampling Frequency (Hz)	Number of measuring channels					
	1	3	8	16	24	32
100 kHz	41 minutes	13 minutes				
50 k	83 minutes	27 minutes				
20 k	3.4 hours	69 minutes	26 minutes	13 minutes		
10 k	6.9 hours	2.3 hours	52 minutes	26 minutes	17 minutes	13 minutes
5 k	13.8 hours	4.6 hours	1.7 hours	52 minutes	34 minutes	26 minutes
2 k	34.7 hours	11.5 hours	4.3 hours	2.1 hours	1.4 hours	65 minutes
1 k	2.8 days	23.1 hours	8.6 hours	4.3 hours	2.8 hours	2.1 hours
500	5.7 days	1.9 days	17.3 hours	8.6 hours	5.7 hours	4.3 hours
200	14.4 days	4.8 days	1.8 days	21.7 hours	14.4 hours	10.8 hours
100	28.9 days	9.6 days	3.6 days	1.8 days	28.9 hours	21.7 hours
50	57 days	19.2 days	7.2 days	3.6 days	2.4 days	1.8 days
20	144 days	48 days	18.0 days	9.0 days	6.0 days	4.5 days
10	289 days	96 days	36 days	18.0 days	12.0 days	9.0 days
5	578 days	192 days	72 days	36 days	24 days	18.0 days
2	1446 days	482 days	180 days	90 days	60 days	45 days
1	2893 days	964 days	361 days	180 days	120 days	90 days

Note: When selecting the dual-sampling mode or using the digital filter, make sure to set the "AD data format" to "24 Bit".

- Maximum sampling frequency for CAN card (CAN-40A/41A) measurement is 2048 Hz.
- Recordable time may slightly vary depending on the CF card to be used.
- Data size recordable at one time is limited to 4,000,000,000 [bytes]. When the number of repeat times is 2 or larger, the data size is maximum 1,000,000,000 [bytes].

(2) CF card with capacity 4 GB (reference)

AD data format: 16-bit						
Sampling Frequency (Hz)	Number of measuring channels					
	1	3	8	16	24	32
100 kHz	5.5 hours	1.8 hours				
50 k	11.1 hours	3.7 hours				
20 k	27.7 hours	9.2 hours	3.4 hours	1.7 hours		
10 k	2.3 days	18.5 hours	6.9 hours	3.4 hours	2.3 hours	1.7 hours
5 k	4.6 days	1.5 days	13.8 hours	6.9 hours	4.6 hours	3.4 hours
2 k	11.5 days	3.8 days	1.4 days	17.3 hours	11.5 hours	8.6 hours
1 k	23.1 days	7.7 days	2.8 days	1.4 days	23.1 hours	17.3 hours
500	46 days	15.4 days	5.7 days	2.8 days	1.9 days	1.4 days
200	115 days	38 days	14.4 days	7.2 days	4.8 days	3.6 days
100	231 days	77 days	28 days	14.4 days	9.6 days	7.2 days
50	462 days	154 days	57 days	28 days	19.2 days	14.4 days
20	1157 days	385 days	144 days	72 days	48 days	36 days
10	2314 days	771 days	289 days	144 days	96 days	72 days
5	3000 days or more	1543 days	578 days	289 days	192 days	144 days
2	3000 days or more	3000 days or more	1446 days	723 days	482 days	361 days
1	3000 days or more	3000 days or more	2893 days	1446 days	964 days	723 days

AD data format: 24-bit						
Sampling Frequency (Hz)	Number of measuring channels					
	1	3	8	16	24	32
100 kHz	2.7 hours	55 minutes				
50 k	5.5 hours	1.8 hours				
20 k	13.8 hours	4.6 hours	1.7 hours	52 minutes		
10 k	27.7 hours	9.2 hours	3.4 hours	1.7 hours	1.1 hours	52 minutes
5 k	2.3 days	18.5 hours	6.9 hours	3.4 hours	2.3 hours	1.7 hours
2 k	5.7 days	1.9 days	17.3 hours	8.6 hours	5.7 hours	4.3 hours
1 k	11.5 days	3.8 days	1.4 days	17.3 hours	11.5 hours	8.6 hours
500	23.1 days	7.7 days	2.8 days	1.4 days	23.1 hours	17.3 hours
200	57 days	19.2 days	7.2 days	3.6 days	2.4 days	1.8 days
100	115 days	38 days	14.4 days	7.2 days	4.8 days	3.6 days
50	231 days	77 days	28.9 days	14.4 days	9.6 days	7.2 days
20	578 days	192 days	72 days	36 days	24.1 days	18.0 days
10	1157 days	385 days	144 days	72 days	48 days	36 days
5	2314 days	771 days	289 days	144 days	96 days	72 days
2	3000 days or more	1929 days	723 days	361 days	241 days	180 days
1	3000 days or more	3000 days or more	1446 days	723 days	482 days	361 days

Note: When selecting the dual-sampling mode or using the digital filter, make sure to set the "AD data format" to "24 Bit".

- Maximum sampling frequency for CAN card (CAN-40A/41A) measurement is 2048 Hz.
- Recordable time may slightly vary depending on the CF card to be used.
- Data size recordable at one time is limited to 4,000,000,000 [bytes]. When the number of repeat times is 2 or larger, the data size is maximum 1,000,000,000 [bytes].

15-3-2 Maximum Sampling Frequency and Recordable Time when Using ECAN-40A/EGPC-40A

(1) The number of CAN channels to be measured: 256 channels × 2 ports, CF card capacity: **1GB**

	Analog channels: 3				Analog channels: 32			
Sampling Frequency (Hz)	The number of CAN input data/sec.				The number of CAN input data/sec.			
	0	10	100	1000	0	10	100	1000
100 k	27 minutes	27 minutes	27 minutes	25 minutes				
50 k	55 minutes	55 minutes	54 minutes	47 minutes				
20 k	2.3 hours	2.3 hours	2.2 hours	1.6 hours				
10 k	4.6 hours	4.5 hours	4.2 hours	2.5 hours	26 minutes	26 minutes	25 minutes	24 minutes
5 k	9.2 hours	9.1 hours	7.9 hours	3.5 hours	52 minutes	52 minutes	51 minutes	45 minutes
2 k	23.1 hours	22.2 hours	16.5 hours	4.6 hours	2.1 hours	2.1 hours	2.0 hours	1.5 hours
1 k	1.9 days	1.7 days	1.0 day	5.1 hours	4.3 hours	4.3 hours	4.0 hours	2.4 hours
500	3.8 days	3.3 days	1.4 days	5.4 hours	8.6 hours	8.5 hours	7.5 hours	3.4 hours
200	9.6 days	6.8 days	1.9 days	5.6 hours	21.7 hours	20.9 hours	15.7 hours	4.5 hours
100	19.2 days	10.7 days	2.1 days	5.7 hours	1.8 days	1.6 days	1.0 day	5.1 hours
50	38 days	14.8 days	2.2 days	5.7 hours	3.6 days	3.1 days	1.4 days	5.4 hours
20	96 days	19.2 days	2.3 days	5.7 hours	9.0 days	6.5 days	1.9 days	5.6 hours
10	192 days	21.4 days	2.3 days	5.7 hours	18.0day	10.3 days	2.1 days	5.7 hours
5	385 days	22.6 days	2.3 days	5.7 hours	36 days	14.4 days	2.2 days	5.7 hours
2	964 days	23.5 days	2.4 days	5.7 hours	90 days	19.0 days	2.3 days	5.7 hours
1	1929 days	23.8 days	2.4 days	11.3 hours	180 days	21.2 days	2.3 days	11.2 hours

AD data format: 16-bit (reference value)

	Analog channels: 3				Analog channels: 32			
Sampling Frequency (Hz)	The number of CAN input data/sec.				The number of CAN input data/sec.			
	0	10	100	1000	0	10	100	1000
100 k	13 minutes	13 minutes	13 minutes	13 minutes				
50 k	27 minutes	27 minutes	27 minutes	25 minutes				
20 k	1.1 hours	1.1 hours	1.1 hours	57 minutes				
10 k	2.3 hours	2.3 hours	2.2 hours	1.6 hours	13 minutes	13 minutes	12 minutes	12 minutes
5 k	4.6 hours	4.5 hours	4.2 hours	2.5 hours	26 minutes	26 minutes	25 minutes	24 minutes
2 k	11.5 hours	11.3 hours	9.6 hours	3.8 hours	1.0 hour	1.0 hour	1.0 hour	54 minutes
1 k	23.1 hours	22.2 hours	16.5 hours	4.6 hours	2.1 hours	2.1 hours	2.0 hours	1.5 hours
500	1.9 days	1.7 days	1.0 day	5.1 hours	4.3 hours	4.3 hours	4.0 hours	2.4 hours
200	4.8 days	4.0 days	1.6 days	5.5 hours	10.8 hours	10.6 hours	9.1 hours	3.7 hours
100	9.6 days	6.8 days	1.9 days	5.6 hours	21.7 hours	20.9 hours	15.7 hours	4.5 hours
50	19.2 days	10.7 days	2.1 days	5.7 hours	1.8 days	1.6 days	1.0 day	5.1 hours
20	48 days	16.0 days	2.2 days	5.7 hours	4.5 days	3.8 days	1.5 days	5.4 hours
10	96 days	19.2 days	2.3 days	5.7 hours	9.0 days	6.5 days	1.9 days	5.6 hours
5	192 days	21.4 days	2.3 days	5.7 hours	18.0 days	10.3 days	2.1 days	5.7 hours
2	482 days	22.9 days	2.3 days	5.7 hours	45 days	15.7 days	2.2 days	5.7 hours
1	964 days	23.5 days	2.4 days	11.2 hours	90 days	19.0 days	2.3 days	11.2 hours

AD data format: 24-bit (reference value)

(2) The number of CAN channels to be measured: 256 channels $\times$ 2 ports, CF card capacity: 4GB

	Analog channels: 3				Analog channels: 32			
Sampling Frequency (Hz)	The number of CAN input data/sec.				The number of CAN input data/sec.			
	0	10	100	1000	0	10	100	1000
100 k	1.8 hours	1.8 hours	1.8 hours	1.7 hours				
50 k	3.7 hours	3.6 hours	3.6 hours	3.1 hours				
20 k	9.2 hours	9.2 hours	8.9 hours	6.6 hours				
10 k	18.5 hours	18.3 hours	17.1 hours	10.2 hours	1.7 hours	1.7 hours	1.7 hours	1.6 hours
5 k	1.5 days	1.5 days	1.3 days	14.2 hours	3.4 hours	3.4 hours	3.4 hours	3.0 hours
2 k	3.8 days	3.7 days	2.7 days	18.5 hours	8.6 hours	8.6 hours	8.3 hours	6.3 hours
1 k	7.7 days	7.1 days	4.2 days	20.5 hours	17.3 hours	17.2 hours	16.1 hours	9.9 hours
500	15.4 days	13.3 days	5.9 days	21.7 hours	1.4 days	1.4 days	1.2 days	13.8 hours
200	38 days	27.5 days	7.7 days	22.5 hours	3.6 days	3.4 days	2.6 days	18.2 hours
100	77 days	42 days	8.5 days	22.8 hours	7.2 days	6.7 days	4.1 days	20.4 hours
50	154 days	59 days	9.0 days	23.0 hours	14.4 days	12.5 days	5.7 days	21.7 hours
20	385 days	77 days	9.4 days	23.0 hours	36 days	26.3 days	7.6 days	22.5 hours
10	771 days	85 days	9.5 days	23.1 hours	72 days	41 days	8.5 days	22.8 hours
5	1543 days	90 days	9.5 days	23.1 hours	144 days	57 days	9.0 days	22.9 hours
2	3000 days or more	94 days	9.6 days	23.1 hours	361 days	76 days	9.3 days	23.0 hours
1	3000 days or more	95 days	9.6 days	1.8 days	723 days	85 days	9.5 days	1.8 days

AD data format: 16-bit (reference value)

	Analog channels: 3				Analog channels: 32			
Sampling Frequency (Hz)	The number of CAN input data/sec.				The number of CAN input data/sec.			
	0	10	100	1000	0	10	100	1000
100 k	55 minutes	55 minutes	55 minutes	53 minutes				
50 k	1.8 hours	1.8 hours	1.8 hours	1.7 hours				
20 k	4.6 hours	4.6 hours	4.5 hours	3.8 hours				
10 k	9.2 hours	9.2 hours	8.9 hours	6.6 hours	52 minutes	52 minutes	51 minutes	50 minutes
5 k	18.5 hours	18.3 hours	17.1 hours	10.2 hours	1.7 hours	1.7 hours	1.7 hours	1.6 hours
2 k	1.9 days	1.8 days	1.6 days	15.4 hours	4.3 hours	4.3 hours	4.2 hours	3.6 hours
1 k	3.8 days	3.7 days	2.7 days	18.5 hours	8.6 hours	8.6 hours	8.3 hours	6.3 hours
500	7.7 days	7.1 days	4.2 days	20.5 hours	17.3 hours	17.2 hours	16.1 hours	9.9 hours
200	19.2 days	16.0 days	6.4 days	22.0 hours	1.8 days	1.7 days	1.5 days	15.0 hours
100	38 days	27.5 days	7.7 days	22.5 hours	3.6 days	3.4 days	2.6 days	18.2 hours
50	77 days	42 days	8.5 days	22.8 hours	7.2 days	6.7 days	4.1 days	20.4 hours
20	192 days	64 days	9.1 days	23.0 hours	18 days	15.2 days	6.2 days	21.9 hours
10	385 days	77 days	9.4 days	23.0 hours	36 days	26.3 days	7.6 days	22.5 hours
5	771 days	85 days	9.5 days	23.1 hours	72 days	41 days	8.5 days	22.8 hours
2	1929 days	91 days	9.5 days	23.1 hours	180 days	62 days	9.1 days	23.0 hours
1	3000 days or more	94 days	9.6 days	1.8 days	361 days	76 days	9.3 days	1.8 days

AD data format: 24-bit (reference value)

NOTE

- When selecting the dual-sampling mode or using the digital filter, make sure to set the "AD data format" to "24 Bit".
- Maximum sampling frequency for CAN card (CAN-40A/41A) measurement is 2048 Hz.
- Recordable time may slightly vary depending on the CF card to be used.
- The recordable data size of the .KS2 file, .E4A file, and .NMEA at one time are 4,000,000,000 [bytes] individually. When the number of repeat times is 2 or larger, each data size is maximum 1,000,000,000 [bytes].
- Suppose a CF card is 8 GB or larger.

When the .E4A/.NMEA file reaches 4 GB (*1) before the .KS2 file reaches 4 GB (*1), the recording will be continued until the .KS2 file reaches 4 GB (*1).

When the .KS2 file reaches 4 GB (*1) before the .E4A/.NMEA file reaches 4 GB (*1), the recording will be stopped.

*1 Note that when the number of repeat times is 2 or more, the file size is 1 GB instead of 4 GB.

15-4 ITEMS ON SMALL INDICATOR (Organic Light Emitting Display)

15-4-1 Outline

The status and pre-set measuring conditions appear on the small indicator (Organic Light Emitting Display), on the EDX-200A-4H/EDX-200A-4T (hereinafter referred to as the 4-slot model) and on the EDX-200A-2H (hereinafter referred to as the 2-slot model).

MEMO

The Operating Status (first screen) appears again in the following cases.

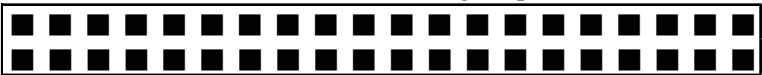
- When the UP switch is pressed for more than 1 second.
- When the sampling mode (normal or dual) is changed.
- When the total status (all channels high-speed, all channels low-speed, or high-speed channels and low-speed channels) is changed during the dual-sampling mode.
- When the communication interface (USB or LAN) is changed.
- When the synchronous operation mode (stand-alone, master or slave) is changed.
- When ECAN condition is changed to not measuring the CAN from measuring the CAN.
When ECAN condition is changed to measuring the CAN from not measuring the CAN.
- When the time synchronization function with the ETIM-40A/EGPC-40A is changed to not using the function from using the function.
When the time synchronization function with the ETIM-40A/EGPC-40A is changed to using the function from not using the function.
- When the GPS data recording function with the ETIM-40A/EGPC-40A is changed to not using the function from using the function.
When the GPS data recording function with the ETIM-40A/EGPC-40A is changed to using the function from not using the function.

15-4-2 Startup Screen

The entire row of small indicator light up for approx. 2 seconds. The software version of the EDX-200A appears. The contents, displaying just before the power was turned off, appears on the indicator.

4-slot model (20 characters × 2 lines)

<The entire row of small indicator light up>



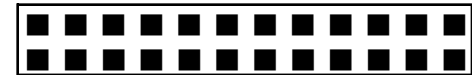
<Software version of the EDX-200A>

M o d e l	:	E D X - 2 0 0 A
V e r .	:	0 1 . 0 0



The contents, displaying just before the power was turned off, appears on the indicator.

2-slot model (12 characters × 2 lines)



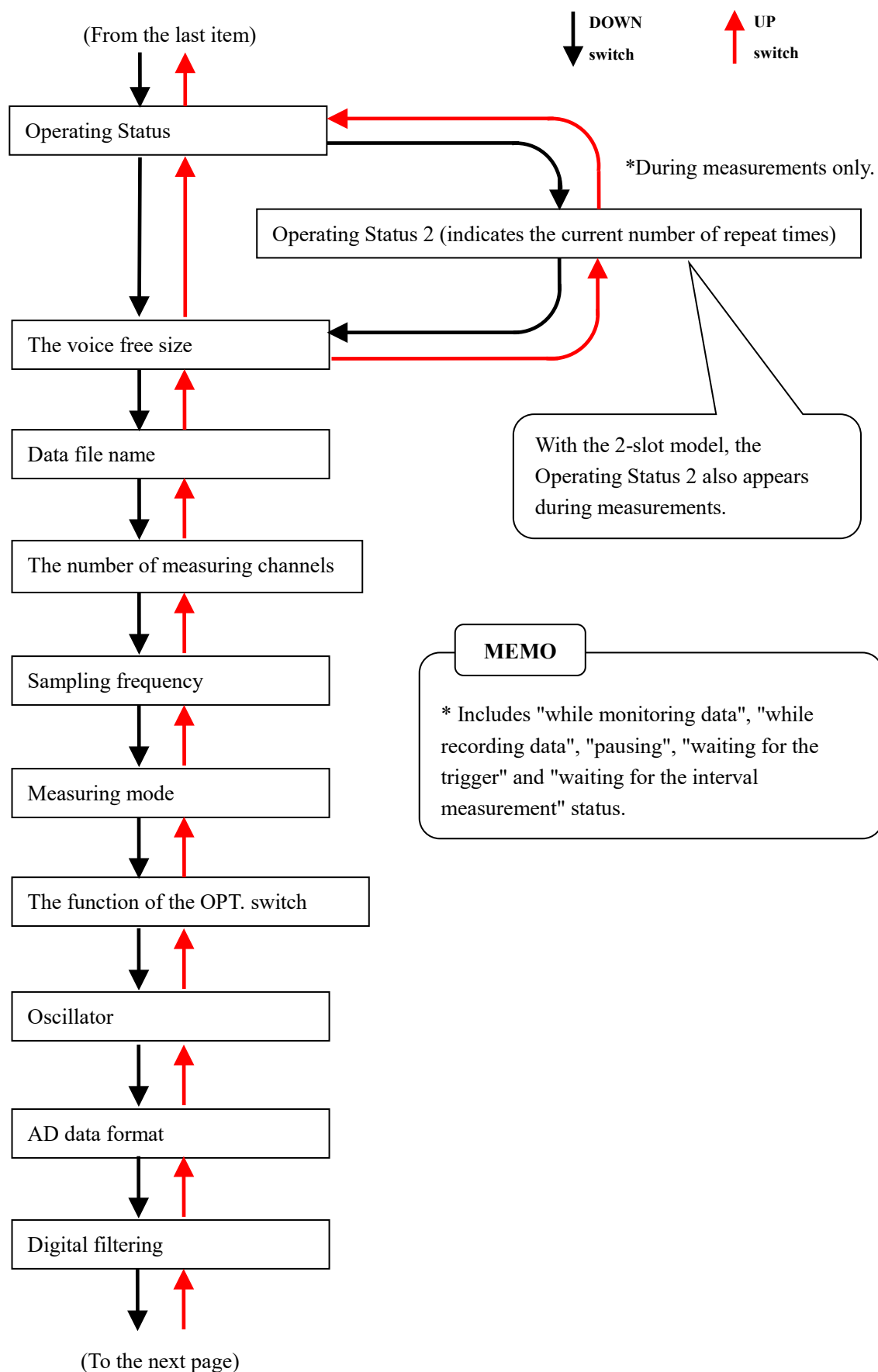
E D X - 2 0 0 A
V e r . 0 1 . 0 0

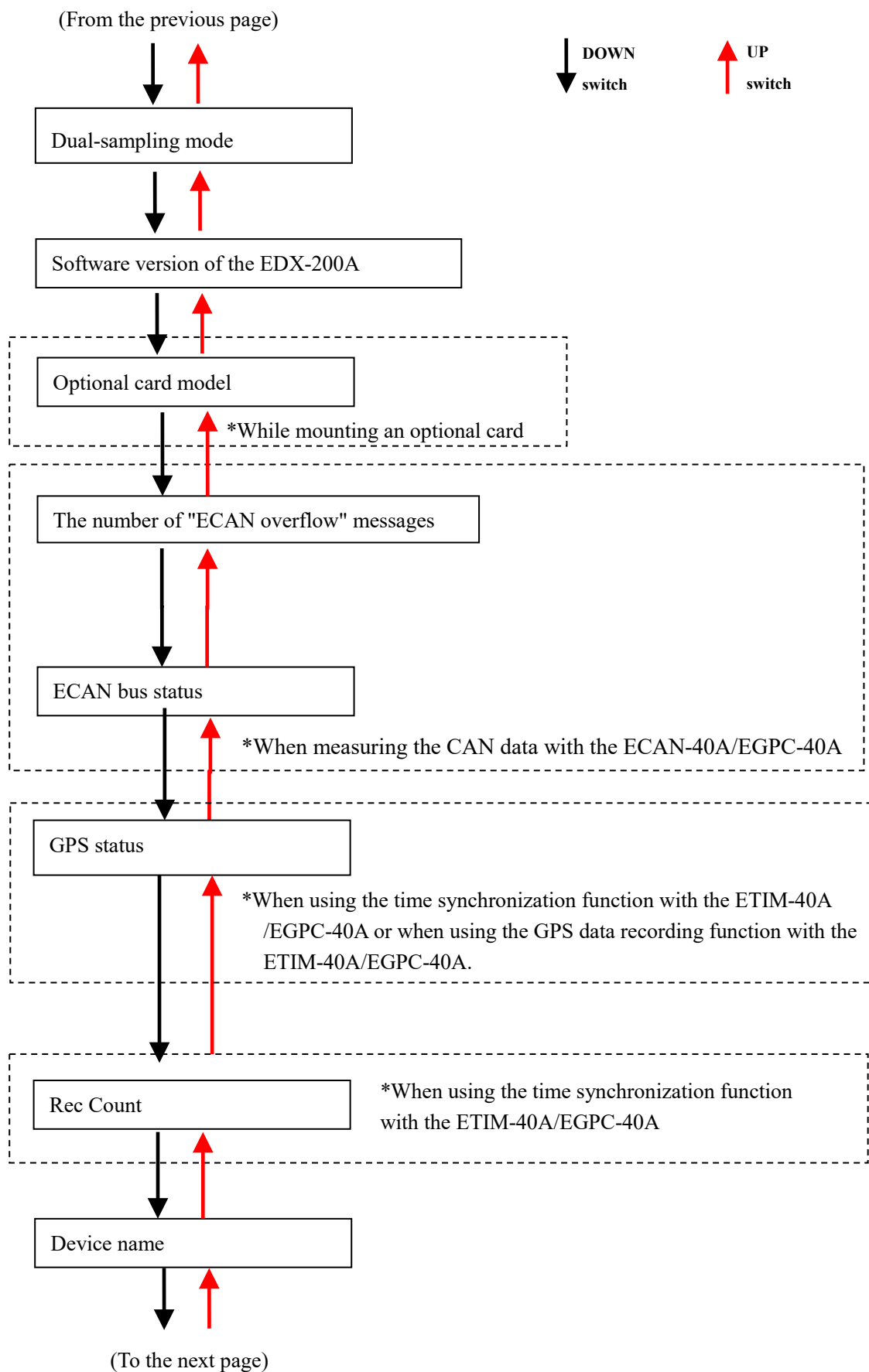


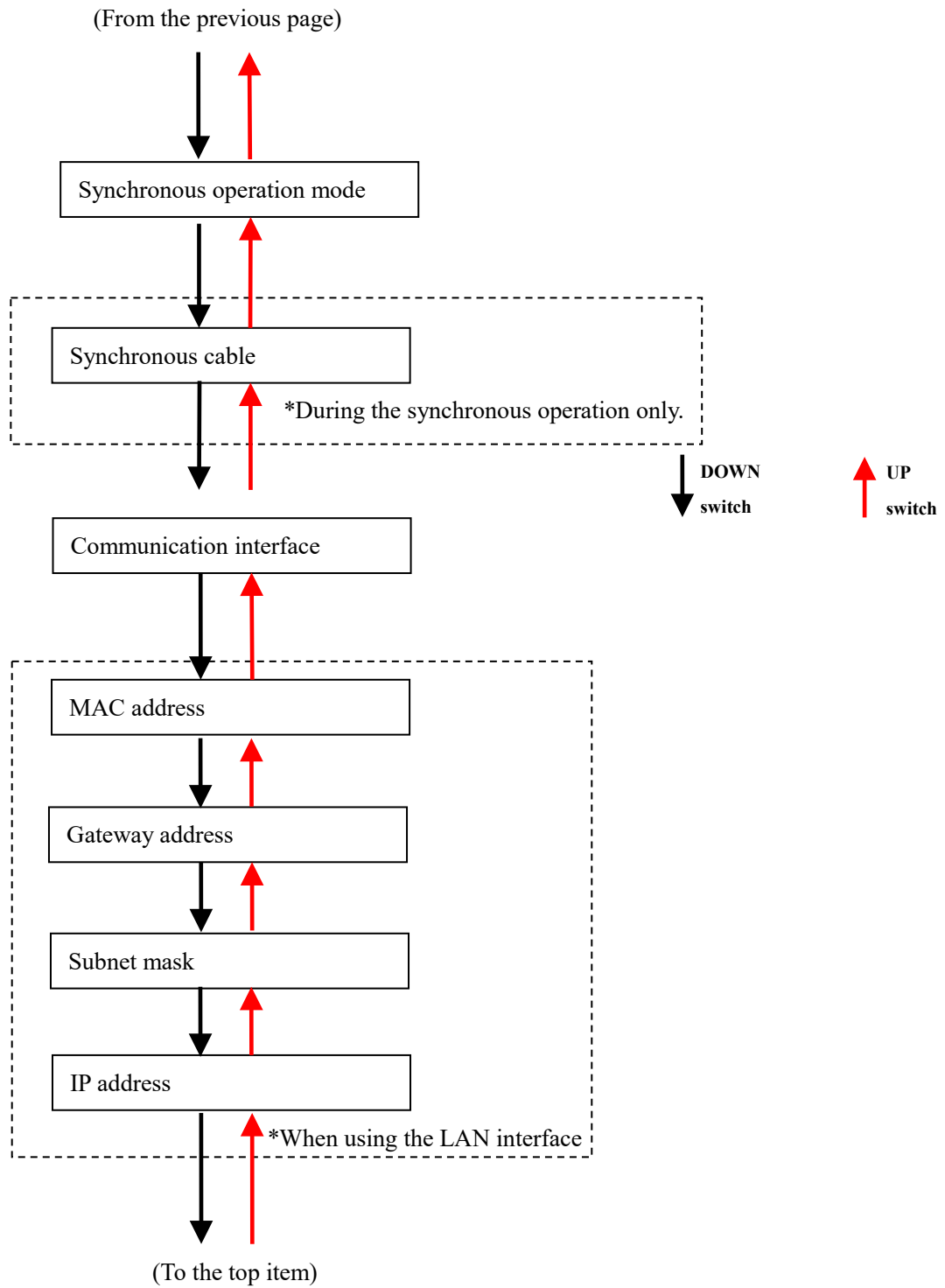
The contents, displaying just before the power was turned off, appears on the indicator.

15-4-3 List of Display Items (Normal-sampling mode)

During the normal-sampling mode, the display item changes by pressing the UP/DOWN switch, located on the EDX-200A front panel.







15-4-4 Details of Display Items (Normal-sampling Mode)

- (1) **Operating Status** and **Operating Status 2** (indicates the current number of repeat times)

MEMO

When the item is too long to be displayed, it is automatically scrolled.

4-slot model (20 characters × 2 lines)

<The EDX-200A is stop>

—	—	R	e	a	d	y	—	—	I	D	=	F
2	0	1	2	/	0	3	/	2	6	1	6	: 1 1

- The ID No. appears on the right side of the first line.
- The current date and time appears on the second line.

<While monitoring data>

Monitoring . . .													V
Recordable Time : 1 2 3 4													

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- The recordable time appears on the second line.

Example:

Suppose the recordable time is 6 days, 20 hours, 50 minutes, and 15 seconds. The following characters are automatically scrolled.

"Recordable Time: 6d 20:50:15"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times).

<While recording data>

R	e	c	o	r	d	i	n	g	.	.	.	V
5	9	s	e	c	R	p	t	.	1			

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- With the 4-slot model, the recorded time and the current number of repeat times appear on the second line.

Example:

Suppose the recorded time is 59 seconds and the current number of repeat times is 1.

"59 sec Rpt.1"

- With the 2-slot model, the recorded time appears on the second line.

Example:

Suppose the recorded time is 23 hours, 59 minutes and 59 seconds.

"23:59:59"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times).

2-slot model (12 characters × 2 lines)

—	R	e	a	d	y	—	I	D	=	F
0	3	/	2	6	1	6	:	1	1	

M	o	n	i	t	o	r	...	V		
R	e	c	o	r	d	a	b	l	e	T

DOWN switch

M o n i t o r ...
R p t 1 / 1 2 3 4

R	e	c	o	r	d	...	V
2	3	:	5	9	:	5	9

DOWN switch

R	e	c	o	r	d	...			
R	p	t	1	0	/	1	2	3	4

MEMO

The recorded time indicates as follows.

- Less than 1 minute.
Example: Suppose the recorded time is 59 seconds.
"59 sec"
- From 1 minute to less than 1 day
Example: Suppose the recorded time is 23 hours, 59 minutes and 59 seconds.
"23:59:59"
- From 1 day to less than 10 days
Example: Suppose the recorded time is 9 days, 23 hours, 59 minutes and 59 seconds.
"9d 23:59:59"
- From 10 day to less than 1000 days
Example: Suppose the recorded time is 999 days, 23 hours, 59 minutes and 59 seconds.
(Note that the seconds will not appear.)
"999d 23:59"
- 1000 days or more
Example: Suppose the recorded time is 9999 days, 23 hours, 59 minutes and 59 seconds.
(Note that the hours, minutes and seconds are converted into days.)
"9999.9d"

<Pausing>

P a u s i n g . . .	V
2 3 : 5 9 : 5 9	

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- The recorded time appears on the second line.

Example:

Suppose you pause recording at 23 hours, 59 minutes, and 59 seconds of the recorded time.

"23:59:59"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times).

P a u s e ...	V
2 3 : 5 9 : 5 9	

DOWN switch

P a u s e ...	
R p t 1 / 1	

<Waiting for the interval measurement>

W a i t i n g f o r I n t v l . . .
2 0 1 2 / 0 6 / 0 4 1 0 : 2 0 : 0 0

- With the 4-slot model, the next recordable time and the next number of repeat times appear on the second line.

Example:

Suppose the next recording start time is 2012/6/4, 10:20:00, the number of repeat times is 1234, and the current number of repeat times is 10.

"2012/06/04 10:20:00 Rpt.10/1234"

- With the 2-slot model, the next recordable time appears on the second line.

With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times).

W a i t I n t v l ...
2 0 1 1 / 0 6 / 2 0 1

DOWN switch

W a i t I n t v l ...
R p t 1 0 / 1 2 3 4

<Waiting for the trigger>

W a i t i n g f o r T r i g . . . V
R p t . 1 0 / 1 2 3 4

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- With the 4-slot model, the current number of repeat times appears on the second line.
- With the 2-slot model, the second line is blank.

With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times).

W a i t T r i g ... V

DOWN switch

W a i t T r i g ...
R p t 1 0 / 1 2 3 4

<Executing Balancing>

E x e c u t i n g B a l a n c e

- The characters will blink.

E x e c u t i n g
B a l a n c e

<Executing Int. CAL>

E x e c u t i n g I n t . C A L

- The characters will blink.

E x e c u t i n g
I n t . C A L

<Executing OffsetZero>

E x e c u t i n g O f f s e t Z e r o

- The characters will blink.

E x e c u t i n g
O f f s e t Z e r o

<Accessing TEDS>

A c c e s s i n g T E D S

- The characters will blink.

A c c e s s i n g
T E D S

<Outputting CAN data>

E x e c u t i n g C a n O u t

The characters will blink.

E x e c u t i n g
C a n O u t

*When outputting the CAN data with
ECAN-40A/EGPC-40A

(2) Voice free size

V o i c e F r e e S i z e
1 0 4 8 s e c

- The voice free size appears on the second line.

Example:

Suppose the remaining of the voice free size is 1048 sec.

"1048 sec"

Example:

Suppose the location where recorded data files should be saved is in the PC or is in synchronous slaves.

***sec"

V F r e e S i z e
1 0 4 8 s e c

(3) Data file name

D a t a F i l e N a m e
T E S T 0 0 0 0 . K S 2

- With the 4-slot model, the item, exceeding 20 characters, is automatically scrolled.
- With the 2-slot model, the item, exceeding 12 characters, is automatically scrolled.
- Every Japanese character is replaced with "***". Any unknown characters are replaced with "*".

Example:

Suppose the Data File Name is "試験 0000_A0000.KS2" in Japanese.

****0000_A0000.KS2"

F i l e N a m e
T E S T 0 0 0 0 . K S 2

(4) The number of measuring channels

M e a s u r i n g C h s
A n l g = 1 6 , C A N = 1 6

- The total number of channels to be measured appears.

Example:

Suppose the channels to be measured are analog channels $\times 16$ and CAN channels (CAN-40A/41A) $\times 16$.

"Anlg=16, CAN=16"

Example:

Suppose the channels to be measured are analog channels $\times 16$, CAN channels (CAN-40A/41A) $\times 16$, DI $\times 1$, and ECAN $\times 512$.

"Anlg=16, CAN=16, DI=1, ECAN=512"

- With the 2-slot model, the item is automatically scrolled.

M e a s . C h s
A n l g = 1 6 , C A N =

(5) Sampling frequency

S a m p l i n g
1 0 0 H z

- The sampling frequency appears.
- While outputting the external clock signal, the "Ext" appears on the right side of the first line.

<Inputting the external clock signal>

S a m p l i n g	E x t
3 2 . 7 6 8 k H z	

S a m p l i n g
1 0 0 H z

S a m p l i n g	E x t
3 2 . 7 6 8 k H z	

(6) Measuring mode

M e a s u r i n g M o d e
M a n u a l

- The measuring mode appears.
- Examples of the second line are as follows.

Example: Manual measurements

"Manual"

Example: Interval measurements

"Interval"

Example: Analog trigger measurements

"Analog Trigger"

Example: External trigger measurements

"External Trigger"

Example: Complex trigger measurements

"Complex Trigger"

Example: Suppose the location where recorded data files should be saved is in the PC.

"PC"

M e a s . M o d e
E x t e r n a l T r i

(7) The function of the OPT. switch

O P T . K e y
M o n i t o r S t a r t

- The function of the OPT. switch appears.
- Examples of the second line are as follows.

Example: No function

"OFF"

Example: For start monitoring data

"Monitor Start"

Example: For deleting the recorded data

"Delete Last File"

Example: For outputting CAL

"CAL Output"

Example: For resetting sensor input overflow status and CH LED

"Over Reset"

O P T . K e y
O F F

(8) Oscillator

O s c i l l a t o r
I n t e r n a l

- The oscillator setting appears.
- Examples of the second line are as follows.

Example: Suppose the oscillator is internal.

"Internal"

Example: Suppose the oscillator is external.

"External"

O s c i l l a t o r
E x t e r n a l

(9) AD data format

A D D a t a F o r m a t
2 4 b i t

- The AD data format appears.
- Examples of the second line are as follows.

Example: Suppose " the AD data format " is "16 Bit".

"16 bit"

Example: Suppose "the AD data format " is "24 Bit".

"24 bit"

A D D a t a
1 6 b i t

(10) Digital filtering

D i g i t a l F i l t e r
O N

- The ON/OFF setting of the digital filtering appears.

D i g . F i l t e r
O F F

(11) Dual-sampling mode

D u a l S a m p l i n g
O F F

- The ON/OFF setting of the dual-sampling mode appears.

D u a l S a m p l i n g
O N

(12) Software version of the EDX-200A

M o d e l : E D X - 2 0 0 A
V e r . : 0 1 . 0 0

- The software version of the EDX-200A appears.

E D X - 2 0 0 A
V e r . 0 1 . 0 0

(13) Optional card model

O p t . C	:	E C A N - 4 0 A
V e r .	:	0 1 . 0 0

The model of the optional card appears.

O p t :	E C A N - 4 0 A
V e r :	0 1 . 0 0

(14) The number of "ECAN overflow" messages

E c a n	O v e r f l o w
1 2 3 4 5 6 7 8	M S G

The number of overflow messages of the ECAN data appears when measuring the CAN data with the ECAN-40A/EGPC-40A.

E c a n	O v e r f l o w
1 2 3 4 5 6 7 8	M S G

(15) ECAN bus status

E c a n	B u s	S t a t u s
P o r t 1 :	O K	P o r t 2 : N G

The bus status of the CAN port 1 and CAN port 2 appear when measuring the CAN data with the ECAN-40A/EGPC-40A.

E c a n	S t a t u s
P 1 :	O K P 2 : N G

Example

A/D conversion stopping

"Port1:-- Port2:--"

Example

Suppose the "Measurement ON" channel exists on the port 1 and no bus error appears.

"Port1: OK Port2:--"

Example

Suppose the "Measurement ON" channel exists on the port 1 and port 2 and bus error appears on the port 2.

"Port1: OK Port2: NG"

(16) GPS status

G P S	S t a t u s	=	O K
N u m .	S a t	=	7

G P S	S t s	=	O K
N u m .	S a t	=	7

- The GPS status and the number of satellites appear when using the time synchronization function with the ETIM-40A/EGPC-40A or when using the GPS data recording function with the ETIM-40A /EGPC-40A.
- The GPS status appears on the first line.
 - OK: Fix available
The time synchronization function is available.
 - Err: Fix not available
The time synchronization function is not available.
 - NONE: GPS sensor not connected.
- The number of satellites in use appears on the second line.

(17) Rec Count

R e c	C o u n t	[G P S : I N T]
1 0 0	:	1

R e c	C n t	[G : I]
1 0 0	:	1

- When using the time synchronization function with the ETIM-40A/EGPC-40A, the Recording Count (based on the GPS time) and Recording Count (based on the internal clock) appear.
- Example of the second line is as follows.

Example

Suppose the Recording Count (based on the GPS time) is "100" and Recording Count (based on the internal clock) is "1".

"100 : 1"

(18) Device name

D e v i c e N a m e
U N I T - 1 (S t r a i n)

- The device name appears.
- With the 4-slot model, the item, exceeding 20 characters, is automatically scrolled.
- With the 2-slot model, the item, exceeding 12 characters, is automatically scrolled.
- Every Japanese character is replaced with "***".
Any unknown characters are replaced with "*".

Example: Suppose the device name is "EDX スレーブ 1" in Japanese.
"EDX*****1"

D e v i c e N a m e
U N I T - 2 (V o l t a

(19) Synchronous operation mode

S y n c . M o d e
S t a n d a l o n e

- The synchronous operation mode appears.
- Examples of the second line are as follows.

Example: Suppose the EDX-200A is stand-alone.
"Standalone"

Example: Suppose the EDX-200A is synchronous master (ID = 0).
"Master ID=0"

Example: Suppose the EDX-200A is synchronous slave (ID = 1).
"Slave ID=1"

S y n c . M o d e
S l a v e I D = 1

(20) Synchronous cable

S y n c . C a b l e
L A N C o n n e c t o r

- The cable type appears for synchronous operations.
- The item is for the synchronous operation only.
- Examples of the second line are as follows.

Example: Suppose the synchronous cable is N-95/N-128.
4-slot model: "CONT. Connector"
2-slot model: "CONT."

Example: Suppose the synchronous cable is LAN cable.
4-slot model: "LAN Connector"
2-slot model: "LAN"

S y n c . C a b l e
C O N T .

(21) Communication interface

I n t e r f a c e
L A N C o n n e c t e d

- The status of the communication interface appears.
- Examples of the second line are as follows.

Example: Suppose the communication interface is LAN.

When not connected: "LAN"

When correctly connected: "LAN Connected"

Example: Suppose the communication interface is USB

When not connected: "USB"

When correctly connected: "USB Connected"

I n t e r f a c e
L A N C o n n e c t e

(22) MAC address

M A C A d d r e s s
0 0 - 0 1 - 3 3 - 1 0 - B 0 - 0 0

- The MAC address appears.
- The item is for the LAN interface only.

M A C A d d r e s s
0 0 - 0 1 - 3 3 - 1 0 -

(23) Gateway address

G a t e w a y A d d r e s s
1 9 2 . 1 6 8 . 2 0 0 . 2 5 0

- The gateway address appears.
- The item is for the LAN interface only.

G a t e w a y
1 9 2 . 1 6 8 . 2 0 0 .

(24) Subnet mask

S u b n e t M a s k
2 5 5 . 2 5 5 . 2 5 5 . 0

- The subnet mask appears.
- The item is for the LAN interface only.

S u b n e t M a s k
2 5 5 . 2 5 5 . 2 5 5 .

(25) IP address

I P A d d r e s s
1 9 2 . 1 6 8 . 2 0 0 . 2 0 0

- The IP address appears.
- The item is for the LAN interface only.

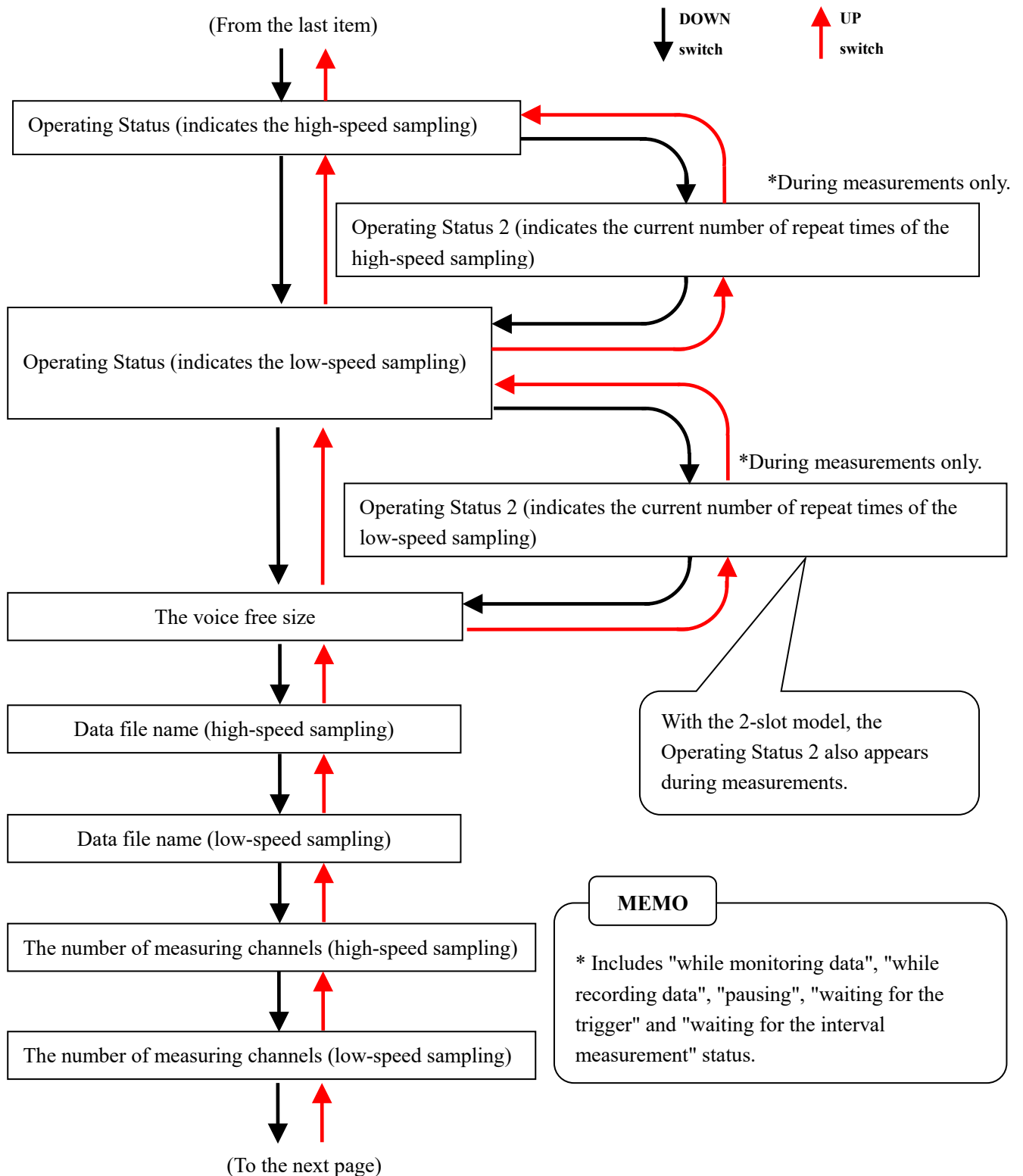
I P A d d r e s s
1 9 2 . 1 6 8 . 2 0 0 .

15-4-5 List of Display Items (Dual-sampling Mode)

During the dual-sampling mode, the display item changes by pressing the UP/DOWN switch, located on the EDX-200A front panel.

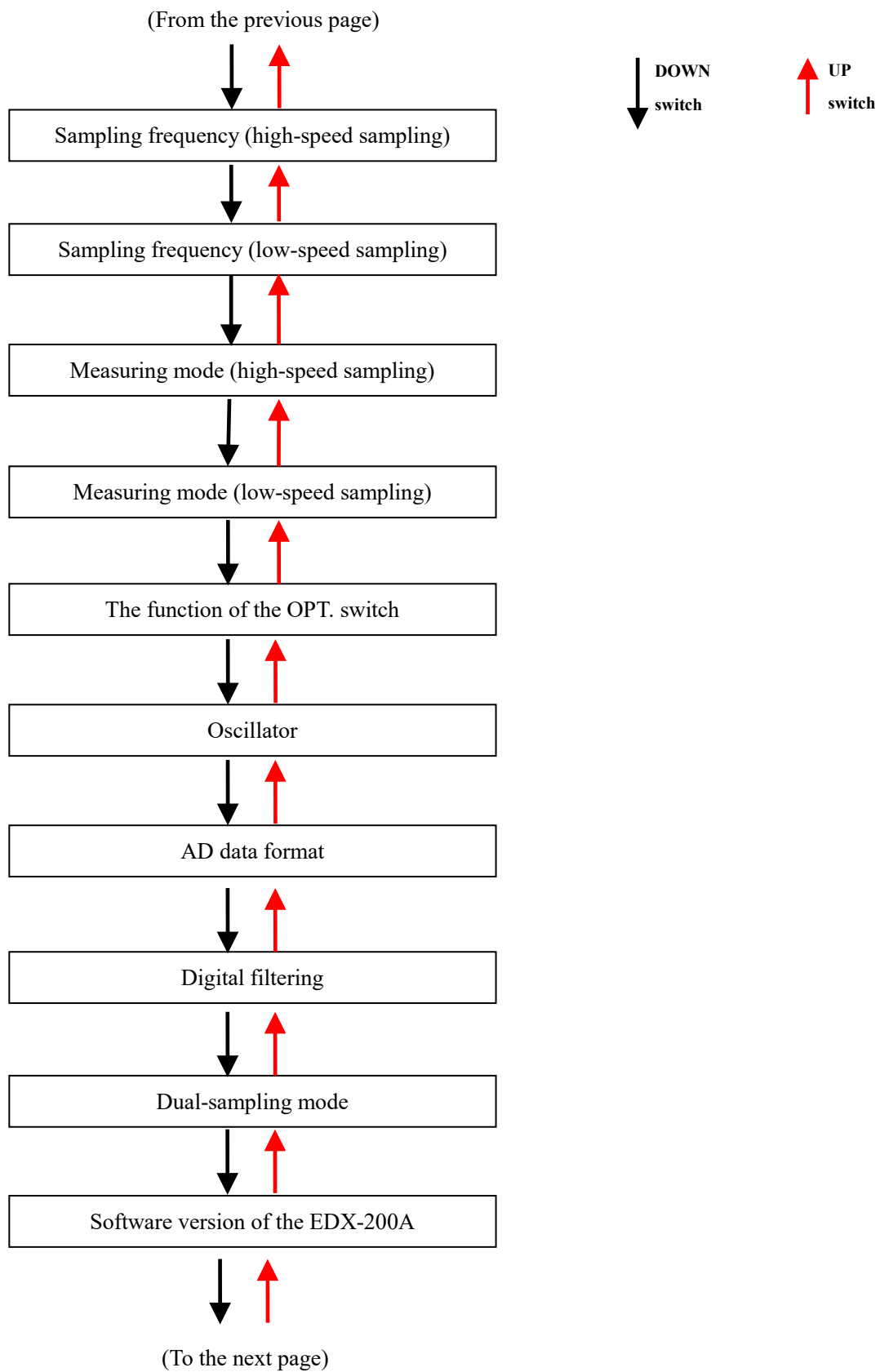
MEMO

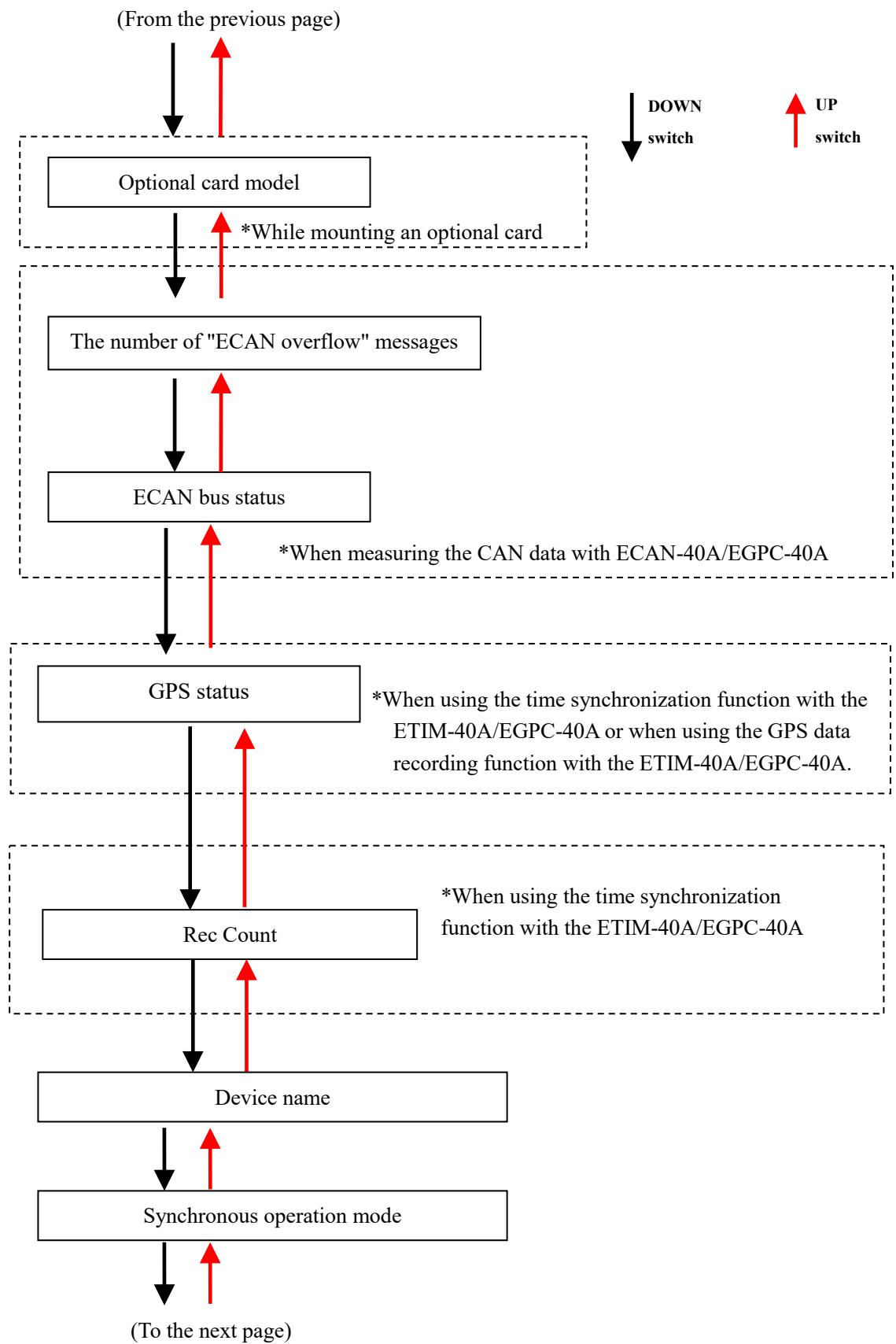
Items related to high-speed channels will not appear when there is no high-speed channel.
Items related to low-speed channels will not appear when there is no low-speed channel.

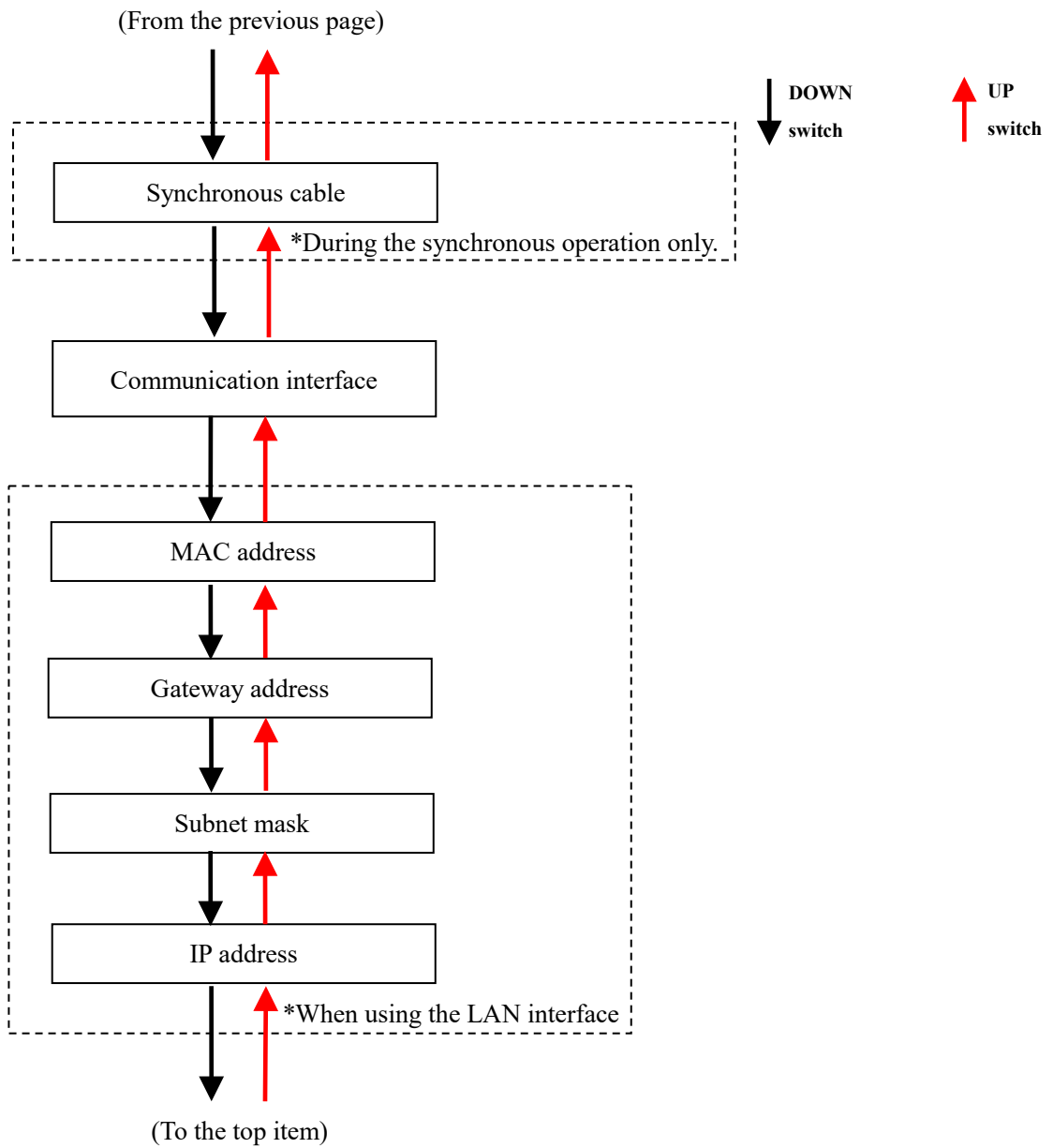


MEMO

* Includes "while monitoring data", "while recording data", "pausing", "waiting for the trigger" and "waiting for the interval measurement" status.







15-4-6 Details of Display Items (Dual-sampling Mode)

(1) Operating Status (high-speed sampling), Operating Status 2 (indicates the number of repeat times of the high-speed sampling), Operating Status (low-speed sampling), and Operating Status 2 (indicates the number of repeat times of the low-speed sampling)

Items may vary for operating status.

MEMO

When the item is too long to be displayed, it is automatically scrolled.

4-slot model (20 characters × 2 lines)

<The EDX-200A is stop>

-	-	R	e	a	d	y	-	-	I	D	=	F
2	0	1	2	/	0	3	/	2	6	1	6	: 1 1

- The ID No. appears on the right side of the first line.
- The current date and time appears on the second line.

<While monitoring data (high-speed sampling)>

M	o	n	i	t	o	r	i	n	g	.	.	.	H	i	g	h		
R	e	c	o	r	d	a	b	l	e	T	i	m	e	:	1	2	3	4

- With the 4-slot model, the "High" appears on the right side of the first line.
With the 2-slot model, the "H" appears on the right side of the first line.
- The recordable time appears on the second line.

Example:

Suppose the recordable time is 6 days, 20 hours, 50 minutes, and 15 seconds.

The following characters are automatically scrolled.

"Recordable Time:6d 20:50:15"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the number of repeat times of the high-speed sampling).

2-slot model (12 characters × 2 lines)

-	R	e	a	d	y	-	I	D	=	F
0	3	/	2	6	1	6	:	1	1	

M	o	n	i	t	o	r	...	H		
R	e	c	o	r	d	a	b	l	e	T

DOWN switch

M	o	n	i	t	o	r	...	H
R	p	t	1	/	1	2	3	4

MEMO

This item will not appear when there is no high-speed channel.

<While monitoring data (low-speed sampling)>

M	o	n	i	t	o	r	...	V	L	o	w							
R	e	c	o	r	d	a	b	l	e	T	i	m	e	:	1	2	3	4

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- With the 4-slot model, the "Low" appears on the right side of the first line.
With the 2-slot model, the "L" appears on the right side of the first line.
- The recordable time and the number of repeat times appear on the second line.

Example:

Suppose the recordable time is 6 days, 20 hours, 50 minutes, and 15 seconds.

The following characters are automatically scrolled.

"Recordable Time: 6d 20:50:15"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the low-speed sampling).

MEMO

This item will not appear when there is no low-speed channel.

M	o	n	i	t	o	r	...	V	L	
R	e	c	o	r	d	a	b	l	e	T

DOWN switch

M	o	n	i	t	o	r	...	L
R	p	t	1	/	1	2	3	4

<While recording data (high-speed sampling)>

R	e	c	o	r	d	i	n	g	...	H	i	g	h	
5	9	s	e	c						R	p	t	.	1

- With the 4-slot model, the "High" appears on the right side of the first line.
With the 2-slot model, the "H" appears on the right side of the first line.
- With the 4-slot model, the recorded time and the current number of repeat times appear on the second line.

Example:

Suppose the recorded time is 59 seconds and the current number of repeat times is 1.

"59 sec Rpt.1"

- With the 2-slot model, the recorded time appears on the second line.

Example:

Suppose the recorded time is 23 hours, 59 minutes and 59 seconds.

"23:59:59"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the high-speed sampling).

R	e	c	o	r	d	...	H
2	3	:	5	9	:	5	9

DOWN switch

M	o	n	i	t	o	r	...	H	
R	p	t	1	0	/	1	2	3	4

MEMO

This item will not appear when there is no high-speed channel.

<While recording data (low-speed sampling)>

R	e	c	o	r	d	i	n	g	.	.	.	V	L	o	w	
5	9	s	e	c								R	p	t	.	1

- While recording voice data, the "V (indicating voice memo)" appears on the right side of the first line.
- With the 4-slot model, the recorded time and the current number of repeat times appear on the second line.

Example:

Suppose the recorded time is 59 seconds and the current number of repeat times is 1.

"59 sec Rpt.1"

R	e	c	o	r	d	...	V	L
5	9	s	e	c				

DOWN switch

R	e	c	o	r	d	...		L	
R	p	t	1	0	/	1	2	3	4

- With the 2-slot model, the recorded time appears on the second line.

Example:

Suppose the recorded time is 23 hours, 59 minutes and 59 seconds.

"23:59:59"

- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the low-speed sampling).

MEMO

This item will not appear when there is no low-speed channel.

MEMO

The recorded time indicates as follows.

- Less than 1 minute.

Example: Suppose the recorded time is 59 seconds.

"59 sec"

- From 1 minute to less than 1 day

Example: Suppose the recorded time is 23 hours, 59 minutes and 59 seconds.

"23:59:59"

- From 1 day to less than 10 days

Example: Suppose the recorded time is 9 days, 23 hours, 59 minutes and 59 seconds.

"9d 23:59:59"

- From 10 day to less than 1000 days

Example: Suppose the recorded time is 999 days, 23 hours, 59 minutes and 59 seconds.

(Note that the seconds will not appear.)

"999d 23:59"

- 1000 days or more

Example:

Suppose the recorded time is 9999 days, 23 hours, 59 minutes and 59 seconds.

(Note that the hours, minutes and seconds are converted into days.)

"9999.9d"

<Waiting for the interval measurement (high-speed sampling)>

W	a	i	t	i	n	g	f	o	r	I	n	t	v	l	.	.	.
H	i	g	h	:	2	0	1	2	/	0	6	/	0	4	1	0	:2

- With the 4-slot model, the "High" appears on the left side of the second line.

With the 2-slot model, the "H" appears on the right side of the first line.

- With the 4-slot model, the next interval start time and the next number of repeat times appear on the second line.

Example:

Suppose the next recording start time is 2012/6/4, 10:20:00, the number of repeat times is 1234, and the current number of repeat times is 10.

"High:2012/06/04 10:20:00 Rpt.10/1234"

- With the 2-slot model, the next interval start time appears on the second line.
- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the high-speed sampling).

W	a	i	t	I	n	t	v	l	...	H
2	0	1	2	/	0	6	/	0	4	1

DOWN switch

W	a	i	t	I	n	t	v	l	...	H
R	p	t	1	0	/	1	2	3	4	

MEMO

This item will not appear when there is no high-speed channel.

<Waiting for the interval measurement (low-speed sampling)>

W	a	i	t	i	n	g	f	o	r	I	n	t	v	l	.	.	.
L	o	w	:	2	0	1	2	/	0	6	/	0	4	1	0	:2	0

- With the 4-slot model, the "Low" appears on the left side of the second line.

With the 2-slot model, the "L" appears on the right side of the first line.

- With the 4-slot model, the next recordable time and the next number of repeat times appear on the second line.

Example:

Suppose the next recording start time is 2012/6/4, 10:20:00, the number of repeat times is 1234, and the current number of repeat times is 10.

"Low:2012/06/04 10:20:00 Rpt.10/1234"

- With the 2-slot model, the next recordable time appears on the second line.
- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the low-speed sampling).

W	a	i	t	I	n	t	v	l	...	L
2	0	1	2	/	0	6	/	0	4	1

DOWN switch

W	a	i	t	I	n	t	v	l	...	L
R	p	t	1	0	/	1	2	3	4	

MEMO

This item will not appear when there is no low-speed channel.

<Waiting for the trigger (high-speed sampling only)>

W a i t i n g f o r T r i g . . .
H i g h : R p t . 1 0 / 1 2 3 4

- With the 4-slot model, the "High" appears on the left side of the second line.

With the 2-slot model, the "H" appears on the right side of the first line.

- With the 4-slot model, the current number of repeat times appears on the second line.
- With the 2-slot model, the second line is blank.
- With the 2-slot model, by pressing the DOWN switch, the display item changes to the Operating Status 2 (indicates the current number of repeat times of the high-speed sampling).

W a i t T r i g ... H

↓ DOWN switch

W a i t T r i g ... H
R p t 1 0 / 1 2 3 4

<Executing Balancing>

E x e c u t i n g B a l a n c e

- The characters will blink.

E x e c u t i n g
B a l a n c e

<Executing Int. CAL>

E x e c u t i n g I n t . C A L

- The characters will blink.

E x e c u t i n g
I n t . C A L

<Executing OffsetZero>

E x e c u t i n g O f f s e t Z e r o

- The characters will blink.

E x e c u t i n g
O f f s e t Z e r o

<Accessing TEDS>

A c c e s s i n g T E D S

- The characters will blink.

A c c e s s i n g
T E D S

(2) Voice free size

For details, see the item (2) in the 15-4-4 Details of Display Items (Normal-sampling Mode).
(Normal-sampling Mode).

(3) Data file name (high-speed sampling)

D a t a F i l e N a m e H i g h
T E S T 0 0 0 0 _ H . K S 2

F i l e N a m e H
T E S T 0 0 0 0 _ H . K

- With the 4-slot model, the "High" appears on the right side of the first line.
With the 2-slot model, the "H" appears on the right side of the first line.
- With the 4-slot model, the item, exceeding 20 characters, is automatically scrolled.
- With the 2-slot model, the item, exceeding 12 characters, is automatically scrolled.
- Every Japanese character is replaced with "***".
Any unknown characters are replaced with "*".

Example:

Suppose the Data File Name is "試験 0000_H_A0000.KS2" in Japanese.

"****0000_H_A0000.KS2"

MEMO

This item will not appear when there is no high-speed channel.

(4) Data file name (low-speed sampling)

D a t a F i l e N a m e L o w
T E S T 0 0 0 0 _ L . K S 2

F i l e N a m e L
T E S T 0 0 0 0 _ L . K

- With the 4-slot model, the "Low" appears on the right side of the first line.
With the 2-slot model, the "L" appears on the right side of the first line.
- With the 4-slot model, the item, exceeding 20 characters, is automatically scrolled.
- With the 2-slot model, the item, exceeding 12 characters, is automatically scrolled.
- Every Japanese character is replaced with "***".
Any unknown characters are replaced with "*".

Example:

Suppose the Data File Name is "試験 0000_L_A0000.KS2" in Japanese.

"****0000_L_A0000.KS2"

MEMO

This item will not appear when there is no low-speed channel.

(5) The number of measuring channels (high-speed sampling)

M e a s u r i n g C h s H i g h
A n l g = 1 6 , C A N = 1 6

M e a s . C h s H
A n l g = 1 6 , C A N =

- With the 4-slot model, the "High" appears on the right side of the first line.
With the 2-slot model, the "H" appears on the right side of the first line.
- The total number of high-speed channels to be measured appears.

Example:

Suppose the channels to be measured are analog channels $\times 16$ and CAN channels (CAN-40A/41A) $\times 16$.

"Anlg=16, CAN=16"

MEMO

This item will not appear when there is no high-speed channel.

While displaying the item, the CH LED, corresponding to the high-speed channel, lights up in green.

(6) The number of measuring channels (low-speed sampling)

M e a s u r i n g C h s L o w
A n l g = 1 6 , C A N = 1 6

- With the 4-slot model, the "Low" appears on the right side of the first line.

With the 2-slot model, the "L" appears on the right side of the first line.

- The total number of low-speed channels to be measured appears.

M e a s . C h s L
A n l g = 1 6 , C A N =

MEMO

This item will not appear when there is no low-speed channel.

While displaying the item, the CH LED, corresponding to the low-speed channel, lights up in red.

(7) Sampling frequency (high-speed sampling)

S a m p l i n g H i g h
1 0 k H z

- With the 4-slot model, the "High" appears on the right side of the first line.

With the 2-slot model, the "H" appears on the right side of the first line.

- The high-speed sampling frequency appears on the second line.

S a m p l i n g H
1 0 k H z

MEMO

This item will not appear when there is no high-speed channel.

(8) Sampling frequency (low-speed sampling)

S a m p l i n g L o w
2 0 0 H z

- With the 4-slot model, the "Low" appears on the right side of the first line.

With the 2-slot model, the "L" appears on the right side of the first line.

- The low-speed sampling frequency appears on the second line.

S a m p l i n g L
2 0 0 H z

MEMO

This item will not appear when there is no low-speed channel.

(9) Measuring mode (high-speed sampling)

M	e	a	s	u	r	i	n	g		M	o	d	e		H	i	g	h
M	a	n	u	a	l													

M	e	a	s	.		M	o	d	e		H
E	x	t	e	r	n	a	l		T	r	i

- With the 4-slot model, the "High" appears on the right side of the first line.

With the 2-slot model, the "H" appears on the right side of the first line.

- The high-speed measuring mode appears on the second line.
- Examples of the second line are as follows.

Example: Manual measurements
"Manual"

Example: Interval measurements
"Interval"

Example: Analog trigger measurements
"Analog Trigger"

Example: External trigger measurements
"External Trigger"

Example: Complex trigger measurements
"Complex Trigger"

Example: Suppose the location where recorded data files should be saved is in the PC.
"PC"

MEMO

This item will not appear when there is no high-speed channel.

(10) Measuring mode (low-speed sampling)

M	e	a	s	u	r	i	n	g		M	o	d	e		L	o	w
M	a	n	u	a	l												

M	e	a	s	.		M	o	d	e		L
I	n	t	e	r	v	a	l				

- With the 4-slot model, the "Low" appears on the right side of the first line.

With the 2-slot model, the "L" appears on the right side of the first line.

- The low-speed measuring mode appears on the second line.
- Examples of the second line are as follows.

Example: Manual measurements
"Manual"

Example: Interval measurements
"Interval"

MEMO

This item will not appear when there is no low-speed channel.

(11) The function of the OPT. switch

For details, see the item (7) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(12) Oscillator

For details, see the item (8) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(13) AD data format

For details, see the item (9) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(14) Digital filtering

For details, see the item (10) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(15) Dual-sampling Mode

For details, see the item (11) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(16) Software version of the EDX-200A

For details, see the item (12) in the 015-4-4 Details of Display Items (Normal-sampling Mode).

(17) Optional card model

For details, see the item (13) in the "14-3-4 Details of Display Items (Normal-sampling Mode)."

(18) The number of "ECAN overflow" messages

For details, see the item (14) in the "14-3-4 Details of Display Items (Normal-sampling Mode)."

(19) ECAN bus status

For details, see the item (15) in the "14-3-4 Details of Display Items (Normal-sampling Mode)."

(20) GPS status

For details, see the item (16) in the "14-3-4 Details of Display Items (Normal-sampling Mode)."

(21) Rec Count

For details, see the item (17) in the "14-3-4 Details of Display Items (Normal-sampling Mode)."

(22) Device name

For details, see the item (16) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(23) Synchronous operation mode

For details, see the item (17) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(24) Synchronous cable

For details, see the item (18) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(25) Communication interface

For details, see the item (19) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(26) MAC address

For details, see the item (20) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(27) Gateway address

For details, see the item (21) in the "015-4-4 Details of Display Items (Normal-sampling Mode)."

(28) Subnet mask

For details, see the item (22) in the "015-4-4 Details of Display Items (Normal-sampling Mode). "

(29) IP address

For details, see the item (23) in the "015-4-4 Details of Display Items (Normal-sampling Mode).

15-4-7 Errors

- The error comment appears on the second line on the Operating Status (first screen).
- With the 2-slot model, the item is automatically scrolled.

Example:

The EDX-200A cannot start measuring data because a CF card is not mounted.

4-slot model (20 characters × 2 lines)	2-slot model (12 characters × 2 lines)
— R e a d y — — I D = F E R R : N o C F C a r d	— R e a d y — I D = F E R R : N o C F C a

Table List of Errors

Error comment	Cause and Countermeasures
ERR: CPU-43A Access	"Internal PCB Error"
ERR: VRP-42A Access	The EDX-200A is failure. Contact KYOWA or our representatives.
ERR: EDP-44A Access	
ERR:Slot(1---) Example 1: When the conditioner card in the slot 1 has an error 「ERR:Slot(1---)」 Example 2: When the conditioner cards in the slot 2 and slot 4 have an error 「ERR:Slot(-2-4)」	"Conditioner Card Error" The conditioner card is failure or EDX-200A is failure. Contact KYOWA or our representatives.
ERR: Ext Clock	"External Clock Error" Check the external-clock-signal settings and input. For details, see 5-2 EXTERNAL CLOCK INPUT.
ERR: CF Access	"CF Card Access Error" The CF card is failure or CF-card slot of the EDX-200A is failure. Contact KYOWA or our representatives.
ERR: CF Full	"No Space on CF Card" Replace the CF card with a new one or transfer data in the CF card into a PC to make enough free space.
ERR: Folder No.	"Folder No. Error" Replace the CF card with a new one or delete folder in the CF card.
ERR: No CF Card	"CF Card Not Mounted" Mount the CF card.
ERR: No Measuring Setting	"No Target Channel Found" Set channels to be measured.
ERR: Ch Condition	"CH Condition Error" Check the analog channel conditions.

[From the previous page]

Error comment	Cause and Countermeasures
ERR: CAN Condition	"CAN Condition Error" Check the CAN conditions (conditions of the CAN card CAN-40A/41A) and ECAN conditions (conditions of the ECAN-40A/EGPC-40A).
ERR: File Name or Number Setting	"File Name Error or File No. Error" Check the file name and file numbers.
ERR: Manual Meas Setting	"Manual Measurements Condition Error" Check the measuring conditions of manual measurements.
ERR: Interval Meas Setting	"Interval Measurements Condition Error" Check the measuring conditions of interval measurements.
ERR: Trigger Meas Setting	"Trigger Measurements Condition Error" Check the measuring conditions of trigger measurements.
ERR: Sampling Freq Setting	"Sampling Frequency Error" Check the sampling frequency.
ERR: Digital Filter Setting	"Digital Filtering Condition Error" Check the conditions of digital filtering. For details, see "DIGITAL FILTER".
ERR: Parameter Setting (Env)	"General Information Error" Check the environmental settings.
ERR: Parameter Setting (MeasComm)	"Measuring Conditions Error" Check the channel conditions and measuring conditions.
ERR: Oscillator	"Oscillator Error" Check the external-oscillator settings and input.
ERR: Slave Setting	"Slave Unit Error" Check the settings of the slave units.
ERR: Sync Slave	"Slave Units Communication Error" Check the connections between EDX-200A units. Update the EDX-200A software to the latest version.
ERR: Opt Card Access	"Optional Card Error" The optional card is failure or EDX-200A is failure. Contact KYOWA or our representative.

15-5 Triggering operation when the EDX-200A record can data by ECAN-40A or EGPC-40A

The EDX-200A can set pre-trigger data delay or post-trigger data delay when the EDX-200A is set each trigger mode. Herewith could record data before trigger point or after trigger data.

Pre-trigger data delay is maximum 1 second when record can data by ECAN-40A or EGPC-40A. Post-trigger data delay is same setting vlaue when record can data by ECAN-40A or EGPC-40A.

The EDX-200A records can data when it's received. Be careful with can data don't exist when it doesn't received within a setting time.