

DIS-7200 Series



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Non-G-Resistant Data Acquisition System for Crash Test



Record dummy qualification and component test data

- Channels: Max. 1056*
- Modules available for various uses
- Extensive lineup

*Up to 999 channels if using DIS-70A

These modules are for use in non-G-resistant tests designed for DIS-7000 Series devices used in such applications as component tests, dummy qualification tests, airbag ignition tests, and barrier load cell measurement.

Measurement System



Traffic System

Automotive Test System

Civil Engineering Measuring System

Test Equipment & System

Lineup

Master Module*1



DIS-7200AS2

Expansion Module*1



Signal Conditioner Module (Square Connector Type)

DIS-708AS1-T
(8 ch)



DIS-716AS1-T
(16 ch)



DIS-724AS1-T
(24 ch)



Signal Conditioner Module (Round Connector Type)
DIS-724AS1-L



Airbag Timer Module
DIA-708AS3



Control Software
DIS-70A



PC
(Option)

*1 Up to 15 expansion modules are connectable per single master module.

*You cannot connect the DIS-7000 Series modules.

Traffic
SystemAutomotive
Test
SystemCivil
Engineering
Measuring
SystemTest
Equipment &
System

DIS-7200AS2 Specifications

Expansion Connection	
Target	Expansion modules of the DIS-7200 series
Number of Units	Maximum 15
Input/Output Connector	
LAN Connector	1 (0B series, LEMO made) Connects the PC via a communication cable.
[DC=IN] Connector	1 (2B series, LEMO made) Connects the (Kyowa's recommended) external power supply via the power cable.
[TRIGGER IN] Connector	1 (1B series, LEMO made) Connects trigger input cables including tape switches.
[CONT.] Connector	2 (0B series, LEMO made) Connects master modules via a cascade cable. Connects the external LED unit for the DIS-7000.
[EXP. CONT. OUT] Connector	1 (1B series, LEMO made) Connects the conventional products via a cascade cable.
[DIGITAL IN 1/2] Connector	2 (2B series, LEMO made) Connects a digital input cable or digital input junction box.
[TRIGGER OUT] Connector	4 (1B series, LEMO made) Connects cameras, etc. via trigger distribution output cables.
[DOWN] Connector	1 (D-sub connector, Japan Aviation Electronics Industry, Limited) Connects a expansion module directly. *Cables and various devices, connected to the above connectors, are optional accessories.
Switch	
[POWER] Switch	Turns ON/OFF the DIS-7200AS2 and modules, connected to the DIS-7200AS2.
[SELECT]/[ENTER] Switch	Selects the LED indicator description.
LED Indicator/Buzzer	
LED	Status LED
LED Indicator	Indicates the DIS-7200AS2 status and modules statuses, connected to the DIS-7200AS2 in 8 alphanumeric.
Buzzer	Alarm buzzer built-in
Status Output	Connects the external LED unit (optional accessory) for the DIS-7200AS2. The external LED unit indicates statuses (waiting for the trigger, recording, error).
Digital Input	
Channels	16×2 (Total 32)
Input Format	Non-voltage contact
Sampling Method	All channels synchronization
Sampling Frequency	100, 200, 500, 1k, 2k, 5k, 10k, 20k, 50k, 100k Hz
Synchronous Operation	
Method	Trigger
Trigger Type	Switch trigger: Non-voltage contact input: 2 (isolated input) Cascade trigger: Operated by cascade signals issued from the other units. Software trigger: Operated by commands issued from a control software.
Number of Units	Maximum 48 (including up to 4 master modules) Each master module controls 15 expansions modules (maximum).
Connection Method	Between master modules Through a cascade cable (up to 10 m) Between master module (or expansion module) and expansion module Direct connection through a D-sub connector Through an extension cable for modules (up to 2 m) *Excluding the power supply. Between master module and conventional product Through a cascade cable (up to 10 m) (Able to use the conventional cascade cables.)
Data Recorder	
Mode	Ring buffer mode Recognizes the switch trigger 1 or switch trigger 2 as the "Event point" and records data before and after the "Event point." Recorder mode Records data from the point where the switch trigger 1 is recognized and handles the switch trigger 2 as the "Event point."
Memory Type	Flash memory
Memory Capacity	500M data/channel
Recording Time	Approx. 80 minutes (at 100k Hz)

Trigger Distribution Output	
Channels	4
Format	Each channel has the following 3 formats. Open collector (ON: Closed) Up to 24 VDC/30 mA TTL (positive logic 0 VDC → 5 VDC) Up to 15 mA TTL (negative logic 5 VDC → 0 VDC) Up to 15 mA
Timing	Sets a delay time, required for outputting after recognizing trigger inputs, of each channel. Range Real time or 0.1 to 9999 ms Less than 100 ms: 0.1-ms step 100 ms or more, less than 1000 ms: 1-ms step 1000 ms or more, 9999 ms or less: 10-ms step Accuracy Less than 100 ms: Within ±20 μs 100 ms or more, less than 1000 ms: Within ±200 μs 1000 ms or more, less than 9999 ms: Within ±2.0 ms * The trigger output timing may delay due to level trigger operations.
Check Function	Memory checking/trigger checking
Interface	Conforming to 10BASE-T/100BASE-TX
Log Function	Records the DIS-7200AS2 operating statuses (including power supply and trigger).
Environmental Conditions	
Operating Temperature	0 to 50 °C
Operating Humidity	20 to 80% (Non-condensing)
Storage Temperature	-10 to 60 °C
Storage Humidity	10 to 90% (Non-condensing)
Power Supply	
Input Range	15 to 28 VDC (TYP.24 VDC) *Make sure the external power supply (optional accessory) is 24 VDC. Or, some items (including the number of units) do not meet the specifications.
Current Consumption	300 mA (Power supply: 24 VDC, all digital input channels: short circuit)
Others	LED Indicator on the master module: Indicates battery remaining capacities and statuses of each module. External Power Supply: Kyowa's recommended external power supply only
Appearance	
Dimensions	Approx. 45 W × 210 D × 100 H mm (Excluding protrusions and options)
Weight	Approx. 1.0 kg

*Specifications and design are subject to change without notice.
*Please contact us for information on product warranties.

DIS-708AS1/716AS1/724AS1 Specifications

Model	
	DIS-708AS1-T: Square connector 8CH type (TAJIMI ELECTRONICS made) DIS-716AS1-T: Square connector 16CH type (TAJIMI ELECTRONICS made) DIS-724AS1-T: Square connector 24CH type (TAJIMI ELECTRONICS made) DIS-724AS1-L: Round connector 24CH type (LEMO made)
Analog Input	
Channels	8 or 16 or 24 *Round connector type is 24 CH only.
Input Connector	Either of the followings DIS-708AS1-T / DIS-716AS1-T /DIS-724AS1-T 3RT01-RW7F (TAJIMI ELECTRONICS made, applicable plug: 3RT01-PE7M) DIS-724AS1-L ECG.1B.307 (LEMO made., applicable plug: FGG.1B.307)
Input Format	Balanced differential input
Input Resistance	Bridge sensor measurement Gain ×1 to 5000: Approx. (50 MΩ + 50 MΩ) Gain ×0.1 to 0.9: Approx. (100 kΩ + 100 kΩ) Voltage measurement: Approx. (100 kΩ + 100 kΩ)
Input Voltage	Within ±20 V
Gain	×0.1 to 0.9 (× 0.1 step) ×1 to 5000 (×1 step)
Gain Accuracy	Within ±0.2% FS
Nonlinearity	Within ±0.1% FS

Balancing Adjustment Range	
Gain	
× 0.1 to 0.9: Within ±20 V	
× 1 to 9: Within ±2 V	
× 10 to 99: Within ±200 mV	
× 100 to 5000: Within ±20 mV	
Bridge Excitation	
Voltage Apply Method	Each Channel ON/OFF switchable
Voltage	10, 5, 2 VDC Within ±0.1%
Bridge Configuration	Half bridge system/Full bridge system
Bridge Resistance	120 to 5k Ω
Current	Within 30 mA/channel
Low-pass Filter	
Transfer Characteristic	5th order Butterworth
Cutoff Frequency	50, 100, 200, 400, 1k, 2k, 4k, 10k, 20k Hz
Amplitude Ratio at the Cutoff Point	
Within	-3 ±1 dB
Attenuation characteristic	
Within	-30 ±3 dB/oct
A/D Converter	
Resolution	16 bits
Sampling Method	All channels synchronization
Sampling Frequency	100, 200, 500, 1k, 2k, 5k, 10k, 20k, 50k, 100k Hz
Signal-noise Ratio	50 dB or more (filter: 1k Hz)
Trigger	
Type	Cascade trigger: Operated by cascade signals issued from the other units. Analog (level) trigger: Operated by level of arbitrary 3 channels. Software trigger: Operated by commands issued from a control software.
Data Recorder	
Mode	Ring buffer mode The connected master module recognizes the switch trigger 1 or switch trigger 2 as the "Event point" and records data before and after the "Event point." Recorder mode The connected master module records data from the point where the switch trigger 1 is recognized and handles the switch trigger 2 as the "Event point."
Memory Type	Flash memory
Memory Capacity	500M data/channel
Recording Time	Approx. 80 minutes (at 100k Hz)
TEDS Function	
IEEE1451.4 (Mixed Mode Transducer interface Class2) supported	
Sensor ID supported	
Check Function	
Bridge excitation checking/sensor checking (tip parallel resistance method)/gain checking/input terminal resistance checking/open circuit checking/memory checking/trigger checking	
Indicator	
Status LED	
Interface	
Conforming to 10BASE-T/100BASE-TX.	
Log Function	
Records the DIS-708AS1-T/DIS-716AS1-T/DIS-724AS1-T/DIS-724AS1-L operating statuses (including power supply and trigger).	
Environmental Conditions	
Operating Temperature	0 to 50 °C
Operating Humidity	20 to 80% (Non-condensing)
Storage Temperature	-10 to 60° C
Storage Humidity	10 to 90% (Non-condensing)
Power Supply	
Input Range	15 to 28 VDC (TYP.24 VDC) *Make sure the external power supply (optional accessory) is 24 VDC. Or, some items (including the number of units) do not meet the specifications.
Current Consumption	
DIS-708AS1-T	
Max. 250 mA	
(power supply: 24 V, bridge excitation: 5 V, load: 350 Ω/8 channels)	
DIS-716AS1-T	
Max. 350 mA	
(power supply: 24 V, bridge excitation: 5 V, load: 350 Ω/16 channels)	
DIS-724AS1-T/-L	
Max. 500 mA	
(power supply: 24 V, bridge excitation: 5 V, load: 350 Ω/24 channels)	
Applicable Standards	
ISO 6487 / SAE J2111-1	

Others	The DIS-708AS1-T/DIS-716AS1-T/DIS-724AS1-T/DIS-724AS1-L are turned ON/OFF by the master module.
	External power supply: KYOWA's recommended external power supply only

Appearance	
Dimensions	Approx. 35 W × 210 D × 100 H mm (Excluding protrusions and options)
Weight	DIS-708AS1-T: Approx. 0.8 kg
	DIS-716AS1-T: Approx. 0.9 kg
	DIS-724AS1-T/L: Approx. 1.0 kg

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DIA-708AS3 Specifications

Ignition Current	
Channels	8
Connector Type	ECP.05.302 (LEMO made., applicable plug: FFA.05.302)
Output Current	Setting range: 0.5 to 3.0 A and OFF (Selectable with 0.1 A step)
	Accuracy: Within ±0.05 A
Maximum Output Voltage	
Approx.	18 VDC
Load Resistance Range	1 to 9 Ω (Including cable resistance value to the inflator)
	However, the actual upper limit of the resistance value is obtained from the following.
	Actual upper limit of load resistance value (Ω) = Maximum output voltage 18 (VDC) ÷ Preset current value (A)
Output Time	Setting range: 0.2 to 5 ms (Selectable with 0.1 ms step)
	However, the actual upper limit of the output time is obtained from the following.
	Preset current value (A) × Preset current value (A) × Load resistance value (Ω) × Output time (ms) ≤ 180
	[Example] The output time range in setting Preset current value 3.0 A, Load resistance value 6.0 Ω is to up to 3.3 ms. The output time range in setting Preset current value 2.5 A, Load resistance value 7.2 Ω is to up to 4.0 ms.
Delay Time	Setting range: 0.1 to 999.9 ms (Selectable with 0.1 ms step)
	1000 to 9999 ms (Selectable with 1 ms step)
	Accuracy : Within ±0.01ms (When setting 0.1 to 99.9 ms) Within ±0.1 ms (When setting 100.0 to 999.9 ms) Within ±1 ms (When setting 1000 to 9999 ms)

AD Converter	
Resolution	16 bits
Measuring Accuracy	Within ±3% FS (FS = 5.0 A)
Sampling Method	All channels synchronization
Sampling Frequency	10k, 20k, 50k, 100k Hz

Data Recorder	
Mode	Ring buffer mode The connected master module recognizes the switch trigger 1 or switch trigger 2 as the "Event point" and records data before and after the "Event point." Recorder mode The connected master module records data from the point where the switch trigger 1 is recognized and handles the switch trigger 2 as the "Event point."
Memory Type	Flash memory
Memory Capacity	250M data/channel
Recording Time	Approx. 40 minutes (at 100k Hz)
Trigger	
Type	Cascade trigger: Operated by cascade signals issued from the other units. Software trigger: Operated by commands issued from a control software.
Check Function	
Memory checking/trigger checking/current output checking	

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Measurement System



Traffic
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Automotive
Test
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Civil
Engineering
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Safety Function

SAFETY Function In a state with the SAFETY plug inserted to the SAFETY connector, no trigger signal can be input. In addition, the current output terminals are shorted in the DIA-708AS3 so as not to flow the accidental current to the inflator.

Load Resistance Measurement

Apply weak current (approximately 10 mA) to the inflator and measure the resistance.

The measured resistance includes the cable resistance to the inflator.

Measurement range: 0.0 to 10.0 Ω

Resolution: 0.1 Ω

Accuracy: Within $\pm 0.3 \Omega$

Resistance measurement before the test

Just before conducting the test (when moving the SAFETY plug from the SAFETY connector to UNSAFETY connector), automatically measures the load resistance to detect errors such as cable broken. Only when the measured result is within the preset resistance range, the DIA-708AS3 becomes waiting for trigger state to continue the test.

Resistance measurement after the test

After completing the ignition, automatically measures the load resistance for detecting the not ignited inflator.

The measured resolution is displayed on the Status LED on the top face.

Channel Status Displays the status of the DIA-708AS2 with the LED on the panel face.

Buzzer The buzzer which a DIS-7200AS has built-in issues alarm in the following incident.

·Charging the capacitor for current output.

·Detects error when measuring the resistance.

·Detects error when checking current output.

Interface Conforming to 10BASE-T/100BASE-TX.

Log Function Records the DIA-708AS3 operating statuses (including power supply and trigger).

Environmental Conditions

Operating Temperature 0 to 50 $^{\circ}\text{C}$

Operating Humidity 20 to 80% (Non-condensing)

Storage Temperature -10 to 60 $^{\circ}\text{C}$

Storage Humidity 10 to 90% (Non-condensing)

Power Supply

Input Range 15 to 28 VDC (TYP.24 VDC)

*Make sure the external power supply (optional accessory) is 24 VDC.

Or, some items (including the number of units) do not meet the specifications.

Current Consumption Max. 550 mA (power supply: 24 VDC)

Others The DIA-708AS3 is turned ON/OFF by the master module.

External power supply: Kyowa's recommended external power supply only

Appearance

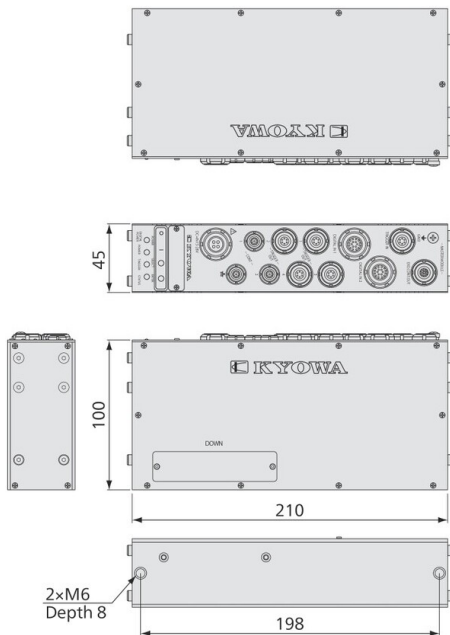
Dimensions Approx. 35 W $\times$ 210 D $\times$ 100 H mm
(Excluding protrusions and options.)

Weight Approx. 0.9 kg

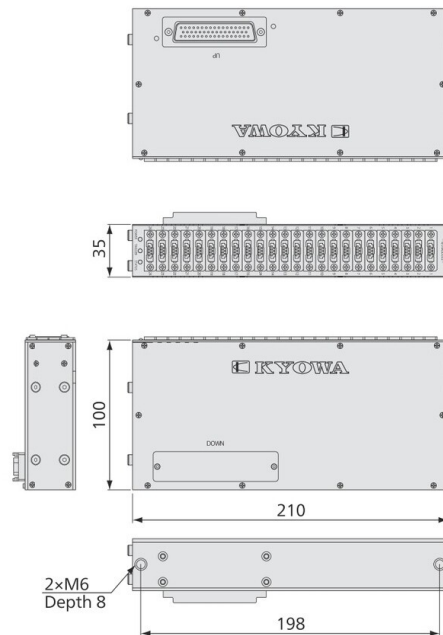
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Dimensions



DIS-7200AS2



DIS-724AS1-T*

*The DIS-708AS1-T, DIS-716AS1-T, DIS-724AS1-L, and DIA-708AS3 are the same in size, but difference in input connectors.