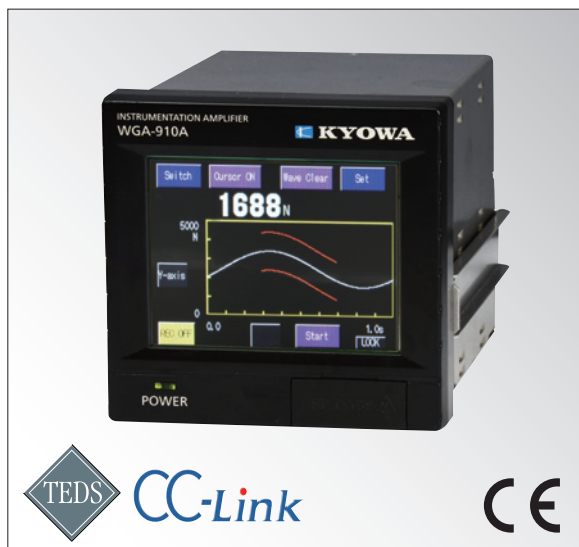


WGA-910A

Instrumentation Amplifier

●For building into equipment



Visual check of transition of load and pressure

- Waveform comparators
- Various hold functions
- Absolute pressure measurement by numeric value registering calibration
- SD card available
- High-speed sampling: 4000 times/s

The WGA-910A is an instrumentation conditioner that employs a touchscreen. It is capable of monitoring pressure changes in press machine and press-fitting process by indicating the wave forms, and visually verifying changes in physical quantities such as the load, pressure and so on which are difficult to capture with just numerical figures.

Models

Models	Types
WGA-910A-0	Standard without option
WGA-910A-1	BCD output
WGA-910A-2	DA output
WGA-910A-3	RS-485
WGA-910A-4	CC-Link
WGA-910A-12	BCD and DA output

Standard Specifications

■WGA-910A-0	
Channels	1
Applicable Transducers	Strain-gage transducers (TEDS compatible sensors connectable)
Compatible Bridge Resistance	87.5 Ω to 1 kΩ (Up to four 350 Ω transducers connected in parallel.)
TEDS Compatible	Interface: Compatible with IEEE1451.4 Mixed Mode Transducer Interface Class 2. Applicable sensors: Should have the information according to IEEE template No. 33. (Cable length: 30 m or less)
Bridge Excitation	10, 2 VDC, selectable
Measuring Range	-3.2 to 3.2 mV/V (Including zero adjustment range)
Zero Adjustment Range	Within measurement range (Not retained when power supply interrupted.)
Nonlinearity	Within ±(0.02% FS +1 digit)
Stability	Zero point: Within ±0.25 μV _{Rm} /per°C Sensitivity: Within ±0.005%/°C
Peak/Bottom Detection	Detecting scheme: Digital hold
Frequency Response	DC to 1 kHz (+1 dB, -2 dB)
Sampling Speed	4000 times/s
AD Resolution	24 bits
Analog Monitor	Voltage output: ±(5 V ±200 mV) (load resistance 5 kΩ or more)
Indicators	3.5-inch TFT color LCD Display area: 70.6 × 59.2 mm, 320 × 240, touchscreen
Indication	Setting range: -99999 to 99999 (Decimal point to be put anywhere.) Update speed: Numeric value display: 4 times/s Waveform display: 2 times/s
Calibration Functions	
Manual calibration: Sensitivity registering calibration, actual load calibration, units	
TEDS auto calibration	
TEDS part calibration: TEDS calibration item	
TEDS operation configuration: TEDS reading operation, Zero during TEDS, TEDS information display, numeric value registering calibration	
Smoothing Functions Analog filter (LPF): 1, 30, 300 Hz, Flat (1 kHz or more)	
Attenuation: -12 dB/oct.	
Minimum scale: 1, 2, 5, 10, 20, 50, 100	
Moving average: None, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048 times	
Zero Compensation Function	
Zero tracking (Auto digital Zero within in the setting range)	
Judging time: 0.00 to 9.99 s	
Compensation range: 0 to 99999	
Zero near zero (Auto zero display)	
Setting zero: 0 to 9	
Additional Value	Setting range: ±99999
Original Values (Sensor Output Value)	
-3.2000 to 3.2000 mV/V (5 digits)	
Accuracy: Within ±0.1% FS	
Measurement Condition Numbers	
32 (16 for control input) of measurement condition file can be saved.	
Capable of switching by the key operation, control input, and communication command.	

Comparator Setting

Points:	4
Type:	Extra high (HH), high (HI), low (LO), extra low (LL)
If there are 2 hold values, they are assigned as follows.	
Hold value 1:	High 1 (HI1), low 1 (LO1)
Hold value 2:	High 2 (HI2), low 2 (LO2)
Setting range:	±99999
Hysteresis width:	0 to 9999
Using comparator can be set.	
Output logic:	Positive/negative
Comparison speed:	4000 times/s (Normal comparison mode)

Judgment Function

Point : 1
Type : OK

Waveform Comparison Setting

Points: 2
Type: Wave HI, Wave LO
Set reference waveform, waveform comparison HI, waveform comparison LO, move waveform, comparison area, register waveform
Waveform comparison logic: Positive/negative

Waveform Judgment Function

Point : 1
Type : Wave OK

Motion Detect

Motion detect function:	Enable/disable
Motion detect width:	0 to 99999
Motion detect time:	0.01 to 9.99
Motion detect logic:	Positive/negative

Measuring Modes

Operation mode:	Normal, peak hold, block-specified peak hold, time-specified peak hold, bottom hold, block-specified bottom hold, time-specified bottom hold, arbitrary point hold, block peak-bottom hold, time peak-bottom hold, block average hold, time average hold, block inflection hold, time inflection hold, block maximal/minimal hold, time maximal/minimal hold, block peak/average hold, time peak/average hold, block bottom/average hold, time bottom/average hold, block peak/arbitrary hold, time peak/arbitrary hold, block bottom/arbitrary hold, time bottom/arbitrary hold, previous value comparison peak hold, block previous value comparison peak hold, time previous value comparison peak hold, previous value comparison bottom hold, block previous value comparison bottom hold, time previous value comparison bottom hold
Detect time:	0.01 to 9.99 s
Delay time:	0.00 to 9.99 s

The following settings can be changed according to the operation mode.

Detection trigger level, detection trigger way, inflection point discrimination time, inflection point discrimination value, extreme value discrimination setting, initial value for compare with measuring value

Comparison mode: Normal comparison, hold comparison
Display mode: Normal display, hold display

Waveform Display

X axis setting	End point: 0.5, 1.0, 2.0, 5.0, 10.0, 20.0, 50.0, 100.0 s
Y axis setting	Start point: -99999 to 99999
	End point: 250, 500, 1000, 2000, 5000, 10000, 20000, 50000, 100000, 200000
Start mode of waveform, passed level, passed level way, holding time of waveform.	
The WGA displays the waveform of the input variation regardless to the "Operation Modes" setting.	

System	Key lock, setting value initialize, backlight illumination time, language, clock, comparison display color, display stability
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Self-check	Memory, channel
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Operation Check	Display, touchscreen, control input/output, communication, BCD output, DA output, SD card
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Control Input	Points: 9
Types:	Zero command, hold command, reset command, waveform command, TEDS command, measurement condition select 0 to 3
Signal formats:	Open collector (NPN) or non-voltage contact signal (Capacity: 12 VDC, 5 mA or more)

Control Output	Points: 16
Types:	HH, HI, OK, LO, LL, healthy, abnormal channel, abnormal memory, SD, communication error
Output type:	Open collector (NPN)
Load capacity:	30 VDC, 20 mA (load resistance)

Communication	Signal system: RS-232C, full duplex system
Transmission system:	Asynchronous
Bit configuration	Data bits: 7
	Stop bit: 1
	Parity bit: Odd number
	Flow control: None
	Baud rate: 2400, 4800, 9600, 19200 bps
Transmission mode:	Repeat output, output at hold, Tx and Rx
NOTE: When equipping the optional CC-Link (RS-485), the RS-232C of the standard equipment is disabled. Otherwise, RS-232C is enabled.	

SD Card	Saving setting value: Saves the all setting values (excluding the calibration value) to the SD card.
	Reading setting value: Reads the all setting values (excluding the calibration value) from the SD card and rewrites those of the WGA to the read one.
	Recording measuring value: Pushing recording key, the WGA records the waveform data to the SD card.
	View waveform file name: Browsing the waveform data, deleting the wave data, and deleting the directory are available.
	Format: Erase all data that are saved in the SD card is available. (Quick format is available.)
	Update: Capable of updating the program version that is saved in the SD card.
	SD card type: SD, SDHC (up to 32 GB)

Power Supply	100 to 240 VAC, power consumption: 20 VA or less
Dimensions	100 W × 96 H × 135 D mm (Excluding protrusions)
Weight	Approx. 950 g (Excluding options)
Operating Temperature	-10 to 40 °C
Operating Humidity	20 to 85% or less (Non-condensing)
Compliance	Directive 2014/30/EU (EMC)
	Directive 2014/35/EU (LVD)
	Directive 2011/65/EU, (EU)2015/863 (10 restricted substances) (RoHS)

Standard Accessories

CD (Instruction manual, PC software for SD card)

Optional Accessories

AC power cable P-23 (For 100 VAC)
AC power cable P-28 (For 200 VAC)
Wire mount socket 35505-6000-BOM GF (WGA-910A-4)
Branch connector (type-Y) 35715-L010-B00 AK (WGA-910A-4)
Termination connector 35T05-6M00-BOM GF (WGA-910A-4)



Instrumentation Amplifiers

Outline

Amplifier

Checker

Other

Optional Specifications

■ BCD Output (WGA-910A-1)

Output	BCD data: 20 bits (4 bits × 5 digits)
	Binary data: 18 bits (Offset binary)
	Minus sign: 1 bit
	Over: 1 bit
	End of Conversion (EOC): 1 bit
	Output type: Open collector (NPN)
Input	Load capacity: 30 VDC, 20 mA (load resistance)
	Points: 2
	Details: Data hold input
	Negative logic (Hold at "L")
	Output prohibit input
	Negative logic (Hold at "L")
Setting Content	Input signal type: Open collector (NPN) or non-voltage contact signal (Capacity: 12 VDC, 5 mA or more)
	Transmission speed: Approx. 16, 32, 64, 125, 250, 500, 1000 times/s
	Polarity logic: EOC logic
	Data logic: Negative, positive
	Data type: BCD, binary changeable
	BCD classification: Hold value 1, hold value 2, measured value

■ DA Output (WGA-910A-2)

Output Voltage	±10 V (load resistance 2 kΩ or more)
	Arbitrary scaling is available.
Output Current	4 to 20 mA (load resistance 500 Ω or less)
	4 to 20 mA output is fixed when the voltage 0 to 10 V is applied.
Insulation Voltage	250 VAC for 1 minute (Output voltage and output current are non-insulated.)
Conversion Speed	4000 times/s
Nonlinearity	±0.1% FS
Setting Content	DA display: Zero disp. (Displayed value when the voltage 0 V is output.)
	Full disp. (Displayed value when the voltage 10 V is output.)
	DA classification: Hold value 1, hold value 2, measured value

■ RS-485 (WGA-910A-3)

Signaling System	RS-485 half duplex system
Bit Configuration	Data bits: 7
	Stop bit: 1
	Parity bit: Odd number
Flow Control	None
Setting Content	Device ID: 1 to 99 (Setting ID to distinguish other units.)
	Baud rate: 2400, 4800, 9600, 19200 bps (Common with the RS-232C.)
	Transmission mode: Repeat output, output at hold, Tx and Rx (Common with the RS-232C.)

■ CC-Link (WGA-910A-4)

Version	Ver.1.10
Station Type	Remote device station
Occupied Stations	1 station, 2 stations, 4 stations
Communication Speed	10 Mbps, 5 Mbps, 2.5 Mbps, 625 kbps, 156 kbps
Slave Stations	1 to 64
Connection Cable	CC-Link Ver.1.10-compliant cable (Shielded, 3-conductor twisted pair cable)

■ BCD and DA Output (WGA-910A-12)

BCD/Binary Output

Output	BCD data: 20 bits (4 bits × 5 digits)
	Binary data: 18 bits (Offset binary)
	Minus sign: 1 bit
	Over: 1 bit
	End of Conversion (EOC): 1 bit
	Output type: Open collector (NPN)
Input	Load capacity: 30 VDC, 20 mA (load resistance)
	Points: 2
	Details: Data hold input
	Negative logic (Hold at "L")
	Output prohibit input
	Negative logic (Prohibition at "L")
Setting Content	Input signal type: Open collector (NPN) or non-voltage contact signal (Capacity: 12 VDC, 5 mA or more)
	Transmission speed: Approx. 16, 32, 64, 125, 250, 500, 1000 times/s
	Polarity logic: EOC logic
	Data logic: Negative, positive
	Data type: BCD, binary changeable
	BCD classification: Hold value 1, hold value 2, measured value

DA Output

Output Voltage	±10 V (load resistance 2 kΩ or more)
	Arbitrary scaling is available.
Output Current	4 to 20 mA (load resistance 500 Ω or less)
	4 to 20 mA output is fixed when the voltage 0 to 10 V is applied.
Insulation Voltage	250 VAC for 1 minute (Output voltage and output current are non-insulated.)
Conversion Speed	2000 times/s
Nonlinearity	±0.1% FS
Setting Content	DA display: Zero disp. (Displayed value when the voltage 0 V is output.)
	Full disp. (Displayed value when the voltage 10 V is output.)
	DA classification: Hold value 1, hold value 2, measured value

■ Dimensions

