WGA-680A

Instrumentation Amplifier

●For building into equipment

High performance instrumentation amplifier for strain-gage transducers

- ●High-performance processing (Sampling Speed: 4000 times/s, 24-bit A/D converter)
- ●Substantial comparison functions (Extra high, high, OK, low, and extra low)
- ●Analog output (D/A)
- ●Various optional interfaces (BCD output, RS-232C, RS-485, and CC-Link)
- ●Numeric data and comparators' LED display in red, green, or orange.

The WGA-680A series are compact, moderately priced instrumentation amplifiers which enables direct reading of physical quantities such as loads due to high-speed sampling.

Comparator, hold functions and D/A converted signal output are standard equipped.

Suitable for measurement and control of quickly changing phenomena in press-fitting process or press machines.

Models \ Types	Power Supply	TEDS	BCD	RS-232C	RS-485	CC-Link
WGA-680A-00	100 to 240 VAC					
WGA-680A-01		Yes	Yes			
WGA-680A-02		Yes		Yes		
WGA-680A-03		Yes			Yes	
WGA-680A-04						Yes
WGA-680A-10	10 to 30 VDC					
WGA-680A-11		Yes	Yes			
WGA-680A-12		Yes		Yes		
WGA-680A-13		Yes			Yes	
WGA-680A-14						Yes

Specifications

Channels	1
Applicable Sensors	Strain-gage transducers (4-wire)
Applicable Bridge Resistance	87.5 to 1000 Ω (Up to four 350 Ω transducers connected in parallel.)
Bridge Excitation	10, 2 VDC, selectable
Measuring Range	±3.2 mV/V (Input range including zero adjustment range)
Zero Adjustment Range	Within measurement range (Not retained when power supply interrupted.)
Nonlinearity	Within ±(0.02% FS+1digit)
Stability	Zero point: Within ±0.25 μV$_{RTI}$/°C
	Sensitivity: Within ±0.01%/°C
Sampling Speed	4000 times/s
A/D Resolution	24 bits
Calibration	Actual load calibration, sensitivity registering calibration, and numeric value registering calibration
Smoothing Functions	Filters: 10, 30, 100, 300 Hz
	Attenuation: -12 dB/oct.
	Moving average: 0, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, and 2048 times
	Min. scale: 1, 2, 5, 10, 20, 50, 100, 200, 500, and 1000 counts
Auto Zero Compensation	Zero Tracking (Auto digital zero in the preset range)
	Approximated zero compensation: Indication is made zero when the reading is in a preset range of 0 to 9.
Adding Functions	Setting range: ±99999
Original Value Display Functions	±3.2000 mV/V (5 digits)
	Accuracy: Within ±0.1%FS
Comparator Functions	
Points: 4	
Patterns: Registers 4 groups of pattern files (comparative values) and enables switching through setting of functions	
Types: Extra high (HH), high (HI), OK, low (LO), extra low (LL)	
Setting range: ±99999	
Hysteresis: 0 to 99999	
Comparison modes: Normal, at hold	
High low assignment: Enables assigning high or low to each comparator.	
Hold Functions	
Digital peak/bottom hold (Without analog peak/bottom hold)	
Types: Arbitrary point hold, peak hold, bottom hold, peak to peak hold, interval definition peak hold, time specification peak hold, interval definition peak hold, time specification peak hold, interval definition peak to peak hold, time specification peak to peak hold	
Delay time: 0.00 to 9.99 s	
Detect time: 0.01 to 9.99 s	
Display	Range: ±99999 (Decimal point to be put anywhere.)
	Indicator: 7-segment LED, character height: 14 mm, colors: Red, green, and orange
	Update: 0.12, 0.24, 0.49, 0.98, 1.95, 3.90, 7.80, and 15.6 times/s (In normal mode)
	Modes: Normal/hold
	Comparators: 5 points (HH, HI, OK, LO, LL)
	Status: 2 points (HOLD, LOCK)

Analog (D/A) Output	
Voltage output: ±10 V (Load resistance 2 k Ω or more)	
Arbitrary scaling possible	
Current output: 4 to 20 mA (Load resistance 500 Ω or less)	
Corresponds to voltage output of 0 to 10 V.	
Conversion speed: 4000 times/s	
Nonlinearity: Within ±0.1%FS	
Setting contents: Display value of zero, display value of full scale	
Control Output	Points: 5
	Types: HH, HI, OK, LO, and LL
	Formats: Open collector (30 VDC, 20 mA max.)
Control Input	Points: 3
	Types: Zero command, hold command,
	and reset command
	Signal formats: Non-voltage contact signal
	or open collector signal
	(Capacity: 12 VDC, 5 mA or more)
Level Test Functions	Display of arbitrary values possible
	Display additional functions: Disabled, enabled
	Setting range: ±99999
	Level test: ON, OFF
Power Supply	See the table.
Dimensions	96 W ×96 H ×126 D mm (Excluding protrusions)
Weight	Approx. 750 g (Without option)
Operating Temperature	-10 to 50°C
Operating Humidity	20 to 85% (Non-condensing)
Compliance	Directive 2014/30/EU (EMC)
	Directive 2014/35/EU (LVD) (AC model only)
	Directive 2011/65/EU (RoHS)

Standard Accessories

Instruction manual (CD-R)
Unit seal
Screwdriver (-)

Optional Accessories

AC power cable for 100 VAC P-23
AC power cable for 200 VAC P-28
Input cable for NDIS4102 (7 pins) connector (6 conductors)
U-29 (50 cm)
U-30 (1 m)
U-31 (2 m)
U-32 (5 m)
Input cable for NDIS4102 (7 pins) connector (4 conductors)
U-33 (50 cm)
U-34 (1 m)
U-35 (2 m)
U-36 (5 m)
Wire mount socket 35505-6000-BOM GF (WGA-680A-04/14)
Branch connector (type-Y) 35715-L010-B00 AK (WGA-680A-04/14)
Termination connector 35T05-6M00-BOM GF (WGA-680A-04/14)

■Option: BCD Output	
Output	Data: 20 bits (4-bit×5) , POL (Minus polarity), over,
	EOC (End of Conversion), holding section, detecting section
	Output format: Open collector (30 VDC, 20 mA max.)
Input	Points: 2 (Hold, Output prohibited)
	Format: Non-voltage contact signal or open collector signal
	(Capacity: 12 VDC, 5 mA)
Output Rate	Approx. 15.6, 31.3, 62.5, and 125 times/s
Output Logic	Data logic: Positive logic/Negative logic
	EOC logic: Positive logic/Negative logic
	Polarity logic: Positive logic/Negative logic

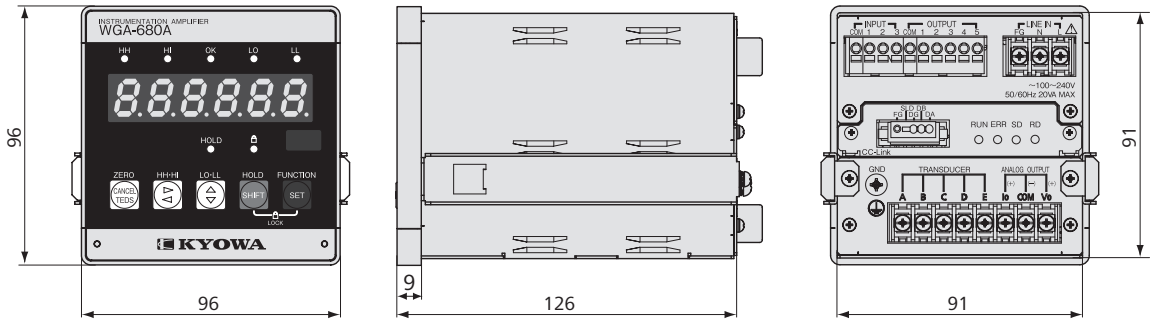
■Option: RS-232C	
Signal System	RS-232C full duplex system
Communication Methods	Synchronous
Baud Rate	2400, 4800, 9600, 19200 bps
Bit Configuration	Data bits: 7
	Stop bit: 1
	Parity bit: Odd number
	Flow control: None

■Option: RS-485	
Signal System	RS-485 half duplex system
Baud Rate	2400, 4800, 9600, 19200 bps
Bit Configuration	Data bits: 7
	Stop bit: 1
	Parity bit: Odd number
	Flow control: None
	Device ID: 1 to 99

■Option: TEDS	
Applicable Transducer	Should have the information according to IEEE
	template No. 33 (Cable length should be 30 m
	or less.)
Interfaces	Compatible with IEEE1451.4 Mixed Mode Transducer
	Interface Class 2
Calibration Function	Automatic sensitivity registration by reading
	TEDS data

■Option: CC-Link	
Version	1.10
Station Types	Remote device station
Occupied Stations	1, 2, 4
Slave Stations	1 to 64
Connection Cable	CC-Link version 1.10 compliant cables
	(3-conductor twisted pair shielded cable)
Baud Rate	10 M, 5 M, 2.5 M, 625 k, and 156 k bps

■Dimensions



WGA-680A-04