

WGA-710C

Instrumentation Amplifier

● Wide Applications

3
-100



TEDS- compatible, Simple, Lightweight, Excellent Interference Immunity, Suitable for Industrial Measuring Instruments

- Key lock to prevent wrong operation
- Suitable excitation voltage for transducer is selectable
- Built-in remote signal detection circuit enables high accurate measurement

It is a compact, lightweight, multi-functional and moderate price amplifier with display and it is designed to measure load, pressure, torque and displacement. Using low noise amplifier is helpful to achieve stable measurement. It is easy to conduct setting and control for each function by using keys. Since all setting values are recorded in a nonvolatile memory, it still functions in case of power failure. However, no digital zero data is recorded when using external contact input. It has been widely used in machinery, electric machinery, food and chemistry. Apart from production line control system.

*No remote-sensing function is used simultaneously with TEDS function.

Models

Models	Types	Power supply (VAC)	High/low limit Comparators	Peak hold functions	BCD data output	EIA-232-D (RS-232C)	D/A Converter	Analog amplifier	8-step comparator
WGA-710C-0		100	Yes	Yes					
WGA-710C-0 A115		115	Yes	Yes					
WGA-710C-0 A200		200	Yes	Yes					
WGA-710C-0 A220		220	Yes	Yes					
WGA-710C-1		100	Yes	Yes	Yes				
WGA-710C-1 A115		115	Yes	Yes	Yes				
WGA-710C-1 A200		200	Yes	Yes	Yes				
WGA-710C-1 A220		220	Yes	Yes	Yes				
WGA-710C-2		100	Yes	Yes		Yes			
WGA-710C-2 A115		115	Yes	Yes		Yes			
WGA-710C-2 A200		200	Yes	Yes		Yes			
WGA-710C-2 A220		220	Yes	Yes		Yes			
WGA-710C-3		100	Yes	Yes				Yes	
WGA-710C-3 A115		115	Yes	Yes				Yes	
WGA-710C-3 A200		200	Yes	Yes				Yes	
WGA-710C-3 A220		220	Yes	Yes				Yes	
WGA-710C-4		100	Yes	Yes			Yes		
WGA-710C-4 A115		115	Yes	Yes			Yes		
WGA-710C-4 A200		200	Yes	Yes			Yes		
WGA-710C-4 A220		220	Yes	Yes			Yes		
WGA-710C-5		100	Yes	Yes				Yes	
WGA-710C-5 A115		115	Yes	Yes				Yes	
WGA-710C-5 A200		200	Yes	Yes				Yes	
WGA-710C-5 A220		220	Yes	Yes				Yes (Isolated)	
WGA-710C-6		100	Yes	Yes					Yes
WGA-710C-6 A115		115	Yes	Yes					Yes
WGA-710C-6 A200		200	Yes	Yes					Yes
WGA-710C-6 A220		220	Yes	Yes					Yes
WGA-710C-12		100	Yes	Yes	Yes	Yes			
WGA-710C-12 A115		115	Yes	Yes	Yes	Yes			
WGA-710C-12 A200		200	Yes	Yes	Yes	Yes			
WGA-710C-12 A220		220	Yes	Yes	Yes	Yes			
WGA-710C-14		100	Yes	Yes	Yes		Yes		
WGA-710C-14 A115		115	Yes	Yes	Yes		Yes		
WGA-710C-14 A200		200	Yes	Yes	Yes		Yes		
WGA-710C-14 A220		220	Yes	Yes	Yes		Yes		

DC models are available on request.

No remote-sensing function is used simultaneously with TEDS function.

Specifications

WGA-710C-0	
Channels 1	
Applicable Transducers Strain-gage transducers	
Applicable Bridge Resistance 87.5 Ω to 10 kΩ (Up to 4 transducers with 350 Ω bridge resistance connected in parallel)	
Measuring Range	±3.2 mV/V (±6400 μm/m)
Bridge Excitation	10, 5, 2.5 VDC, switchable
Remote sensing possible for 120 mA or less	
Input Modes Balanced differential	
Input Impedance	10 MΩ or more
Input Terminal Board	Gage clamp type
Sensitivity Adjustment Automatic by internal calculation (Accuracy within ±0.1%FS)	
Display	Max. ±9999 (Decimal point to be put anywhere)
Character height 10 mm, red LED	
Allows least significant digit to be fixed to 0	
Sampling Speed	Approx. 15 times/s
Nonlinearity	Within ±(0.03%FS+1digit)
(With transducer output 0.5 mV/V)	
Stability	Zero: ±0.25 μV _{RTN} / °C, ±0.05%FS,
10% power voltage	
Sensitivity: ±0.01%/°C, ±0.05% FS,	
10% power voltage	
High/Low Limit Comparators	
Setting points: 2 (High limit, low limit)	
Response time: 200 ms or less	
Setting range: 0000 to ±9999	
Contact output: Relay contact (1 transfer circuit/point)	
Contact capacity: 250 VAC, 0.5 A (Resistive load)	
Hold Functions ON/OFF switch over by panel key or external contact input	



Mode Switchover	ON/OFF Switchover by panel key, No hold, point-based hold, peak hold, section-based peak hold, time-based peak hold Frequency response: DC to 1 kHz
Digital Zero Functions	Action input: by panel key or external contact input
Adding Functions	Setting range: 0000 to ±9999
Original Value Monitor	Accuracy within ±0.1%FS
Zero Tracking Functions	Zero is traced in changing quantities of ±1, 2, 5 counts each for delays of 20, 10 and 5 seconds, 9 ranges in total setting is made by panel keys
Digital Filter Functions	Moving averaging times is 4, 8, 16, 32, 48 or 64, switched by panel keys
TEDS	
Interfaces	Compatible with IEEE1451.4 Mixed Mode Transducer Interface Class2
Applicable Transducers	Should have the information according to IEEE Template No.33 Cable length should be 30 m or less (No remote sensing is used together with TED)
Operating Temperature	-10 to 40°C
Operating Humidity	20 to 80%RH (Non-condensing)
Power Supply	100, 115, 200, 220 VAC (Select one), 20 VA or less, 11 to 30 VDC on request
Dimensions	72 W x 144 H x 188 D mm (Excluding protrusions)
Weight	Approx. 1.7 kg
Panel-cut Dimensions	136x68 mm

Specifications (Specify the desired one when ordering)

WGA-710C-1 with BCD data Output

It enables WGA-710C-1 to output indicated values as BCD (binary coded decimal).

Output Mode	Isolated open collector output
Driving Capacity	30 VDC, 20 mA
Output Signals	4-digital BCD value, minus sign, OVER signal, print command (EOC); positive or negative logic selected by the switch.
Input Command Connector	BCD hold, output disable, negative logic 57-40360 (DDK) or the equivalent

WGA-710C-2 with EIA-232-D (RS-232C)

EIA-232-D (RS-232C) enables this model to transmit indicated data and status signals and write preset high/low limit values to external equipment without digitizing.

Signal System	RS-232C full duplex system
Transmission Mode	Synchronous adjustment
Baud rate	4800 bps
Bit Structure	7 data bits, 1 stop bit Odd parity bit
Connector	17-13250-27 (DDK) or the equivalent

WGA-710C-3 with Analog Amplifier

This model is designed to amplify and output the analog signal of a transducer to external equipment without digitizing.

Measuring Range	±3.2 mV/V
Zero Adjustment Range	±2.5 mV/V
Sensitivity Adjustment Range	0.5 to 3.0 mV/V is adjusted to 10 V
Calibration	1 mV/V ±0.1%
Voltage Output	±10 V (Load resistance 2 kΩ or more) Nonlinearity within ±0.03%
Current Output	4 to 20 mA (Load resistance 350 Ω or less) corresponding to voltage output of 0 to 10 V; nonlinearity within ±0.1%FS
Frequency Response	DC to 1 kHz

WGA-710C-4 with D/A Converter

This model can output an analog signal with the digital indication. Digital zeroing, hold and smoothing functions are provided.

Output Analog Signal Level	+10 V, 20 mA for the full scale setting on the case
Zero Adjustment Range	Within ±10%FS
Sensitivity Adjustment Range	Within ±10%FS
Nonlinearity	Within ±0.1%FS
Frequency Response	Depends on the sampling cycle (Approx. 15 times/s)
Withstand Voltage	500 VAC for one minute with the case
Voltage Output	0 to 10 V (Load resistance 2 kΩ or more)
Current Output	4 to 20 mA (Load resistance 350 Ω or less) (Corresponding to voltage output of 0 to 10 V)

WGA-710C-5 with Isolation Analog Amplifier

This model is designed to amplify and output the analog signal of a transducer to external equipment without digitizing.

Measuring Range	±3.2 mV/V
Zero Adjustment	±2.5 mV/V
Sensitivity Adjustment	1.0 to 3.0 mV/V is adjusted to 10 V
Calibration	1 mV/V ±0.1%
Withstand Voltage	500 VAC for one minute with the case
Voltage Output	±10 V (Load resistance 2 kΩ or more), nonlinearity within ±0.05%FS
Current Output	4 to 20 mA (Load resistance 350 Ω or less) (Corresponding to voltage output of 0 to 10 V) nonlinearity within ±0.1%FS
Frequency Response	DC to 1 kHz

WGA-710C-6 with 8-step Comparator

This model provides 4 sets of high/low limits for comparison.

The high/low limit relay (Transformer contact) outputs the result of 1 set of high/low limits compared.

Comparison Points	8 (4 each high/low limits)
Setting Methods	Select from external contact input and set by the panel keys
Setting Range	0 to ±9999
Output Modes	Isolated open collector
Drive Capacity	30 VDC, 20 mA
Note: the relay contact output of the mainframe is selected from external contact input.	

WGA-710C-12 with BCD Data Output / EIA-232-D (RS-232C)

This model enables simultaneous use of BCD data output and RS-232C.

WGA-710C-14 with BCD Data Output/D/A Converter

This model enables simultaneous use of BCD data output and D/A converter.

Standard Accessories

- AC power cable P-23 for 100 VAC
- BCD output connector BCD-CONNE (57-30360 (DDK) or the equivalent; attached to WGA-710C-1, 12, 14 only), Mounting fixture
- Spare fuse, Miniature screwdriver for terminal board connection, Instruction Manual, Unit seal

Optional Accessories

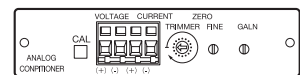
- AC power cable P-28 for 200 VAC
- Connection cables between WGA-710C and NDIS connector plug
- 4-conductor cables U-17 (50 cm), U-18 (1 m), U-19 (2 m), U-20 (5 m), bared at the tip to and NDIS plug to transducer
- 6-conductor cables U-25 (50 cm), U-26 (1 m), U-27 (2 m), U-28 (5 m), bared at the tip and NDIS connector plug to transducer

Card Panels by Functions

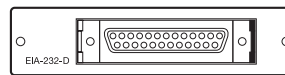
● BCD Data Output (WGA-710C-1)



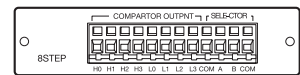
● Isolation Analog Amplifier (WGA-710C-5)



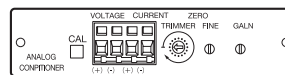
● EIA-232-D (RS-232C) (WGA-710C-2)



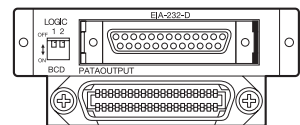
● 8-Step Comparator (WGA-710C-6)



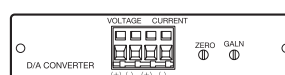
● Analog Amplifier (WGA-710C-3)



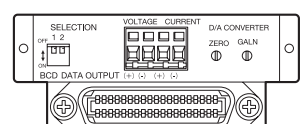
● BCD Data Output/EIA-232-D (WGA-710C-12)

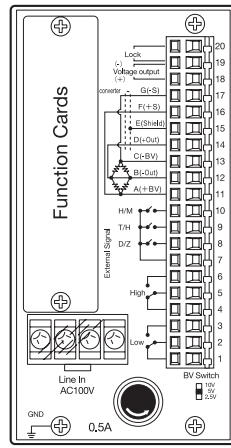


● D/A Converter (WGA-710C-4)



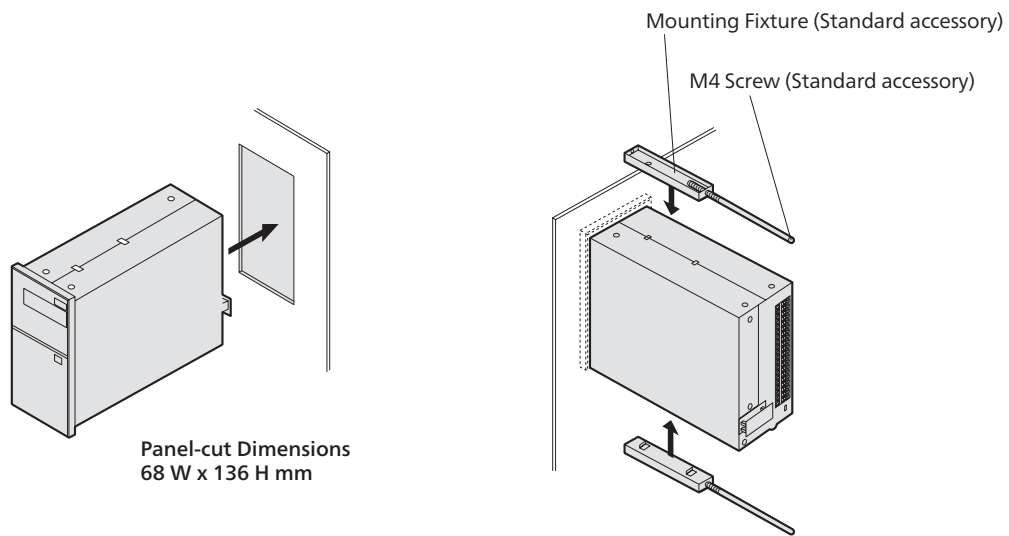
● BCD Data Output/D/A Converter (WGA-710C-14)





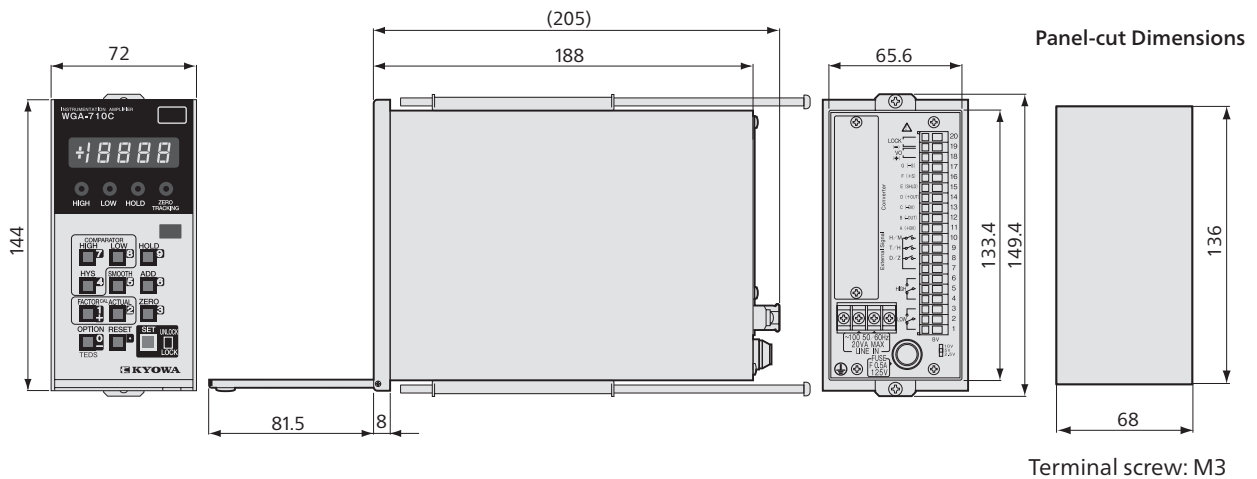
No.	Functions
20	Calibration restricted short circuit terminal
19	Signal common of 18 & 20
18	Voltage output
17	BV remote sense (-)
16	BV remote sense (+)
15	Shield
14	BV output (+)
13	BV input (-)
12	BV output (-)
11	BV input (+)
10	Hold command (H/M)
9	Hold command (T/H)
8	Digital zero command (D/Z)
7	External signal common
6	High limit relay contact out. (a contact)
5	High limit relay contact out. (COM)
4	High limit relay contact out. (b contact)
3	Low limit relay contact out (a contact)
2	Low limit relay contact out (COM)
1	Low limit relay contact out (b contact)

■ Installation Example



Panel-cut Dimensions
68 W x 136 H mm

■ Dimensions



Terminal screw: M3

