

Instrumentation Amplifier



*Japanese version: Contact us.
Unless otherwise specified,
English version will be delivered.

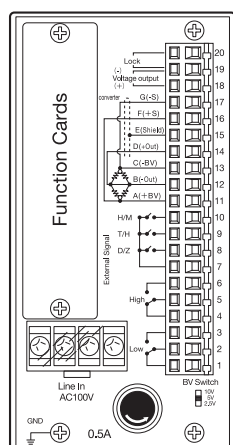
TEDS-compatible Simple Excellent interference immunity Suitable for industrial measuring instruments

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

It is a compact, lightweight, multi-functional and moderately priced 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, it can be broadly used as general purpose instrument for strain-gage transducer.

*No remote-sensing function can be used simultaneously with TEDS function.

Rear Panel



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)

Models

Models	Types	Power supply (VAC)	High/low limit Comparators	Peak hold functions	BCD data output	EIA-232-D (RS-232C)	DA Converter	Analog amplifier	8-step comparator
WGA-710C-0E		100	Yes	Yes					
WGA-710C-0 A115E		115	Yes	Yes					
WGA-710C-0 A200E		200	Yes	Yes					
WGA-710C-0 A220E		220	Yes	Yes					
WGA-710C-1E		100	Yes	Yes	Yes				
WGA-710C-1 A115E		115	Yes	Yes	Yes				
WGA-710C-1 A200E		200	Yes	Yes	Yes				
WGA-710C-1 A220E		220	Yes	Yes	Yes				
WGA-710C-2E		100	Yes	Yes		Yes			
WGA-710C-2 A115E		115	Yes	Yes		Yes			
WGA-710C-2 A200E		200	Yes	Yes		Yes			
WGA-710C-2 A220E		220	Yes	Yes		Yes			
WGA-710C-3E		100	Yes	Yes				Yes	
WGA-710C-3 A115E		115	Yes	Yes				Yes	
WGA-710C-3 A200E		200	Yes	Yes				Yes	
WGA-710C-3 A220E		220	Yes	Yes				Yes	
WGA-710C-4E		100	Yes	Yes			Yes		
WGA-710C-4 A115E		115	Yes	Yes			Yes		
WGA-710C-4 A200E		200	Yes	Yes			Yes		
WGA-710C-4 A220E		220	Yes	Yes			Yes		
WGA-710C-5E		100	Yes	Yes				Yes	
WGA-710C-5 A115E		115	Yes	Yes				Yes	
WGA-710C-5 A200E		200	Yes	Yes				Yes	
WGA-710C-5 A220E		220	Yes	Yes				Yes (Isolated)	
WGA-710C-6E		100	Yes	Yes					Yes
WGA-710C-6 A115E		115	Yes	Yes					Yes
WGA-710C-6 A200E		200	Yes	Yes					Yes
WGA-710C-6 A220E		220	Yes	Yes					Yes
WGA-710C-12E		100	Yes	Yes	Yes	Yes			
WGA-710C-12 A115E		115	Yes	Yes	Yes	Yes			
WGA-710C-12 A200E		200	Yes	Yes	Yes	Yes			
WGA-710C-12 A220E		220	Yes	Yes	Yes	Yes			
WGA-710C-14E		100	Yes	Yes	Yes		Yes		
WGA-710C-14 A115E		115	Yes	Yes	Yes		Yes		
WGA-710C-14 A200E		200	Yes	Yes	Yes		Yes		
WGA-710C-14 A220E		220	Yes	Yes	Yes		Yes		

No remote-sensing function can be used simultaneously with TEDS function.

Specifications

WGA-710C-0E	
Channels	1
Applicable Transducers	Strain-gage transducers
Compatible 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 × 10 ⁻⁶ strain)
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+1 digit) (With transducer output 0.5 mV/V)
Stability	Zero point: ±0.25 μV/°C ±0.05%FS per 10% power voltage Sensitivity: ±0.01%/°C ±0.05% FS per 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 switchover: By panel key or external contact input Mode switchover: By panel key No hold, point-based hold, peak hold, section-based peak hold, time-based peak hold

Frequency Response	DC to 1 k Hz
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 can be used together with TEDS)
External Signal	D/Z, T/H, H/M, non-voltage contact signal or open collector (NPN)
Operating Temperature	-10 to 40°C
Operating Humidity	80% or less (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. 1.9 kg
Panel-cut Dimensions	136x68 mm

Specifications (Specify the desired one when ordering)

■WGA-710C-1E with BCD Data Output

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

Output Mode Isolated open collector (NPN)

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 BCD hold, output disable, negative logic

Connector 57-40360 (DDK) or the equivalent

Input Mode Non-voltage contact signal or open collector (NPN)

■WGA-710C-2E 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 Asynchronous

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-3E 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% 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-4E with DA 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-5E 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-6E 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 (NPN)

Drive Capacity 30 VDC, 20 mA

Note: The relay contact output of the mainframe is selected from external contact input.

■WGA-710C-12E with BCD Data Output and EIA-232-D (RS-232C)

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

■WGA-710C-14E with BCD Data Output and DA Converter

This model enables simultaneous use of BCD data output and DA 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-1E, 12E, 14E only)

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 NDIS4102 (7 pins) 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

Sensor side: Terminated with a connector plug P12-7 (PRC03-12A10-7M10.5)

6-conductor cables U-25 (50 cm), U-26 (1 m),

U-27 (2 m), U-28 (5 m), bared at the tip

Sensor side: Terminated with a connector plug P12-7 (PRC03-12A10-7M10.5)

■Dimensions, panel-cut dimensions

