WD-100A

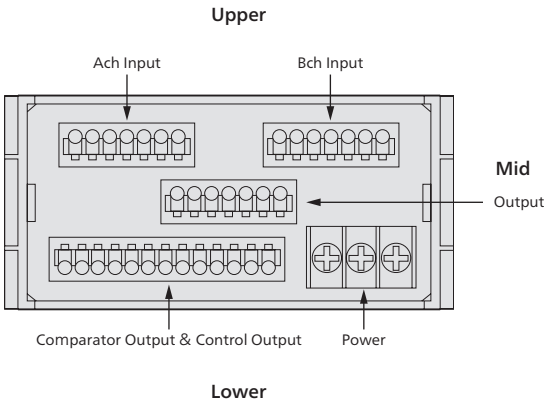
Indicator for Voltage-output Type Sensor

Displays voltage/current and pulse on single unit

- 2.4-inch full color display
- Measurement Channel: 2 (Analog and pulse each)
- Sampling Rate: 100 times/second max. (Voltage and current)
- Able to place vertically or horizontally depending on what suits best for your needs.

The WD-100A is a compact indicator for voltage- and current-output sensors. This compact indicator provides the powerful measurement and control of the phenomenon necessary for torque and other rotary measurements to simultaneously display the voltage, current, and pulse.

Rear Panel



Specifications

Basic Specifications

Measurement Channel	2
Display	2.4 inch TFT LCD
	Ach measurement result
	Bch measurement result
	Calculation result
	Ach and Bch measurement results
	Ach or Bch measurement result and calculation result
Over Warning	OVER or -OVER when display range are exceeded
External Controls	Following 5 functions can be assigned to control terminals (user-configurable).
	①Comparator reset function
	②Totalized value reset function
	③Measurement prohibited function: Measurement prohibited A/B/A&B
	④Current value hold function: Current value hold A/B/A&B
	⑤Max value hold function: Max value hold A/B/A&B
	⑥Min value hold function: Min value hold A/B/A&B
	⑦Digital zero function
	⑧Pattern change function: Pattern change 1 to 3
	⑨Display change function
	⑩Trend hold function
	As follows, only shortcut setting
	⑪Compare list function
Operating Temperature	-5 to 50°C
Operating Humidity	35 to 85% (No condensation)
Storage Temperature	-10 to 70°C
Storage Humidity	60% or less
Power Supply	24 to 48 VDC ±10%
Power Consumption	6 W max. at 24 VDC, 6.5 W max. at 48 VDC
Sensor Power Supply	12 VDC ±10% 100 mA max.; 24 VDC ±10% 50 mA max. *When 2 channel input, allowable current of Ach and Bch together will be above current. *1.2 W max. when the combination of 12 VDC and 24 VDC.
Dimensions	96 W × 52 H × 145 D mm
Weight	Approx. 350 g
Withstand Voltage	1500 VAC for 1 minute: Between the power supply terminal - input / external control / comparator output / option output
	1500 VAC for 1 minute: Between the input terminal - external control / comparator output / option output
	3000 VAC for 1 minute: Between enclosures - each terminals
Insulation Resistance	500 VDC 100 MΩ or more between the above terminals
Vibration Tolerance	10 to 55 Hz half amplitude 0.15 mm in X, Y, Z directions for 30 minutes
Protection	IP66 (When mounted on the panel. See outline drawing for coverage.)
Installation Environment	Indoor use
Applicable EN Standard	EN61326-1 (EMS: Industrial installations; EMI: Class A) "Applies to wire length of 30 m or less" EN IEC 63000
Case Material	Polycarbonate (PC), Black UL94V-0

Input Specifications

Analog Input Measurement for Ach

Measurement Range

Measurement range	Input impedance	Maximum allowable input	Accuracy
±5 V	About 1 MΩ	±100 V	±(0.05% of FS +1 digit)
0 to 5 V			
1 to 5 V			
±10 V			
0 to 10 V			
4 to 20 mA	About 10 Ω	±50 mA	
0 to 20 mA			
±20 mA			

*Each range can measure up to ±10% FS range.
(Internal limit processing with ±10% FS.)
The full scale in the bipolar input setting considers plus and minus separately. For example, in the case of ±10 V input, limit processing is performed up to ±11 V. (20 V is not treated as FS.)
Similarly, the accuracy with ±10 V input is also specified as one-sided FS treatment, and the accuracy is calculated as 5 mV (0.05%) ±1 digit.

Conversion Method	⊿Σ conversion method
Input Signal	Single-ended
Sampling Rate	100 times/second max.
Display Updating Period	100 ms
Zero Display	Leading zero suppression
Decimal Point	Arbitrary setting possible
Display Range	-99999 to 99999
Pulse Input Measurement for Bch	
Frequency Range	0.01 Hz to 250k Hz
Input Signal	Open collector (NPN/PNP), voltage pulse, totem pole output (complementary output), AC pulse, proximity sensor
Input Method	Single-phase pulse
Input Level	Open collector Pull up to 12 V or 24 V Logic L level: 1.0 V or less H level: 3.9 to 30 V (Max. allowable voltage ±50 V) Zero-crossing 60 mV to 40 VAC (Max. allowable voltage 70 V) *AC signal which gets across 0 V.
Input Impedance	Open collector Pull up to 12 V through approx. 10k Ω (sensor power supply 12 V) Pull up to 24 V through approx. 25k Ω (sensor power supply 24 V) Pull down to GND through approx. 10k Ω Logic/Zero-crossing Pull down to GND through approx. 10k Ω 2 wire Pull down to GND through approx. 900 Ω
Input Pulse Width	1.8 µs or more (Both L level and H level)
Measurement Method	Cyclic calculation method
Sampling Rate	10 ms (calculation period)
Display Updating Period (Display)	100 ms
Display Range	0 to 999999
Zero Display	Leading zero suppression
Decimal Point	Arbitrary setting possible
Display Unit Time	Second, minute or hour selectable
Accuracy	± (20 ppm reading +1 digit) at 23±5°C
(Totalized Display)	
Display Range	-999999 to 999999
Zero Display	Leading zero suppression
Decimal Point	Arbitrary setting possible
Totalized Value Reset	Totalized value can be reset to total initial value by external control.
Accuracy	±0 (When scaling is "1")

■Output Specifications

Comparator Output	
Open Collector Output	Rated output sink current Max. 50 mA Applied voltage Max. 30 V Output saturation voltage 1.2 V or less at 50 mA Number of outputs: 4 transistor outputs
Control Method	Microcomputer operation method
Setting Range	Pulse input: -999999 to 999999 Analog input: -99999 to 99999
Hysteresis	1 to 999999 digit for each setpoints
Comparison Operation	According to sampling rate (circulate period).
Setting Condition	Condition can be set to AL1 to AL4 independently

●Level judgement mode

The alarm is ON when display value exceeds judgement value (over alarm).

The alarm is ON when display value underruns judgement value (under alarm).

Over alarm (Upper limit judgement)

Comparison condition	Judgement result
Display value > AL1 judgement value	AL1
Display value > AL2 judgement value	AL2
Display value > AL3 judgement value	AL3
Display value > AL4 judgement value	AL4

Under alarm (Lower limit judgement)

Comparison condition	Judgement result
AL1 judgement value > Display value	AL1
AL2 judgement value > Display value	AL2
AL3 judgement value > Display value	AL3
AL4 judgement value > Display value	AL4

●Zone judgement mode

The alarm is ON when display value between upper and lower judgement values (inside of zone alarm)

The alarm is ON when display value out of upper and lower judgement values (outside of zone alarm)

Inside of zone alarm

Comparison condition	Judgement result
AL1 zone upper limit ≥ Display value ≥AL1 zone lower limit	AL1
AL2 zone upper limit ≥ Display value ≥AL2 zone lower limit	AL2
AL3 zone upper limit ≥ Display value ≥AL3 zone lower limit	AL3
AL4 zone upper limit ≥ Display value ≥AL4 zone lower limit	AL4

Outside of zone alarm

Comparison condition	Judgement result
Display value ≥AL1 zone upper limit or AL1 zone lower limit >Display value	AL1
Display value ≥AL2 zone upper limit or AL2 zone lower limit >Display value	AL2
Display value ≥AL3 zone upper limit or AL3 zone lower limit >Display value	AL3
Display value ≥AL4 zone upper limit or AL4 zone lower limit >Display value	AL4

Comparison Formula Memory	8 pattern memory
Pulse Output	Bch (pulse input) totalizer-synchronous output function, one pulse output per input pulse.
Output Type	Open collector output NPN type
Rated Output	30 VDC 20 mA max.
Output Range	400 Hz max. (Pulse width is selectable, 1 ms is the minimum width.)
Analog Output	
Conversion Method	DA conversion method
Resolution	13 bit equivalent
Scaling	Digital scaling
Output Objective	An item can be selected from source displayable values
Response Speed	25 ms or less (0→90% response)

Specifications by Types

Output type	Load resistance	Accuracy (23 ±5°C, 35 to 85%)	Ripple
0 to 10 V	2 kΩ or more	±(0.1% of FS)	±50 mV_{P-P}
±10 V			
1 to 5 V			
0 to 20 mA	550 Ω or less		±25 mV_{P-P} *Load resistance 250 Ω (20 mA output)
4 to 20 mA			

Optional Accessories

AC Adapter for 24 VDC supply UNI324-2410-CT
AC Power Cable for 24 VDC supply UNI324-2410-CV-CT
Output and power supply cable (24VDC) with BNC plug for TPS TE-57CV-24V-BNC
Output and power supply cable (24VDC) with bared tip for TPS TE-57CV-24V

■Dimensions