

SETPOINT COMPARATOR

AM-147

*RS232C output



DC Voltage Measurement

Input	Range	Measuring Range	Display Adjustable	Input Impedance	Input Protection
DV	11	±99.9mV	Offset	100MΩ	±250V
	12	±999.9V		100MΩ	±250V
	13	±9.999V	±9999	1MΩ	±250V
	14	±99.99V	Fullscale	10MΩ	±500V
	15	±700.0V	±0 to 9999	10MΩ	±700V
	IV	1 to 5V		1MΩ	±250V

Accuracy: ±(0.03% of rdg + 2 digit)(23°C±5°C 45 to 75% RH)

DC Current Measurement

Input	Range	Measuring Range	Display Adjustable	Internal Resistance	Input Protection
DA	23	±9.999mA	Offset	10Ω	±150mA
	24	±99.99mA	±9999	1Ω	±500mA
	25	±999.9mA	Fullscale	0.1Ω	±3A
	2A	4 to 20mA	±0~9999	10Ω	±150mA

Accuracy: ±(0.1% of rdg + 2 digit)(23°C±5°C 45 to 75% RH)
±(0.3% rdg + 2 digit) for 25 range

General specifications

Measurement block

Input configuration:	Single ended
Operation method:	Dual slope
Conversion rate:	12.5 time/sec (50 Hz), 15 time/sec (60 Hz)
Noise rejection ratio:	NMR more than 50 dB (50/60 Hz)
Temp. coefficient:	±(0.005% of rdg + 0.3 digit)/°C
Display:	Red LED, 14.2 mm height Green LED, 8 mm height for setpoint
Polarity display:	Automatic "-" display when the computation result is minus
Overrange warning:	When input exceeds the maximum display, display 0L or -0L
Maximum display:	0 to ±9999 (4 digit)
Decimal poin:	Settable to any digit position (by front sheet switch)
Zero display:	Leading zero suppression

External control block

Hold:	Shorted COM terminal and S/H terminal or level "0"
Start:	Shorted COM terminal and S/H terminal or level "1"
Digital zero:	Shorted COM terminal and DZ terminal or level "0" (displayed zero and that value is stored)

Peak hold

Valley hold: Shorted COM terminal and PH terminal or level "0"

Peak Valley hold

Pattern selection:	Any one of 8 patterns is settable in combination of COM terminal and P.SEL terminal 0, 1 and 2
Level "0"	: 0 to 1.5V
Level "1"	: 3.5 to 5 V
Input current	: less than -2 mA

Comparison block

Control method:	Computation by microcomputer
Setting range:	-9999 to 0 to +9999 (Including polarity)
Setting condition:	

Features

- Conversion rate 12.5times/sec(50Hz) or 15times/sec(60Hz)
- Four setpoint(Can display two setpoint)
- Multiple range
- Scaling value and setting value stored 8 pattern
- Peak hold, Valley hold, Peak-valley hold, Digital zero, Moving average(standard)
- Power supply for sensor 24VDC 40mA
- Direct setting function
- Power supply 90 to 264VAC

Comparison condition:

Comparison condition	Comparison result
High high limit set value < Measured value	HH
High limit set value < Measured value	HI
High high limit set value Low low limit set value ≥ Measured value ≥	GO
High limit set value Low limit set value	
Measured value < Low limit set value	LO
Measured value < Low low limit set value	LL

Comparison relay output: Contact capacity

250 V AC	0.2 A Resistive load
120 V AC	0.5 A Resistive load
28 V DC	1 A Resistive load

Photo coupler output: (NPN)

Voltage = Max. 30 V
Current = Max. 50 mA
Saturation voltage = less than 1.2 V at 50 mA

Hysteresis:

1 to 999 digit for each set point

External control:

Relay reset
Shorted COM terminal and R.RE terminal or level "0"
Level "0": 0 to 1.5 V
Level "1": 3.5 to 5 V
Input current: less than -2 mA

Common block

Memory backup:	EEPROM (rewrite 100,000 times) back up 10 years
Operating temp:	0 to 50°C 35 to 85% RH (No condensation)
Storage temp:	-10 to 70°C less than 60% RH
Power supply:	90 to 264 V AC (50 Hz/60 Hz)
Power consumption:	Approx 10 VA typ (at 100 V AC)
Dimensions:	96 mm (W)×48 mm (H)×148 mm (D) DIN size
Weight (unit only):	Approx 450 g
Dielectric strength:	Input/COM, EXC (0 V), comparative output, 500 V DC/1 min. Input/COM of each output (BCD:FD.COM, ANALOG:-, RS-232C:SG, RS-485) 500 V DC/1 min. Power supply terminal/input terminal, COM, EXC (0 V), case, comparative output, 1500 V AC/1 min. Power supply terminal/COM of each output (BCD:D.COM, ANALOG:-, RS-232C:SG, RS-485) 1500 V AC/1 min. 500 V DC more than 100 MΩ at the above terminals
Insulation resistance:	Power supply terminal normal/common mode ±1500 V
Dielectric noise:	Power supply for sensor: 24 V DC±10% 40 mA ripple 100 mVp-p
Power supply for sensor:	Accessories: Instruction manual quick manual, setting list, unit label, terminal cover

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Output specifications

●BCD data output (isolated input (Lo))

- At TTL
 - Measured data: Tri-stage parallel BCD, Positive logic, latch output
 - Polarity signal: Level "1" at minus input
 - Over signal: Level "1" at overflow input
 - Printing command signal: Positive pulse approx. 20 ms at every measurement completion (available negative logic the above signals)
- TTL level, funout 2, CMOS 5V

At open collector (NPN)

- Measured data: Negative logic transistor "ON" at logic 1
- Polarity signal: Transistor "ON" at minus input
- Over signal: Transistor "ON" at overflow input
- Printing command signal: Transistor "ON" during a period of approx. 20 ms at every measurement completion
- Transistor output capacity: Applied voltage, max. 30V current max. 10 mA saturated output voltage less than 1.2 V at 10 mA
- ENABLE: Shorted ENABLE terminal and D.COM terminal or level "0", Transistor output are OFF (TTL output is high impedance status)
 - Level "0": 0 to 1.5 V
 - Level "1": 3.5 to 5 V
 - Input current: less than 12 mA

●RS-485 (Isolated input (Lo))

- Electrical characteristics: Conforming to EIA RS-485
- Communication method: 2-wires system half-duplex (Polling and selecting)
- Transmission speed: 2400/4800/9600/19200 bps
- Start bit: 1 bit
- Data length: 7 bits
- Error detection: Even parity (BCC)
- Stop bit: 2 bits
- Character code: ASCII code
- Transmission control: No protocol
- Signal name used:

Signal name	Signal	Signal direction
Non-reversible output	+	Input/output
Reversible output	-	Input/output

- No. of connectable meter: Up to 31 meters
- Line length: Up to 500 m in total

●RS-232C (Isolated input (Lo))

- Electrical characteristics: Conforming to EIA RS-232C
- Communication method: Full duplex
- Synchronous method: Start and stop
- Transmission speed: 2400/4600/9600/19200 bps
- Start bit: 1 bit
- Data length: 7 bits
- Error detection: Even parity
- Stop bit: 2 bits
- Character code: ASCII code

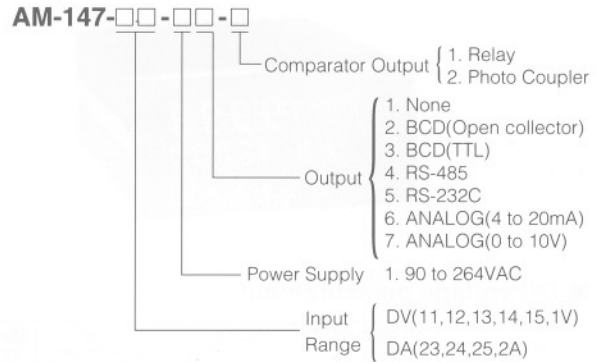
●Analog output (Isolated input (Lo))

- Resolution: 13 bits
- Output response: Less than 0.5S (0 to 90%)

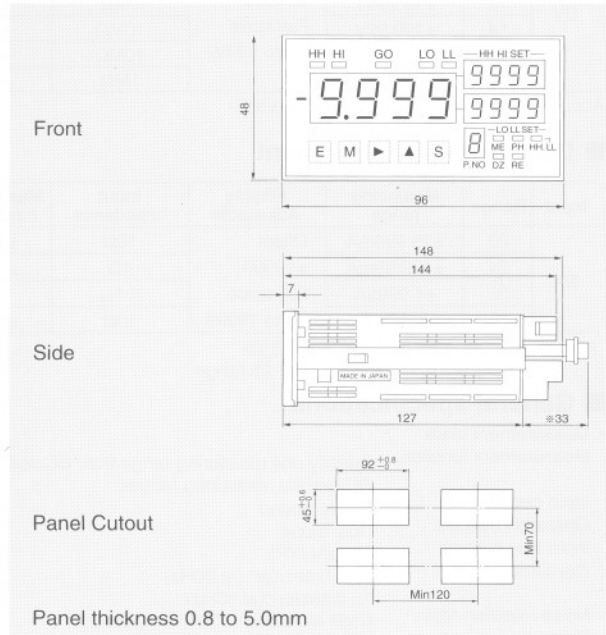
Output	Resistive load	Accuracy (23°C ± 5°C)	Ripple
0 to 10 V	More than 10 kΩ	±0.5% FS	50 mV P-P
4 to 20 mA	0 to 550Ω	±0.5% FS	Less than 0.5%

* Ripple for 4 to 20 mA at resistive load 250Ω, 20 mA

Ordering Code



Dimensions



Connection Diagram

