

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		10MΩ	±700V
IV	1 to 5V	±0 to 9999	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		1Ω	±500mA
	25	±999.9mA	Fullscale	0.1Ω	±3A
	2A	4 to 20mA		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
 Polarity display: Green LED, 8 mm height for setpoint
 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 Low low limit set value ≥ Measured value ≥ High limit set value	GO
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) X 348 mm(H) X 3148 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.
 Insulation resistance: 500 V DC more than 100 MΩ at the above terminals
 Dielectric noise: Power supply terminal normal/common mode ±1500 V
 Power supply for sensor: 24 V DC±10% 40 mA ripple 100 mVp-p
 Accessories: Instruction manual, quick manual, setting list, unit label, terminal cover

SETPOINT COMPARATOR

AM-147

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 - 2 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))

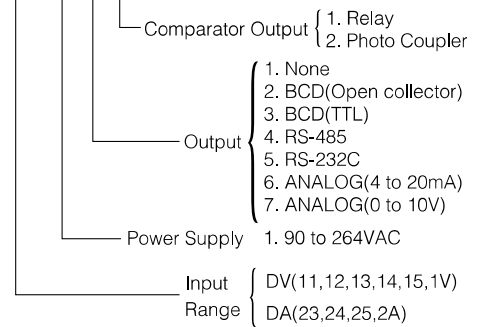
Resolution: 13 bits
 Output response: Less than 0.5S (0 to 90%)

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

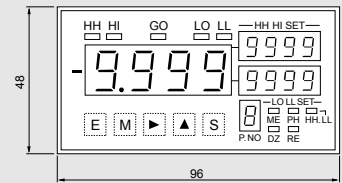
Ordering Code

AM-147-□□-□□-□□



Dimensions

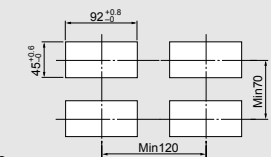
Front



Side



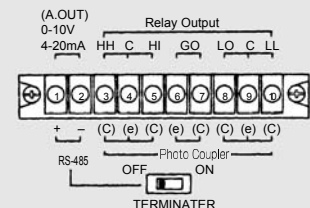
Panel Cutout



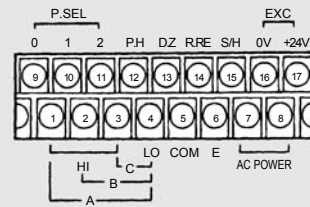
Panel thickness 0.8 to 5.0mm

Connection Diagram

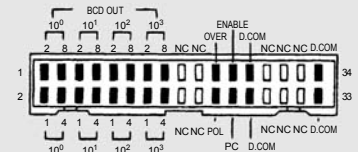
Upper



Lower



BCD output



RS232C output

