

MODEL IMP - INTELLIGENT DC PROCESS METER



- 40,000 COUNT MEASUREMENT RESOLUTION (Can be scaled to ±99,999 display)
- ACCEPTS STANDARD PROCESS SIGNAL CURRENTS (4 to 20 & 10 to 50 mA DC; Automatic Ranging)
- EASY, ONE-PASS SCALING
- FULL 6-DIGIT, HIGH VISIBILITY, 0.56" (14.2 mm) HIGH RED LED DISPLAY
- TRANSDUCER EXCITATION SUPPLY (Optional)
- INTEGRATOR (Totalizer) AND LINEARIZER (Optional)
- PEAK/VALLEY MEMORY AND TARE (Re-zero) FUNCTION (Optional)



EMC COMPLIANT



NEMA 4 / IP65



PARAMETER LOCKOUT



FRONT PANEL PROGRAMMABLE



ALARMS



ANALOG OUTPUT



COMMUNICATIONS CAPABILITY

Click Icon For User Bulletin



FAX/WEB
DOC # 04015

Product Features

The Apollo Intelligent Process Meter accepts standard process signals and precisely scales them into engineering units. One model covers any current range within 0 to 50 mA. A full 6-digit display accommodates nearly any engineering units and holds large totalization values. State-of-the-art digital circuitry virtually eliminates errors due to drift. A full complement of option packages are available to fulfill many process applications.

The indicator features a choice of two different scaling procedures which greatly simplifies initial set-up. English Style display prompts and front panel buttons aid the operator through set-up and operation. A front panel lock-out menu protects set-up data and operation modes from unauthorized personnel. Programmable digital filtering enhances the stability of the reading. Programmable remote input "E1-CON" pin can be utilized to control a variety of functions, such as totalizing, alarm control, display hold or tare operations. All set-up data is stored in non-volatile E²PROM.

The indicator has several built-in diagnostic functions to alert operators of any malfunction. Extensive testing of noise interference mechanisms and full burn-in makes the indicator extremely reliable in industrial environments. The die-cast front bezel meets NEMA 4/IP65 requirements for washdown applications. Plug-in style terminal blocks simplify installation wiring and change-outs.

OPTIONS

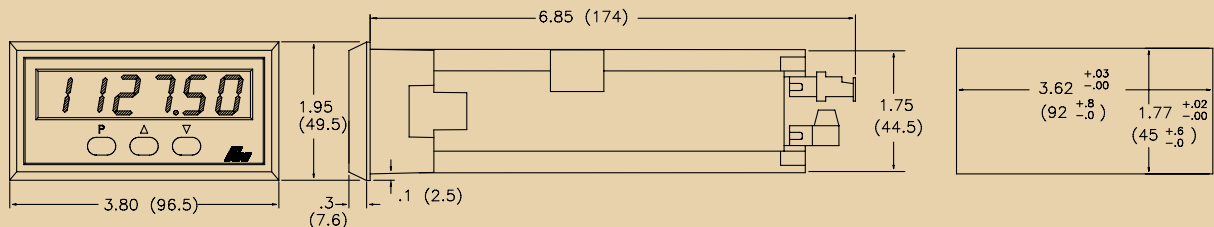
An optional integrator (totalizer)/linearizer can be used to totalize or integrate signals up to a maximum display value of 999,999. It features independent scaling and a low signal cut-out to suit a variety of signal integration applications. Programmable remote input "E2-CON" pin is included with this option, and can control a variety of functions, such as totalizing, alarm control, display hold or tare operations, simultaneously with the "E1-CON" pin. Additionally, nine slopes and offsets can easily be programmed with this option to linearize transducers with non-linear outputs, such as square law devices. Peak/valley (max/min) reading memory, display hold and a signal re-zeroing (tare) function are included with this option and they are easily recalled and controlled by either the front panel or a remote input. All readings are retained at power-down.

Optional dual relays with parallel solid state outputs are fully programmable to operate in a wide variety of modes to suit many control or alarm applications.

Optional 20 mA loop, bi-directional serial communications provides computer and printer interfacing to extend the capabilities of the indicator. More than one unit can be connected in the loop with other RLC products which have serial communications capabilities.

An optional 4 to 20 mA or 0 to 10 VDC re-transmitted analog output can be scaled by the user to interface with a host of recorders, indicators and controllers.

DIMENSIONS "In inches (mm)"



MODEL IMP - INTELLIGENT DC PROCESS METER

General Specifications

- DISPLAY:** 6-digit, 0.56" (14.2 mm) High LED, minus sign displayed for negative values. "Flashing" display for totalizer overflow. "....." displayed for input display out of range. "OLOLOL" displayed for input display overload and "ULULUL" for underload (negative overload).
- POWER REQUIREMENTS:**
A.C. Power: Switch Selectable 115/230 VAC, $\pm 10\%$, 50/60 Hz, 14 VA
- CONTROLS:** Three front panel push buttons for modifying alarm values and indicator set-up. External Program Disable input locks out programming and enables "Quick" Programming access. One or two programmable inputs are also available.
- TOTALIZER/LINEARIZER:** Front panel button for input/total display select. External totalizer reset/enable. Programmable time-base, scale factor (0.001-100.000) and low-end cut-out. 9-segment multiple slope scaling for non-linear inputs. Response Time = 0.2 sec max.
- ENVIRONMENTAL CONDITIONS:**
Operating Temperature Range: 0° to 50°C
Storage Temperature Range: -40° to 80°C
Span Temperature Coeff.: 100 ppm/°C max; 40 ppm/°C typ.
Zero Temperature Coeff.: 1 $\mu\text{V}/^\circ\text{C}$
Operating and Storage Humidity: 85% max. relative humidity (non-condensing) from 0 to 50°C.
Altitude: Up to 2000 meters.
- EXCITATION (Optional):** Regulated 18 VDC @ 60 mA max.
- PEAK/VALLEY/TARE (Optional):**
Peak and Valley recording. Signal re-zero (tare).
- CERTIFICATIONS AND COMPLIANCES:**
SAFETY
EN 61010-1, IEC 1010-1
ELECTROMAGNETIC COMPATIBILITY
Immunity to EN 50082-2
Emissions to EN 50081-2
- CONSTRUCTION:** Die-cast metal front bezel that meets NEMA 4/IP65 requirements for indoor use when properly installed. Installation Category II, Pollution Degree 2. Case body is black, high impact plastic (panel gasket and mounting clips included).
- CONNECTION:** Removable terminal blocks
- WEIGHT:** 1.2 lbs (0.54 Kg)

Input Specifications

- SIGNAL INPUT RANGE:** 0 to 50 mA DC (4 to 20 mA, 10 to 30 mA)
- INPUT IMPEDANCE:** 10 Ω , 0.2 VDC @ 20 mA
Max. Input Current: 200 mA DC (continuous)
- ACCURACY AND RESOLUTION:**
Resolution: 1/40,000
Accuracy: $\pm(0.02\%$ of full scale + 1 digit)
- PROGRAMMABLE DISPLAY READING RANGE:** -99999 to +999999
- READING RATE:** 2.5 readings/second
- RESPONSE TIME:** 1.5 sec max. settling time for a step input to within 99% of final value f_s (increases with programmable digital filtering)
- NORMAL MODE REJECTION:** 40 dB at 50/60 Hz (may be improved by programmable digital filtering)
- COMMON MODE REJECTION:** 120 dB, DC to 50/60 Hz
- E1-CON & E2-CON:** External remote inputs that allow activation of various functions (reset total, peak indicator mode, alarm control, etc.)
 $V_{IL} = 0.8 V_{MAX}$; $V_{IH} = 2.0 V_{MIN}$; Response Time = 0.2 sec max.

Output Specifications

- SERIAL COMMUNICATIONS (Optional):**
Type: Bi-directional 20 mA current loop, 20 mA source provided on transmit loop. (Powers up to 7 units in a loop with internal current source.)
Baud Rate: programmable 300 to 2400
Maximum address: 99 (Actual number in a single loop is limited by serial hardware specifications.)
Data Format: 10 bit frame, Odd parity (one start bit, 7 data bit, one odd parity bit, and one stop bit.)
Serial Hardware Specifications:
SO - Output Transistor Rating: $V_{MAX} = 30$ VDC,
 $V_{SAT} = 1 V_{MAX}$ at 20 mA.
Note: This will allow up to 28 units max. in each loop.
SI - Input Diode Rating: $V_F = 1.25 V_{TYP}$; $1.5 V_{MAX}$
Note: The compliance voltage rating of the source must be greater than the sum of the voltage drops around the loop. (Typically a 30 VDC powered source would be capable of operating between 18 and 22 units in a loop.)
- ALARMS (Optional):**
Solid State: Two, isolated, sinking open collector NPN transistors acting in parallel with relays.
 I_{MAX} : 100 mA. $V_{SAT} = 1$ V @ 100 mA. $V_{MAX} = 30$ VDC.
Relays:
Type: Form C (2)
Max. Rating: 5 Amps @ 120/240 VAC or 28 VDC (resistive load), 1/8 hp @ 120 VAC (inductive load).
Relay Life Expectancy: 100,000 cycles at max. rating. (As load level decreases, life expectancy increases.)
- ANALOG OUTPUT (Optional):**
4 to 20 mA: Digital scaling and offsetting within a 4 to 20 mA range
Accuracy: 0.1% of full scale
Resolution: 12 bits
Compliance Voltage: 10 VDC (500 Ω max. loop impedance)
0 to 10 VDC: Digital scaling and offsetting within a 0 to 10 VDC range
Accuracy: $\pm(0.1\%$ of reading +35 mV)
Resolution: 12 bits
Min. Load Resistance: 10 K Ω (1 mA max.)

MODEL IMP - INTELLIGENT DC PROCESS METER

Ordering Information

MODEL NO.	DESCRIPTION	+18 VDC EXCITATION	TOTALIZER/ LINEARIZER/ PEAK/VALLEY TARE/E2CON	DUAL ALARMS	SERIAL OUTPUT	ANALOG OUTPUT	PART NUMBERS
							115/230 VAC
IMP	Intelligent Process Meter with 0-50 mA DC Signal Input (4-20 mA DC 10-50 mA DC)	NO	NO	NO	NO	NO	IMP20060
		YES	NO	NO	NO	NO	IMP20160
		YES	NO	YES	NO	NO	IMP20162
		YES	YES	NO	NO	NO	IMP23160
		YES	YES	NO	YES	NO	IMP23161
		YES	YES	YES	NO	NO	IMP23162
		YES	YES	NO	NO	4 to 20 mA	IMP23163
		YES	YES	YES	YES	4 to 20 mA	IMP23167
		YES	YES	YES	YES	0 to 10 VDC	IMP23169