MODEL IMS - INTELLIGENT STRAIN GAGE METER

- 40,000 COUNT MEASUREMENT RESOLUTION (Can be scaled to ±99,999 display)
- ACCEPTS LOW LEVEL INPUTS FROM 20 mV to 200 mV FULL SCALE
- USER SELECTABLE BRIDGE EXCITATION (5 VDC or 10 VDC)
- EASY, ONE-PASS SCALING
- FULL 6-DIGIT, HIGH VISIBILITY, 0.56" (14.2 mm) HIGH RED LED DISPLAY
- INTEGRATOR (Totalizer) AND LINEARIZER (Optional)

EMC COMPLIANT | NEMA 4 / IP65 | PARAMETER LOCKOUT | FRONT PANEL PROGRAMMABLE | ALARMS | ANALOG OUTPUT | COMMUNICATIONS CAPABILITY

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FAX/WEB DOC # 04016

Product Features

The Apollo Intelligent Strain Gage Meter (IMS) accepts low level signals from a variety of bridge-type transducers, such as load cells, pressure transducers, torque transducers, etc. User selectable low (20 mV) and high (200 mV) input ranges and a stable, bridge excitation voltage, that is user selectable 5 V or 10 V at 60 mA, is provided. A two Hz, two pole, low pass filter coupled with programmable digital filtering can be tuned to match the characteristics of most processes. A digital tare (re-zero) operation can be performed at a touch of a button along with recall of process peak and valley (max/min) 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. A full 6-digit display accommodates virtually any process-engineering unit. English Style display prompts 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 remote input E1-CON and/or E2-CON, can be utilized to control a variety of totalizing, alarm control, display hold and tare operations. All set-up data is stored in non-volatile E^2PROM.

As a standard feature, all units include an integrator (totalizer)/ linearizer which 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. Additionally, nine slopes and offsets can easily be programmed to linearize transducers with non-linear outputs, such as square law devices. All readings are retained at power-down.

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.

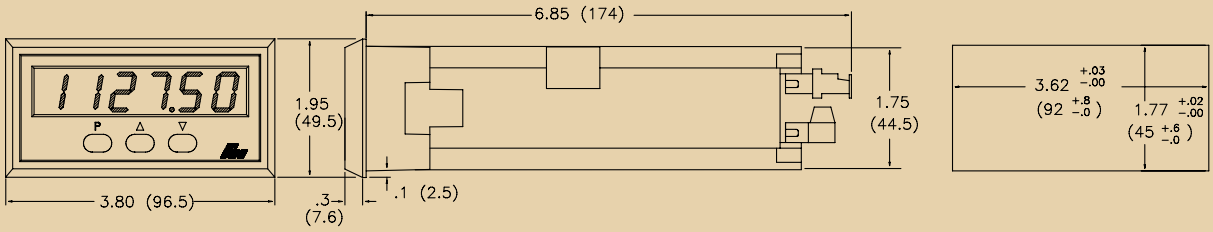
OPTIONS

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, bidirectional 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)"



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General Specifications

1. **DISPLAY**: 6-digit, 0.56" (14.2 mm) High LED, minus sign displayed for negative values. "Flashing" display for totalizer overflow. "....." displayed for input out of range. "OLOLOL" displayed for input overload and "ULULUL" displayed for underload (negative overload).
2. **POWER REQUIREMENTS**:
   A.C. Power: Switch Selectable 115/230 VAC, ±10%, 50/60 Hz, 14 VA
3. **CONTROLS**: Three front panel push buttons for modifying alarm values and indicator set-up. Two external inputs for disabling the front panel and controlling programmable functions.
4. **BRIDGE EXCITATION**:
   Jumper selectable: 5 VDC or 10 VDC @ 60 mA max., overload protected.
   Drift: <50 ppm/°C, non-ratiometric.
5. **TOTALIZER**: Front panel button for input/total display select. Programmable time-base, scale factor (0.001 to 100.000) and low-end cut-out. Response Time = 0.2 sec. max.
6. **ENVIRONMENTAL CONDITIONS**:
   Operating Temperature Range: 0° to 50°C
   Storage Temperature Range: -40° to 80°C
   Span Temperature Coeff.: 70ppm/°C
   Zero Temperature Coeff.: 1µV/°C
   Operating and Storage Humidity: 85% max. relative humidity (non-condensing) from 0 to 50°C.
   Altitude: Up to 2000 meters.
7. **LINEARIZER/PEAK/VALLEY/TARE (Optional)**:
   9-segment multiple slope scaling for non-linear inputs. Peak and Valley recording. Signal re-zero (tare).
8. **CERTIFICATIONS AND COMPLIANCES**:
   SAFETY
   EN 61010-1, IEC 1010-1
   ELECTROMAGNETIC COMPATIBILITY
   Immunity to EN 50082-2
   Emissions to EN 50081-2
9. **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).
10. **CONNECTION**: Removable terminal blocks
11. **WEIGHT**: 1.2 lbs (0.54 Kg)

Input Specifications

1. **SIGNAL INPUT RANGE**: Max. common mode voltage swing with respect to signal ground, 0 to 7 V.
   Note: Absolute max. voltage that can be applied between the two input terminals or between input and signal common is 75 VDC.
   Jumper selectable: ±20 mV or ±200 mV.
2. **DEADLOAD RANGE**: -100%, +5% of range selected.
3. **LINEARITY, ACCURACY AND RESOLUTION**:
   Linearity: 0.03% FS
   Accuracy: 20 mV range; 0.03% FS.
   200 mV range; 0.5% FS Nominal, may be calibrated to 0.03% FS.
   Resolution: 1/40,000 counts.
   Relative Humidity: Less than 85% RH
4. **PROGRAMMABLE DISPLAY READING RANGE**: -99999 to 999999
5. **SIGNAL CONNECTION**: 4-Wire
6. **INPUT RESISTANCE**: 100 MΩ
7. **READING RATE**: 2.5 readings/second
8. **RESPONSE TIME**: 2 seconds to settle for step input (increases with programmable digital filtering)
9. **E1-CON & E2-CON**: External remote inputs that allow activation of various functions (reset total, peak indicator mode, trigger mode, etc.)
   V_{IL} = 0.8 V_{MAX}; V_{IH} = 2.0 V_{MIN}; Response Time = 0.2 sec max.
10. **NORMAL MODE REJECTION**: 80 dB at 50/60 Hz (may be improved by programmable digital filtering)
11. **COMMON MODE REJECTION**: 120 dB, DC to 50/60 Hz, with respect to earth common.
    60 dB, DC to 50/60 Hz, w/respect to excitation common.

Output Specifications

1. **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.
   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.)
2. **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.)
3. **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: ±(0.1% of reading +35 mV)
   Resolution: 12 bits
   Min. Load Resistance: 10 KΩ (1 mA max.)

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Ordering Information

MODEL NO.	DESCRIPTION	OPTIONS			PART NUMBERS FOR AVAILABLE SUPPLY VOLTAGES
		DUAL ALARMS	SERIAL OUTPUT	ANALOG OUTPUT	115/230 VAC
IMS	Intelligent Strain Gage Meter	NO	NO	NO	IMS03160
		YES	NO	NO	IMS03162
		YES	YES	NO	IMS03164
		YES	NO	4 to 20 mA	IMS03166
		YES	NO	0 to 10 VDC	IMS03168