

# AN 1500 M Load Monitor/ Signal Conditioner/Display

## FEATURES

- 1 or 2 transducer power supplies:  
5 V or 10 V; 60 mA DC
- 5 digits ( $\pm 32000$ ) with programmable color;  
14 mm height; 96 x 48 mm format
- 20 acquisitions per second
- Logic inputs for remote functions
- Hold, Tare, Peak and Valley functions
- Panel or DIN rail mounting
- IP 65 front panel (indoor use)
- Programmable with front-panel keys
- Quick wiring using WAGO connectors

## OPTIONS

- Relay outputs (thresholds): 2 SPDT or 4 SPST
- Analog output: 0–10 V or 4–20 mA
- Serial output: RS-232C or RS-485



## DESCRIPTION

The AN 1500 M Load Monitor is designed to process and display signals coming from various types of transducers (weight, load, pressure, torque, etc.) that use standard strain-gauge bridges. It can also receive any signal within the  $\pm 150$  mVDC range coming from a shunt, a converter or any type of transmitter.

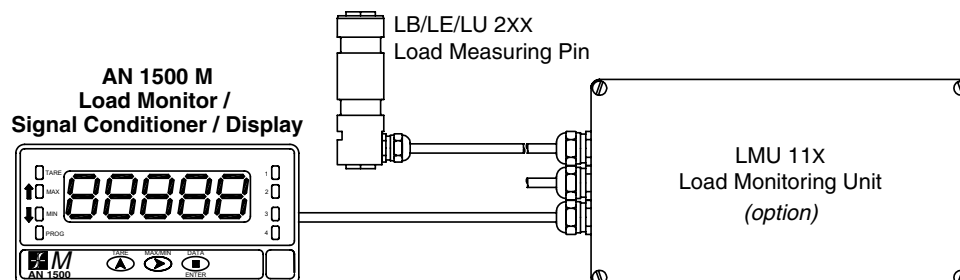
The monitor provides selectable input ranges (15 mV, 30 mV or 150 mV) and excitation voltages (5 V or 10 V +24 V) to accommodate cells of various types

and sensitivities. Two programming methods allow scaling the meter to operate in the desired engineering units.

The AN 1500 M is used with Magtrol Load Measuring Pins to measure load and force and provide overload protection. Magtrol also offers a wide range of Load-Force-Weight Transducers in various executions and accuracy classes and our Load Monitoring Units (LMUs) constitute an ideal safe measurement system which continuously checks for short-circuits and interrupted signal lines.

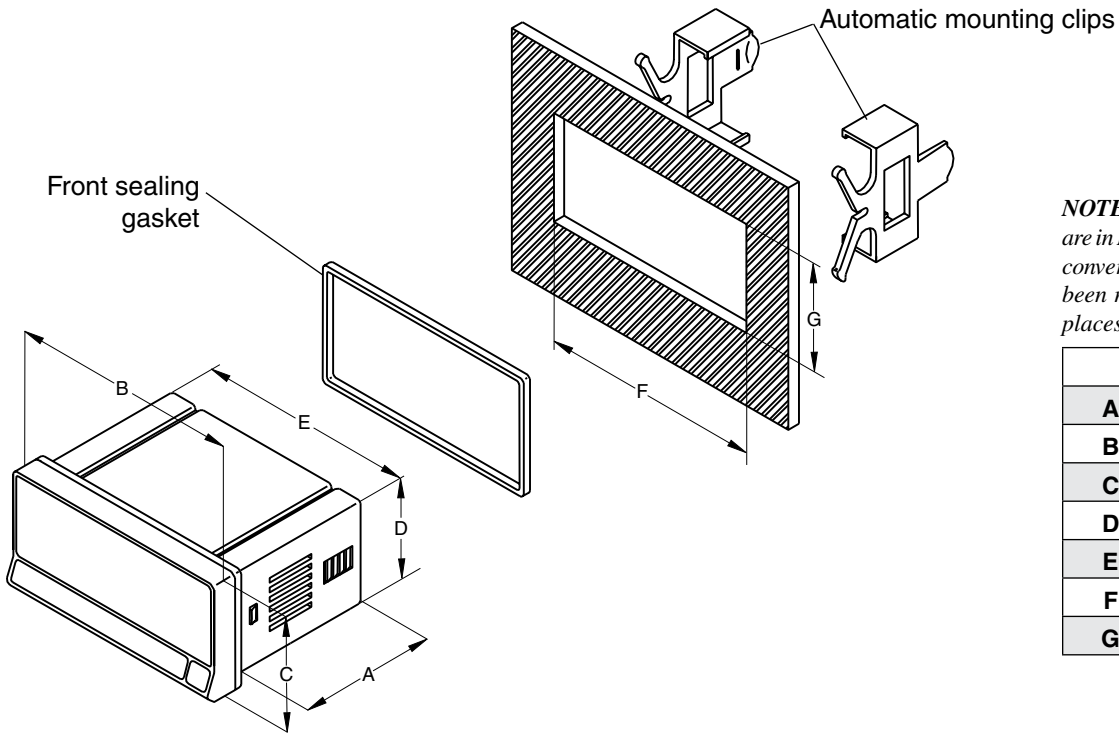
The basic instrument is a soldered assembly composed of a main board, a tri-color programmable display and a power circuit. Standard features include the reading of the input variable as well as remote hold, reading and memorization of max and min values (peak / valley), tare and reset function, and a full complement of programmable logic functions.

## SYSTEM CONFIGURATION



<b>MEASUREMENT CHARACTERISTICS</b>		
Transducer Power Supply	5 V or 10 V; 60 mA	
Signal Processing:	Voltage	Current
<ul style="list-style-type: none"> <li>Type</li> <li>Voltage</li> <li>Maximum Resolution</li> <li>Input Impedance</li> </ul>	Asymmetric differential $\pm 10$ VDC 1 mV 1 M $\Omega$	Asymmetric differential $\pm 20$ mA DC 1 $\mu$ V 15 $\Omega$
<ul style="list-style-type: none"> <li>Excitation:               <ul style="list-style-type: none"> <li>Strain Gauges</li> <li>Conditioner</li> </ul> </li> <li>Conversion Speed</li> <li>Conversion Definition</li> <li>Response Delay (P filter):               <ul style="list-style-type: none"> <li>Cut-off Frequency</li> <li>Slope</li> </ul> </li> </ul>	5 V or 10 V; 60 mA 5 V, 10 V or 24 V; 60 mA 20 conversions/second 15 bits  4 Hz to 0.05 Hz 20 dB/decade	
Load Cell Input: <ul style="list-style-type: none"> <li>Maximum Value</li> <li>Resolution</li> <li>Input Impedance</li> <li>Excitation</li> </ul>	$\pm 150$ mV 1 $\mu$ V 100 M $\Omega$ 5 V or 10 V; 60 mA	
Measurement Display: <ul style="list-style-type: none"> <li>Type</li> <li>Number of Digits</li> <li>Digit Height</li> <li>Programmable Digit Color</li> <li>Display Refresh Rate</li> <li>Decimal Point</li> </ul>	7-segment alphanumeric display 5 14 mm high ( $\approx 0.55$ in.) red, green and amber 20/s programmable	
Accuracy <ul style="list-style-type: none"> <li>Maximum Error</li> <li>Temperature Coefficient</li> <li>Warm-Up Time</li> </ul>	$\pm (0.1\%$ of the reading + 1 digit) 100 ppm/ $^{\circ}$ C 15 min	
Overrange Indication	-oUeR and oUEr	
<b>OPERATING INDICATIONS (LEDs)</b>		
PROG Mode	1 LED	
Thresholds 1, 2, 3 and 4	4 red LEDs	
Control Indication (4 LEDs)	TARE, MAX, MIN, PROG	
Display of Program Steps	one 7-segment green LED	
<b>KEYBOARD</b>		
Operating Keys	TARE, MAX/MIN, DATA	
Programming Keys	▲ , ► ENTER	
<b>PROGRAMMING</b>		
5 Program Menus	1) Input configuration 2) Display configuration 3) Setpoint input 4) Analog output configuration 5) Serial RS-output configuration	Cn Inp Cn dSP SEt P An out rS out
<b>POWER SUPPLY</b>		
AC	85 to 265 VAC or 22 to 53 VAC	
DC	100 to 300 VDC or 10.5 to 70 VDC	
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>		
Operating Temperature	-10 $^{\circ}$ C to +60 $^{\circ}$ C	
Storage Temperature	-25 $^{\circ}$ C to +85 $^{\circ}$ C	
Relative Humidity, Non-Condensing	<95% at 40 $^{\circ}$ C	
Protection Class	IP 65 front panel; IP 45 housing	
Housing Material	UL 94V-0 polycarbonate	
Weight	135 g (0.297 lb)	

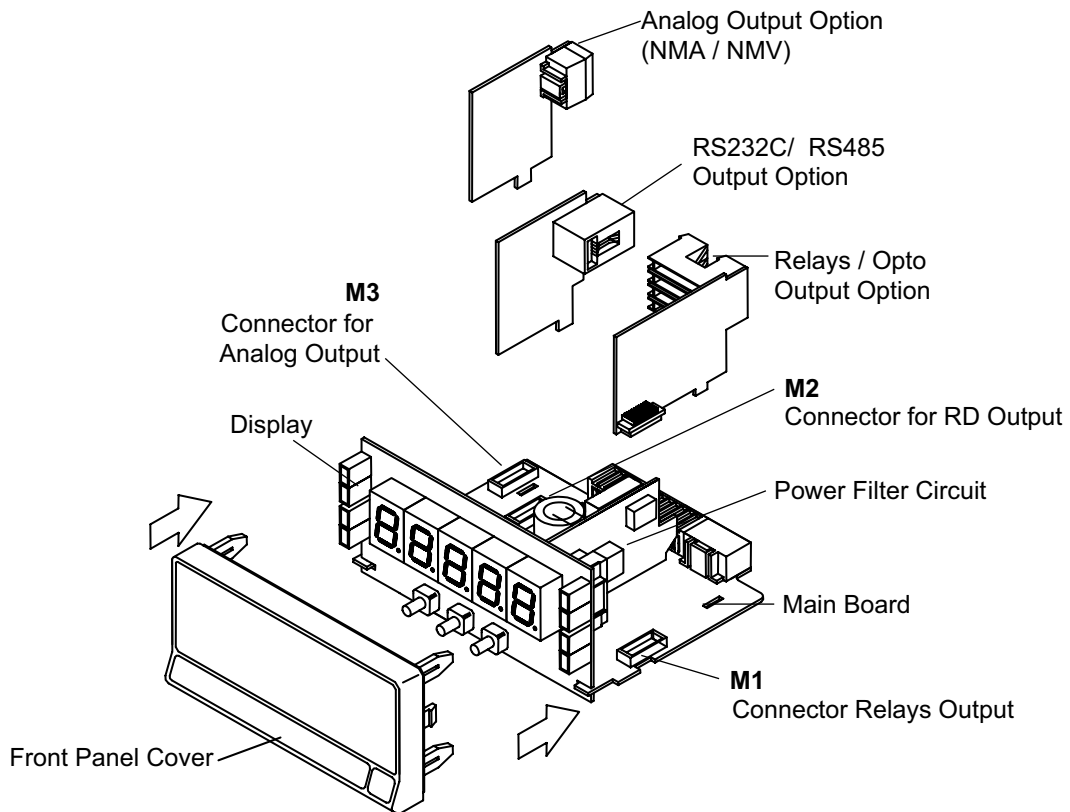
**DIMENSIONS**



*NOTE: Original dimensions are in Metric units. Dimensions converted to English units have been rounded up to 2 decimal places.*

	mm	in
<b>A</b>	60	2.36
<b>B</b>	96	3.78
<b>C</b>	48	1.89
<b>D</b>	42	1.65
<b>E</b>	90	3.54
<b>F</b>	92	3.62
<b>G</b>	45	1.77

**ASSEMBLY OVERVIEW**



## CONTROL OPTIONS

### Relay Output Boards (2RE and 4RE)

Characteristics	2 Threshold Values (2RE)	4 Threshold Values (4RE)
Number of Thresholds	2	4
Switching Capacity	8 A / 250 VAC / 150 VDC	5 A / 250 VAC / 50 VDC
Maximum Power	2000 VA / 192 W	25 VA / 10 W
Function	SPDT Single Pole Dual Toggle	SPST Single Pole Single Toggle (1 common for 4 relays)
Response Time	10 ms	6 ms
Weight	≈40 g / ≈1.41 oz	

*NOTE: The 2RE and 4RE output boards cannot be installed simultaneously in the monitor.*

### Analog Output Board (NMV or NMA)

Characteristics	NMV	NMA
Output	0–10 V	4–20 mA
Resolution	13 bits / 0.1% FSD ±1 bit	
Response Time	50 ms	
Temperature Drift	0.2 mV/°C	0.5 μA/°C
Maximum Load	≥ 10 kΩ	≤ 500 Ω
Weight	≈20 g / ≈0.71 oz	

This board is used to transmit displayed values (full or partial measuring range) by means of a 0–10 V or 4–20 mA isolated analog signal.

## COMMUNICATION OPTIONS

### Serial Output Boards (RS2 & RS4)

Characteristics	RS-232C Board (RS2)	RS-485 Board (RS4)
Baud Rate	1200, 2400, 4800, 9600, 19200	
Protocol	Standard, ISO 1745 or Modbus RTU	
Address	00 to 99	
Reading Functions of Displayed and Memorized Values	Valley, Peak, Tare, Measure, Thresholds 1 to 4	
Changing of Threshold Values	Thresholds 1 to 4 Digital indication of the threshold value	
Remote Controls (Reset)	Valley, Peak, Set Tare, Clear Tare	
Software Transfer	Only with ISO 1745 protocol	
Weight	≈45 g / ≈1.59 oz	

The RS2 and RS4 output boards allow serial communication with a personal computer or any other unit using a serial RS-232C or RS-485 transmission protocol, respectively. Both boards are also compatible with various graphic display and data acquisition software programs.

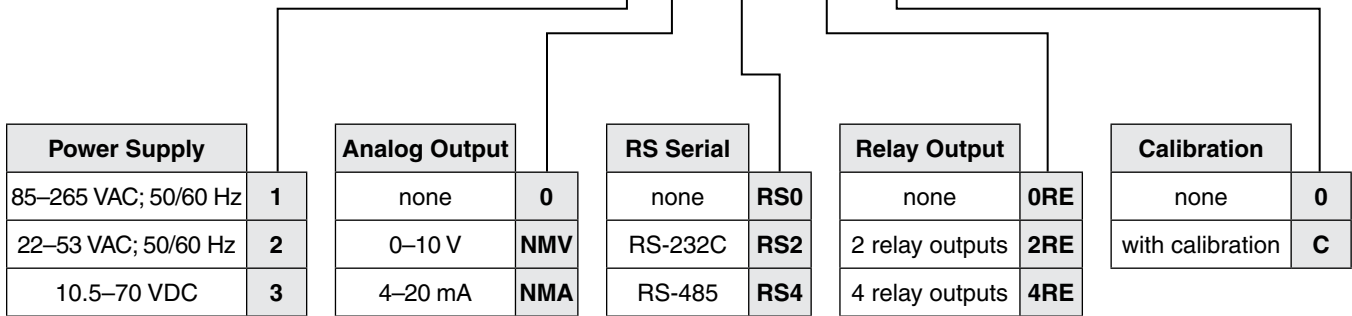
*NOTE: The RS2 and RS4 output boards cannot be installed simultaneously in the monitor.*

*NOTE: All outputs are opto-insulated with regard to the input signal.*

## ORDERING INFORMATION

Part Number:

AN 1500M / X / X / RSX / XRE / X



**Example:** An AN 1500 M with a 230 VAC / 50/60 Hz power supply, 0–10 V analog output, RS-232C serial, 4 relay outputs and calibration would be ordered as part number AN 1500M / 1 / NMV / RS2 / 4RE / C .

*Due to the continual development of our products, we reserve the right to modify specifications without forewarning.*



[www.magtrol.com](http://www.magtrol.com)

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