

AN 2000 C

SIGNAL CONDITIONER & DISPLAY

The AN2000 C is used with Magtrol Load Measuring Pins or other Strain Gauge Transducers to measure load and force and provide overload protection. Magtrol also offers a wide range of Load-Force-Weight Transducers in various applications and accuracy classes and our Load Monitoring Units (LMUs) creates an ideal safe measurement system which continuously checks for short-circuits and interrupted signal lines.

FEATURES

- 1...4 Transducers Power Supplies: 5V/10V; 120mADC
- 5 Digits ($\pm 32\,000$); 14 mm height; 96x48 mm format
- 16 Acquisitions per second
- HOLD, TARE, PEAK & VALLEY functions
- IP65 Front Panel (indoor use)
- Programmable with front-panel keys
- Quick wiring using WAGO connectors

OPTIONS

- Relay Outputs (thresholds): 2 SPDT / 4 SPST
- Analog Output: 0-10V / 4-20mA



Fig. 1: AN2000 C | Signal Conditioner/Display

DESCRIPTION

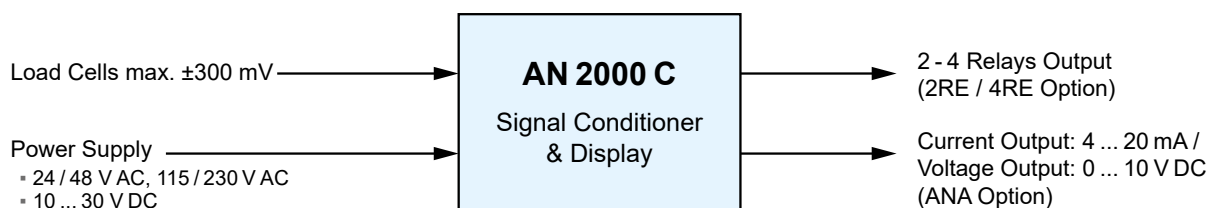
The AN2000 C Signal Conditioner & Display is designed to process and display signals coming from various types of transducers (weight, load, pressure, torque, etc.) that use standard strain-gauge bridges. It can also receive any signal within the range ± 300 mVDC coming from a shunt, a converter or any type of transmitter.

The Conditioner provides selectable input ranges (max. ± 300 mV) and excitation voltages (5V, 10V) to accommodate cells of various types and sensitivities. Two programming methods allow scaling of the meter to operate in the desired engineering units.

The basic instrument consists of a PCB assembly including the main board, the display and the power supply filter, to which the A/D conversion circuit and the input option are added.

The functions of the basic instrument include the display of the input variable as well as the remote freezing of the display (HOLD), the reading of the stored minimum and maximum values (PEAK & VALLEY) and the TARE function with reset to zero.

BLOCK DIAGRAM



SPECIFICATIONS
INPUT SIGNAL

Transducer Power Supply	5V / 10V; 120 mA
Max. Input Voltage	±300 mV
Max. Resolution	0.5 µV
Input Impedance	100 MΩ
Excitation	10V @ 120 mA, 5V @ 120 mA

A/D CONVERSION & FILTERS

Resolution	±24 bits
Rate	16 values/second
Cut-off Frequency	0.05... 4 Hz
Slope	14...37 dB / 10

DISPLAY

Type	7-Segment alpha-numeric Display
Range	±32000
Digit	5 Digits; red LED; 14 mm high
Display Refresh Rate	16 values/second
Overrange Indication	-oVFlo, +oVFlo

ACCURACY

Maximum Error	±0.1% of the reading + 2 Digits
Temperature Coefficient	100 ppm/°C
Warm-Up Time	10 min

ELECTRICAL CHARACTERISTICS & CONNECTION

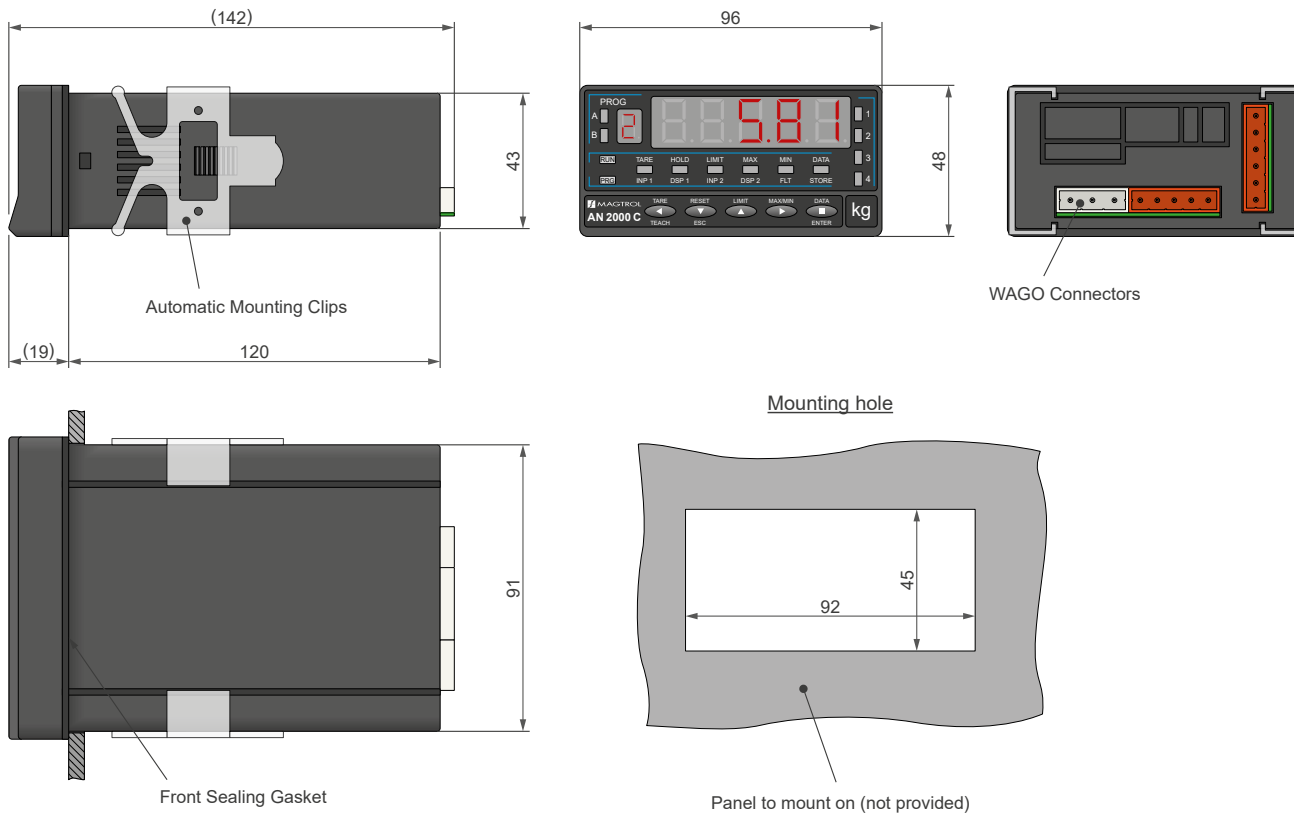
AC Power Supply	24/48 VAC ; 115/230 VAC
DC Power Supply	10... 30 VDC
Consumption	5... 10 W ^{a)}
Connection	WAGO connectors (on the back of the device)

MECHANICAL CHARACTERISTICS & ENVIRONMENT

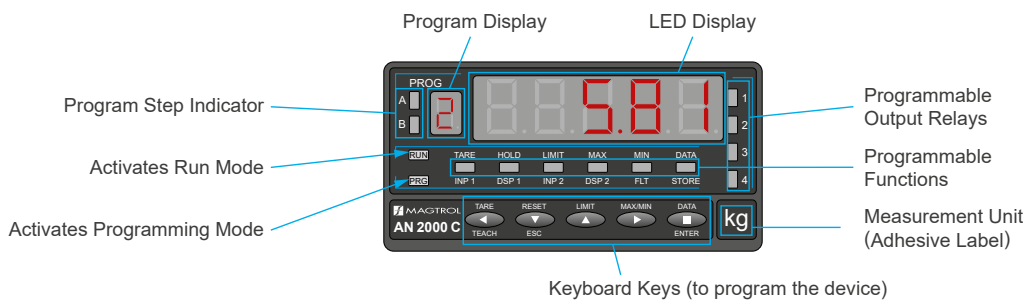
Operating Temperature	-10 °C... +60 °C
Storage Temperature	-25 °C... +85 °C
Relative Humidity	<95% @ 40 °C
Protection Class	IP65 Front Panel (IP45 Housing)
Housing Material	UL 94 V-0 Polycarbonate
Weight	600...680 g ^{a)}

a) Depending on options

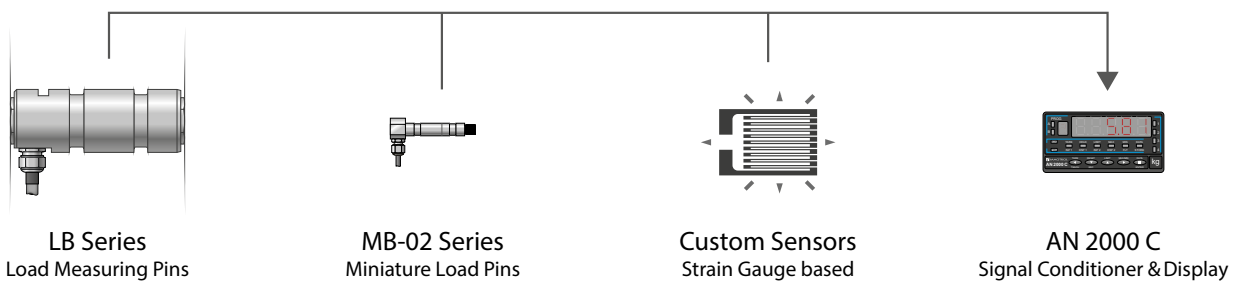
DIMENSIONS



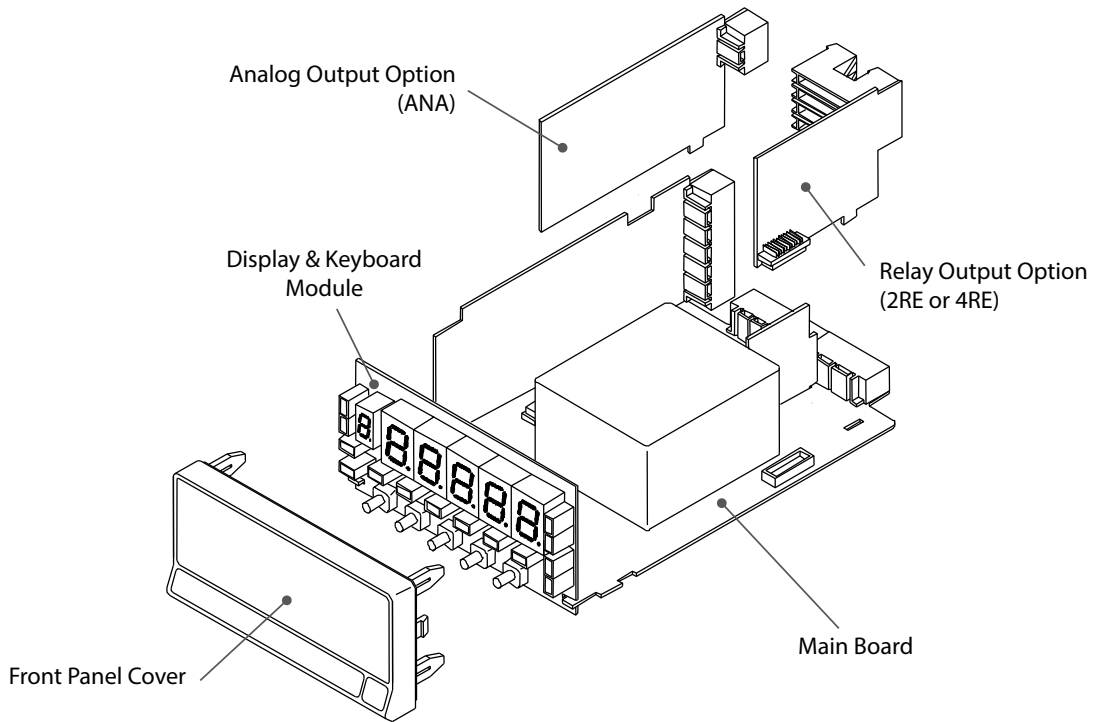
USER INTERFACE



SYSTEM CONFIGURATION



DEVICE CONFIGURATION



OUTPUT OPTIONS

The AN2000C Signal Conditioner & Display can be completed with optional output interfaces. It is possible to add a board component allowing the control of 2 to 4 relays (2RE-4RE) as well as an analog current output or an analog voltage output (ANA). These components are available when ordering and you will receive your AN2000C completely assembled.

It is also possible to order the components separately and assemble them as required.

ATTENTION: it is possible to install only one relay option and one analog option at a time (e.g. it is not possible to combine the 2RE and 4RE options simultaneously).

RELAY OUTPUT BOARDS (OPTION) ^{a)}		
Model	2 RE	4 RE
Number of Thresholds	2	4
Max. Current	8A	5A
Max. Voltage	250VAC / 150VDC	277VAC / 125VDC
Maximum Power	2000 VA / 192W	1250 VA / 150W
Function	SPDT (Single Pole Dual Throw)	SPST(Single Pole Single Throw) 1 common for 4 relays
Response Time	10 ms	

a) 2RE and 4RE output boards cannot be installed simultaneously in the monitor.

ANALOG OUTPUT BOARD (OPTION)		
Model	ANA (Analog Voltage & Analog Current) ^{a)}	
Output	0 ... 10V ^{b)}	4 ... 20mA ^{b)}
Resolution / Accuracy	12 bits / 0.1% FSD ±1 bit	
Response Time	60 ms	
Temperature Drift	0.2mV/°C	0.5µA/°C
Maximum Load	≥500Ω	≤800Ω

a) ANA board is used for analog current or voltage output. The two functions are not available simultaneously and must be configured by means of a switch on the board.

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

RELATED PRODUCTS

LB & LE SERIES - LOAD MEASURING PINS



Fig.2: LB210 & LB217 | Load Measuring Pins

LB & LE Series Load Measuring Pins are used to measure load and force and to provide overload protection. The pins are mounted into machines in place of normal shafts and fitted with strain gauges, allowing them to produce a signal proportional to the measured load. Manufactured in Switzerland, Magtrol's Load Pins are rugged with high resistance stainless steel and tight construction, designed specifically for use in hostile industrial environments.

LB & LE Series are used for load measuring devices and overload protection on cranes, hoisting gear, elevators, winches, and force measurement for regulation processes in industrial installations and machinery production. Moreover it is an ideally transducer to detect and measure forces in harsh, tropical, offshore, marine and harbor environments.

Further information on accessories are available in their specific data sheets.

LMU SERIES - LOAD MONITORING UNITS



Fig.3: LMU 217 | Load Monitoring Unit

The Magtrol Load Monitoring Unit is specially designed for strain gauge transducer applications. Specifically developed for use with Magtrol load measuring pins and load-force-weight sensors, the LMU Series provides excitation current and amplifies the output signal of full-bridge strain gauges. Configurable relays and analog outputs are also available.

Its IP 65 aluminum housing allows the system to be used in harsh environments.

ORDERING INFORMATION

ORDERING NUMBER	AN2000C /	-	/	-	/	-	/0/	-
1 : 24/48 VAC, 115/230 VAC 2 : 10...30 VDC	POWER SUPPLY							
0 : None 1 : 0...10 V / 4...20 mA (ANA Option)	OUTPUT OPTION							
0 : None 1 : 2 Relay Outputs (2RE Option) 2 : 4 Relay Outputs (4RE Option)	RELAY OPTION							
0 : None C : With calibration	CALIBRATION							

Example: AN2000C, power supply VAC, no output and relay option, with calibration would be ordered as: **AN2000C/1/0/0/0/C**

AN2000C, power supply VDC, with ANA option and 2RE option, without calibration would be ordered as: **AN2000C/2/1/1/0/0**.