Badger Meter

Display

ER-500

DESCRIPTION

The ER-500 display from Badger Meter® provides a flexible, durable, easy-to-use platform for your flow metering applications. The ER-500 display makes it easy to monitor flow, with a crisp dot-matrix display capable of simultaneous display of flow rate and flow total. The NEMA 4X rated enclosure can be mounted directly on a flow sensor, on a pipe or on a DIN-rail.

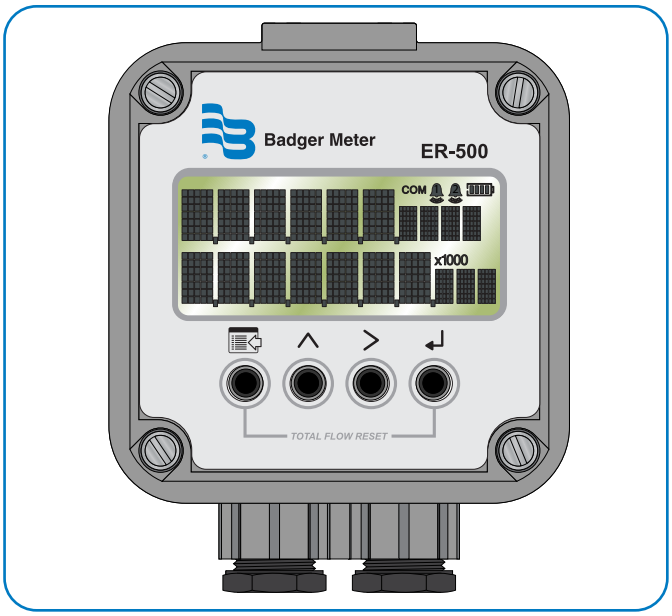
The ER-500 display is engineered with smart management of unit power in mind. All units feature extremely low power consumption in normal operating conditions and are both 4…20mA loop and battery-powered.

The ER-500 display provides a suite of powerful operating features. Multi-point linearization tables are supported in all models, providing increased reading accuracy. Accessing the powerful extended programming mode is as easy as pressing a single button. The standard communications interface is 4…20 mA and total pulse, while the advanced model adds two control alarms and Modbus RTU over RS485 connectivity.

APPLICATIONS

Due to the rugged nature of most flow measurement technologies, the ER-500 display can be used in a number of applications where conventional monitors are not acceptable. Whether the liquid being measured is very viscous or highly corrosive, ER-500 display can handle it. The ER-500 display is designed for a variety of applications including petroleum based fluid measurement, and any other liquid compatible with the flow sensor monitored by the ER-500 display.

- Chemical
- Petrochemical
- Water and wastewater
- Oil and gas
- Food and beverage
- Pulp and paper
- Paints and coatings
- Printing



FEATURES

- Compact size.
- High accuracy and repeatability.
- Rated for installation in Class I, Div 1 hazardous areas.
- Flexibility of installation options.
- Robust alarm parameters provide faster warning when something changes in the process or pipeline.
- Greater control, greater visibility of batch operations.
- Advanced connectivity options allow you to connect meters to your network for remote monitoring and process automation capabilities.
- Flexible power options include battery and 4-20mA loop power, providing a number of benefits including:
  - The ability to install in remote location and be up and running immediately.
  - Maintains readings and settings in the event of a power loss, and prolong the life of the batteries for up to 6 years.
- An updated display and enhanced totalization options provide more flow information at your fingertips, including display of rate and total at the same time and standard, batch and grand totals.

Product Data Sheet

SPECIFICATIONS

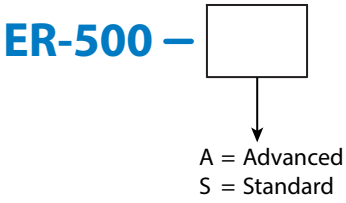
LCD	Simultaneously shows Rate and Total 5 x 7 Dot matrix LCD, STN fluid 6 Digit rate, 0.5 inch (12.7 mm) numeric 7 Digit total, 0.5 inch (12.7 mm) numeric Engineering unit labels 0.34 inch (8.6 mm)			
Annunciators	Alarm 1(🔔), Alarm 2 (🔔), Battery Level (▯▯▯▯), RS485 Communications (COM)			
Power	Battery	3.6V DC lithium "D Cell" gives up to 6 years of service life		
	Loop	4…20 mA, two wire, 25 mA limit, reverse polarity protected, 7 V DC loop loss Auto switching between internal battery and external loop power; includes isolation between loop power and other I/O.		
Inputs	Magnetic Pickup	Frequency Range	1…3500 Hz	
		Frequency Accuracy	±0.1%	
		Over Voltage Protection	28V DC	
		Trigger Sensitivity	30 mVp-p (High) or 60 mVp-p (Low) - (selected by circuit board jumper)	
	Amplified Pulse	Direct connection to amplified signal (pre-amp output from sensor)		
Outputs	Analog 4…20 mA	4…20 mA, two-wire current loop 25 mA current limit		
	Totalizing Pulse	One pulse for each Least Significant Digit (LSD) increment of the totalizer		
		Pulse Type	Opto-isolated (Iso) open collector transistor Non-isolated open drain FET	(selected by circuit board jumper)
		Maximum Voltage	28V DC	
		Maximum Current Capacity	100 mA	
		Maximum Output Frequency	16 Hz	
		Pulse Width	30 mS fixed	
	Status Alarms (Advanced Only)	Type	Open collector transistor Adjustable flow rate with programmable dead band and phase.	
		Maximum Voltage	28V DC	
		Maximum Current	100 mA	
		Pull-Up Resistor:	External required (2.2 K Ohm minimum, 10 K Ohm maximum)	
	Modbus (Advanced Only)	Modbus RTU over RS485, 127 addressable units / 2-wire network, 9600 baud, long integer and single precision IEEE754 formats; retrieve: flow rate, job totalizer, grand totalizer, alarm status and battery level; write: reset job totalizer, reset grand totalizer		
	Data Configuration and Protection	Two 4-digit user selectable passwords; level one password enables Job Total reset only, level two password enables all configuration and totalizer reset functions (Not Applicable on solar powered units)		
Safety Certifications	Class I Division 1, Groups C, D; Class II, Division 1 Groups E, F, G; Class III for US and Canada. Complies with UL 913 and CSA C22.2 No. 157-92			

Entity Parameters

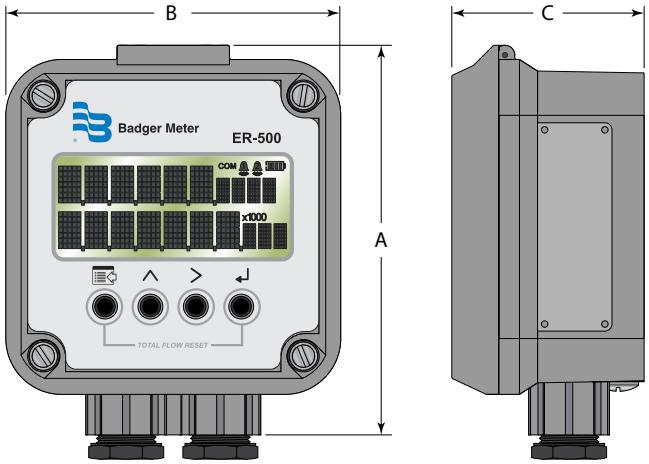
4…20mA Loop	V_{max} = 28V DC	I_{max} = 26 mA	C_i = 0.5 µF	L_i = 0 mH
Pulse Output	V_{max} = 28V DC	I_{max} = 100 mA	C_i = 0 µF	L_i = 0 mH
Reset Input	V_{max} = 5V DC	I_{max} = 5 mA	C_i = 0 µF	L_i = 0 mH
RS485	V_{max} = 10V DC	I_{max} = 60 mA	C_i = 0 µF	L_i = 0 mH
Sensor Input	V_{oc} = 2.5 V	I_{sc} = 1.8 mA	C = 1.5 µF	L_a = 1.65 H

EMC	2004/108/EC
Accuracy	0.05%
Response Time	1…100 seconds response to a step change input, user adjustable
Environmental Limits	–22…158° F (–30…70° C); 0…90% humidity, non-condensing;
Materials	Polycarbonate, stainless steel, polyurethane, thermoplastic elastomer, acrylic
Enclosure Ratings	NEMA 4X/IP 66

MODEL NUMBER CONSTRUCTION



DIMENSIONS



A	B	C
5.0 in. (127.0 mm)	4.5 in. (114.3 mm)	2.6 (66.0 mm)

Control. Manage. Optimize.

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