EMV 1025S-0 1

Single Hole Mounting Meter

EMV 1025S-0 1 is an easy to mount LCD digital voltmeter. It features 200mV full scale reading, auto-zero and auto-polarity. Installation time is greatly reduced with only 3 wires to connect. The user need only drill a single 5.5mm / $^{7}/_{32}$" hole in the panel. The module is fitted to the panel by locating its screw threaded stud through the hole, adding the washer and tightening the nut provided. The module's connections pass through the hollow stud into the target application. A rubber seal is included, providing splashproof protection for the unit when fitted to the meter during installation.
This datasheet also refers to OEM variants, referred to as EMV 1025S-X X, where X X refers to the factory-configured scaling and decimal configuration options.

- Single Hole Mounting
- 12.5mm / 0.5" LCD Digit Height
- 200mV Full Scale Reading
- 3-Wire Connection
- Auto-zero, Auto-polarity
- Low Battery Warning
- Splashproof



Shown Actual Size

Specifications	Min.	Typ.	Max.	Unit
Accuracy (overall error)*		0.1		% (±2 counts)
Linearity			±1	count
Displayed reading	-1999		1999	
Resolution		0.1		mV d.c.
Sample rate		3		sample/sec
Operating temperature range	0		50	°C
Temperature stability [1]		100		ppm/°C
Supply voltage	3.5	5	7.0	V d.c.
Supply current		250		µA

* To ensure maximum accuracy, recalibrate periodically.

Unless otherwise noted, specifications apply at T_A=25°C, V_{supply}=5Vd.c. (f_{clock}=48kHz) and are tested with the module configured for fully floating input mode.

Stock Numbers*

EMV 1025S-X X

Range	Decimal Point
0=200mV	0=NO DP
1=2V	1=DP1
2=20V	2=DP2
3=200V**	3=DP3

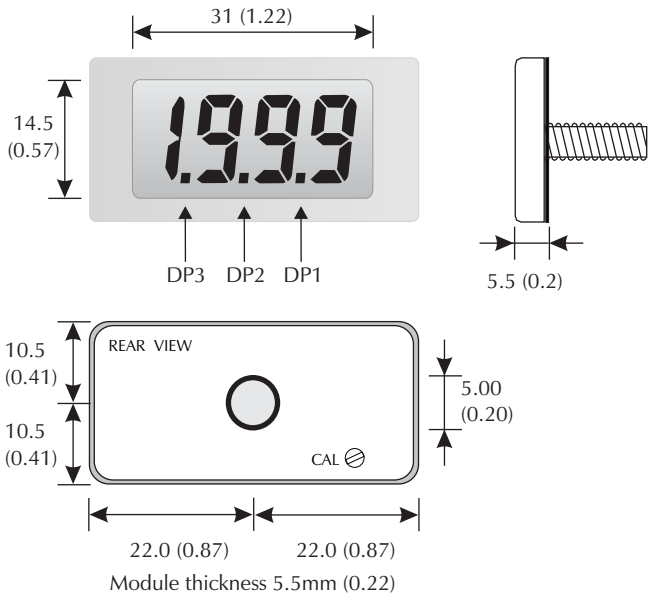
e.g.: EMV 1025S-1 3 2Vd.c. full scale, DP3 displayed (1.999)

For modules manufactured to your scaling requirements, contact Lascar direct.*

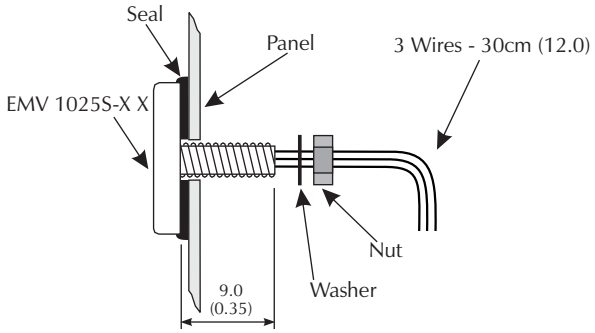
* Minimum order quanitity of 50 pcs. applies.

** Maximum allowable input voltage is 60Vd.c.

DIMENSIONS All dimensions in mm (inches)



Module thickness 5.5mm (0.22)



FITTING THE EMV 1025S-0 1

Drill a 5.5mm / $^{7}/_{32}$" hole in the panel. Fit seal to the rear of the module. Fit the module to the panel by passing its screw threaded stud through the hole, fitting the washer and tightening the nut provided. Do not to overtighten the nut as this may damage the meter.

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TERMINAL FUNCTIONS

1. Red V+ Positive power supply connection.
2. Black GND Negative power supply connection.
3. Yellow IN HI Positive measuring input with reference to GND.

SAFETY

To comply with the Low Voltage Directive (LVD 93/68/EEC), input voltages to the module's pins must not exceed 60Vdc. The user must ensure that the incorporation of the unit into the user's equipment conforms to the relevant sections of BS EN 61010 (Safety Requirements for Electrical Equipment for Measuring, Control and Laboratory Use).

VOLTAGE SCALING

Two resistors Ra and Rb may be added in order to alter the full scale reading (FSR) of the meter - see table and diagrams below. The meter may be re-calibrated by adjusting the calibration potentiometer at the rear of the module.

Required V_{FSR}	Ra	Rb
2V*	910kΩ	100kΩ
20V*	1MΩ	10kΩ
200V*	1MΩ	1kΩ

* Subject to a minimum order quantity of 50 pcs., pre-scaled modules are available from Lascar. See stock number table on the front of this datasheet. Customer-specific scaling options may also be available on request. Contact Lascar sales office for details.

CURRENT SCALING

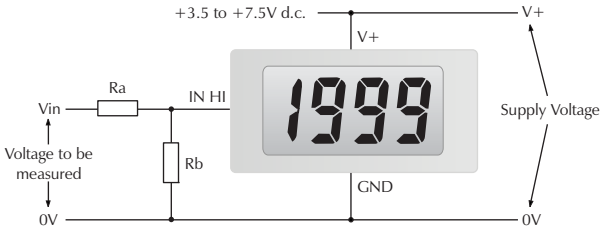
A current shunt Rs may be added in order to alter the full scale reading (FSR) of the meter - see table and diagrams below. The meter may be re-calibrated by adjusting the calibration potentiometer at the rear of the module.

Required I_{FSR}	Rs	P (Power Rating)
200uA	1kΩ	0.04mW
2mA	100Ω	0.4mW
20mA	10Ω	4mW
200mA	1Ω	40mW
2A	100mΩ**	400mW
20A	10mΩ**	4W
200A	1mΩ	40W

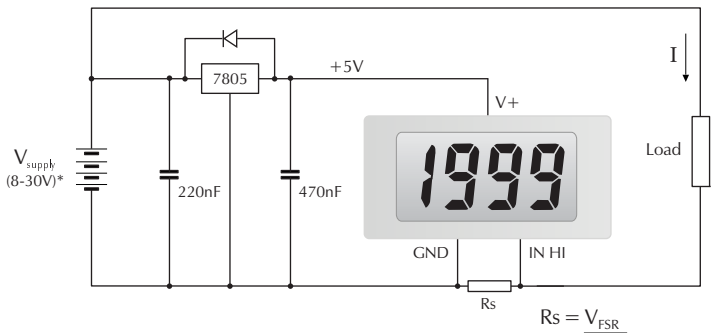
** We recommend that purpose made shunts are used for these ranges.

APPLICATIONS

Do not connect more than one meter to the same power supply if the meters cannot use the same signal ground. Do not connect IN HI to a voltage greater than (V+ - 1V)or to a voltage lower than (-(V+) + 1V) if the meter is unscaled, as this may damage the meter. Keep leads short to ensure noise-free operation. To maximise measurement accuracy, use high precision (1%), low temperature drift (50ppm/°C or better) scaling resistors (Ra, Rb and Rs).

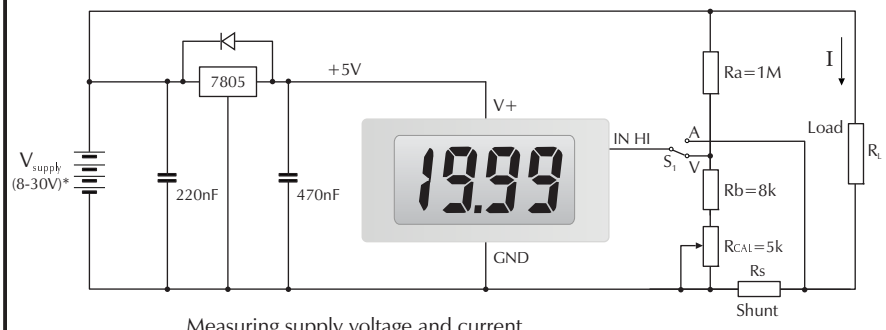


Measuring a single ended input referenced to supply.



Measuring current.

$$Rs = \frac{V_{FSR}}{I_{FSR}}$$



Measuring supply voltage and current.

The module shown is an EMV 1025S-0 2

S_1 selects between voltage and current measurement

Voltage: Ra, Rb and Rcal scale the module for $20V_{FSR}$

Current: $Rs = \frac{200mV}{I_{FSR}}$ (e.g. 10mΩ / 4W for I_{FSR}=20A)

Calibration:
First calibrate the current range, by adjusting the meter's own calibration potentiometer. Then calibrate the voltage range, by adjusting the RCAL potentiometer.

* Consult 7805 voltage regulator manufacturer's datasheet for minimum and maximum allowable input voltage ratings.