

**3½ DIGIT LCD VOLTMETER MODULE****Splashproof***35,1x22,4 mm***FEATURES**

- \* 9.75mm (0.38") LCD DIGIT HEIGHT
- \*  $\pm 200\text{mV}$  D.C. FULL SCALE READING
- \*  $350\mu\text{A}$  @  $+5\text{V}\pm 5\%$  D.C. POWER SUPPLY
- \* PROGRAMMABLE DECIMAL POINTS
- \* LED BACKLIGHTING
- \* LOW BATTERY WARNING
- \* DISPLAY BLANKING FACILITY
- \* SPLASH PROOF
- \* AUTO-ZERO AND AUTO-POLARITY

**ORDERING INFORMATION**

3½-ST. DVM MODULE, 5V, 2x6 PIN, LCD WITH BACKLIGHT

**EA 4035-200S**

**ELECTRONIC  
ASSEMBLY** GM  
BH

LOCHHAMER SCHLAG 17 · D- 82 166 GRÄFELFING  
TEL +49-89-8541991 · FAX +49-89-8541721 · <http://www.lcd-module.de>

# EA 4035-200S

## ELECTRONIC ASSEMBLY

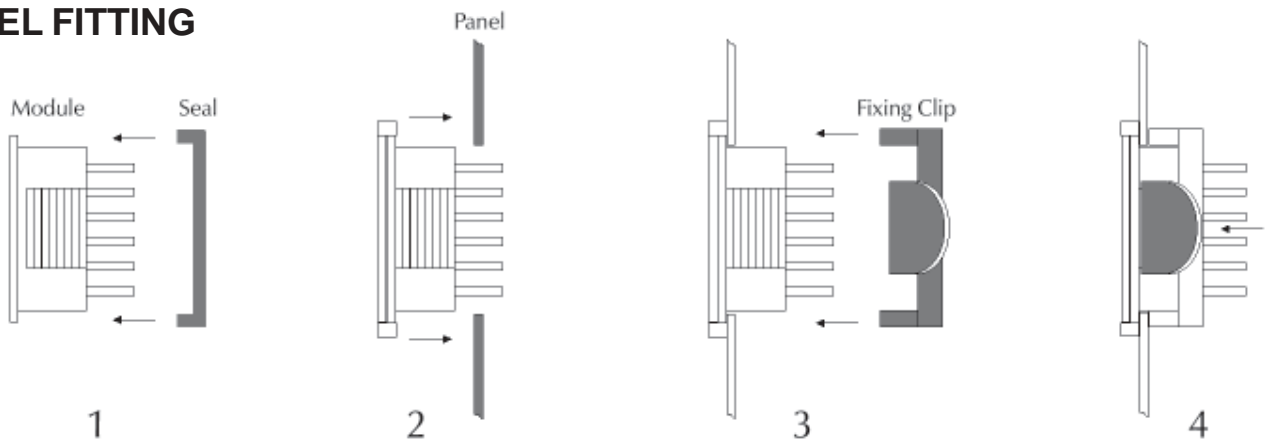
### PRODUCT DESCRIPTION

The EA 4035-100S features a 200mV d.c. measurement range with auto-zero and auto-polarity. Decimal points are user selectable. The EA 4035-200S features a negative rail generator which enables the meter to measure a signal referenced to its own power supply 0V. The bright red LED display ensures excellent readability under low light conditions. It can be blanked in applications requiring low power operation. The module is easily fitted into the panel, using the fixing clip provided. The module's low cost means it will suit high and low volume applications. The design of the panel meter's housing and seal ensures splash proofing in many applications.

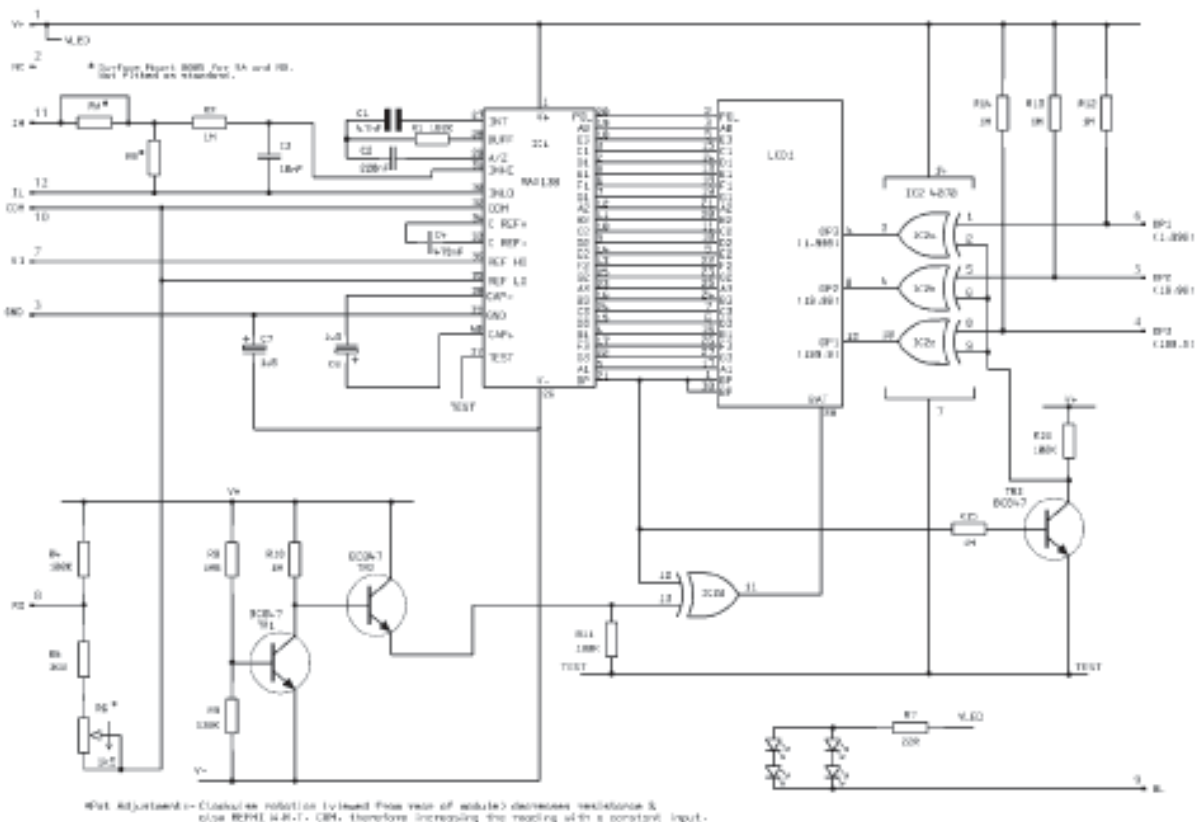
### SAFETY

To comply with the Low Voltage Directive (LVD93/68/EEC), input voltages to the module's pins must not exceed 60Vdc. The user must ensure that the incorporation of the panel meter 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).

### PANEL FITTING



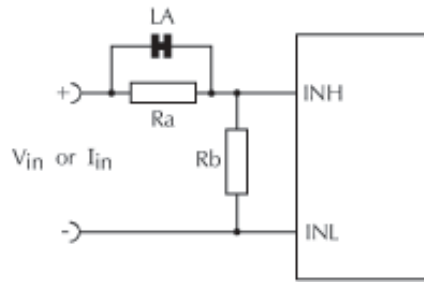
### CIRCUIT DIAGRAM



## ELECTRONIC ASSEMBLY

### SCALING

Two resistors Ra and Rb may be used to alter the full scale reading (FSR) of the meter - see table. The meter will have to be recalibrated by adjusting the calibration potentiometer on the rear of the module.

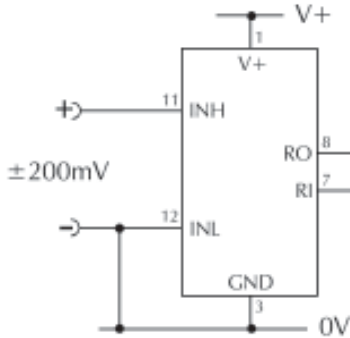


	FSR	Ra	Rb
Voltage Vin	2V	910k**	100k
	20V	1M**	10k
	200V	1M**	1k
	2000V*	1M**	100R
Current Iin	200uA	0R	1k
	2mA	0R	100R
	20mA	0R	10R
	200mA	0R	1R

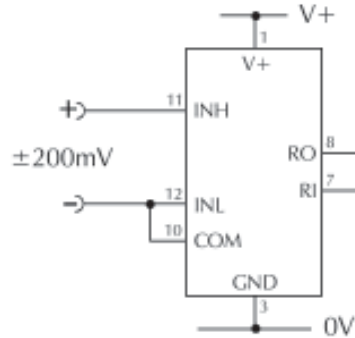
\* Ensure that Ra is rated for high voltage use.  
\*\* Ensure solder link LA is cut.

### APPLICATIONS

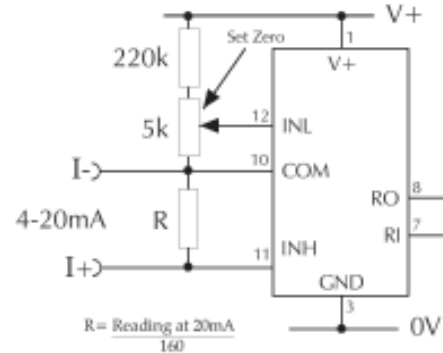
Do not connect more than one meter to the same power supply if the meters cannot use the same signal ground. Taking any input beyond the power supply rails will damage the meter.



Measuring an input voltage referenced to a floating supply, i.e. the input voltage and the meter's power supply are isolated from each other.

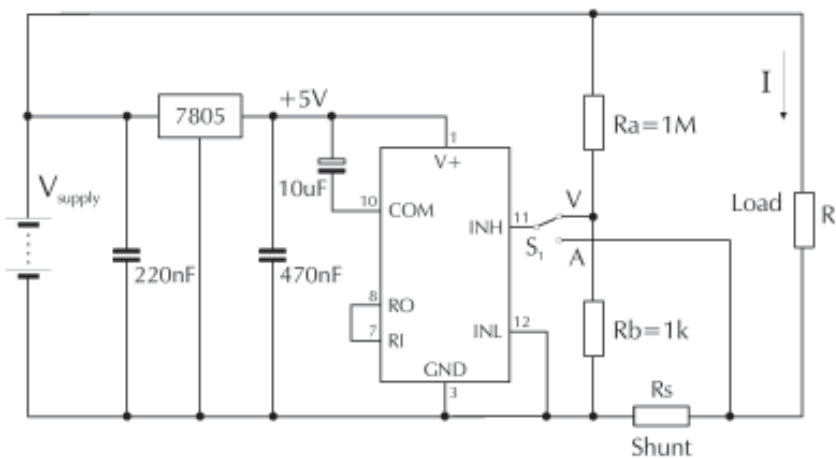


Measuring a single ended input voltage referenced to supply, i.e. the input voltage and the meter's power supply share the same 0V rail.



Measuring a 4-20mA loop current. The meter's power supply must be isolated from the 4-20mA current loop.

$$R = \frac{\text{Reading at 20mA}}{160}$$



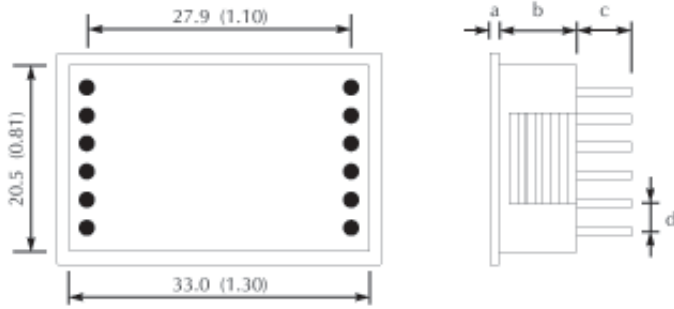
Measuring supply voltage and current to a load.  
S<sub>1</sub> selects between voltage and current measurement.  
Ra and Rb shown scaled for 200V<sub>FSR</sub>

$$R_s = \frac{200mV}{I_{FSR}} \quad (\text{e.g. } 0.1\Omega/400mW \text{ for } 2A \text{ full scale})$$

Display DP1, DP2 or DP3, by connecting to 0V, as required.

# EA 4035-200S

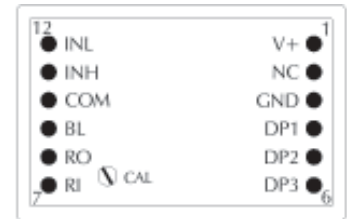
## DIMENSION



all Dimensions are in mm (inch)  
Panel Cutout 34x21,3 mm

a. 0.75 (0.03)  
b. 10.00 (0.39)  
c. 6.00 (0.24)  
d. 2.54 (0.10)

## PINOUT



## PIN FUNCTION

PIN FUNCTION		
Pin	Symbol	Function
1	V+	Positive power supply to the meter and LED backlighting.
2	NC	Not connected.
3	0V	0V power supply connection to the meter.
4	DP1	Connect to 0V to display DP1 (199.9).
5	DP2	Connect to 0V to display DP2 (19.99).
6	DP3	Connect to 0V to display DP3 (1.999).
7	RI	Reference voltage input for the meter's A/D converter.
8	RO	Precision reference voltage output. Connect to RI for normal operation.
9	BL	Connect to GND to switch on the LED backlighting
10	COM	Ground for analogue section of A/D converter. It is actively held at 3.05V (nom) below V+ and must not be allowed to sink excessive current (>100uA) by, for instance, connecting to a higher voltage.
11	INH	Positive measuring input.
12	INL	Negative measuring input.

Note:

A negative supply is generated internally and mirrors the positive supply. For example: if V+ is +5V, then the internally generated V- is -5V. When measuring with the input referenced to the same supply rail as that of the panel meter, then the limitations on the input range are (V- +1.5V) to (V+ - 1.5V).

## ELECTRICAL SPECIFICATIONS

Specification	Min.	Typ.	Max.	Unit
Accuracy (overall error) *		0.1		%(±1 count)
Linearity			±1	count
Sample rate		2.5		samples/sec
Operating temperature range	0		50	°C
Temperature stability		100		ppm/°C
Supply voltage	3.5	5	5.25	V
Supply current		350		µA
Backlight Current @5V d.c.		40	80	mA
Input leakage current (Vin = 0V)		1	10	pA

## BLOCK DIAGRAM

