

# SGD 28-M

## PanelPilot Compatible Smart Graphics Display

### FEATURES

- 2.8" colour TFT screen
- Use PanelPilot software, to setup and customise the display. Compatible with Windows XP, 2000, Vista and 7
- Multiple voltmeter configurations included free
- Option to download other types of meter from the PanelPilot subscription service
- Programmable via the USB interface
- Simple panel mounting solution
- Wide operating voltage of 4V – 30V d.c.
- Measures voltage from 0 – 40V d.c.

The SGD 28-M is a PanelPilot Compatible graphics display with a 320 x 240 pixel (QVGA) colour display and USB programming interface.

Using the PanelPilot software (available for Windows XP, 2000, Vista and 7), users are able to choose from an ever-increasing number of configurations (six voltmeters at launch) which can then be customised to their needs. The additional voltmeter types and other functions are available using an annual subscription based service through [www.PanelPilot.com](http://www.PanelPilot.com).

Colours, text labels, splash screen and input voltage scaling can all be customised by the user through the software and then uploaded to the SGD 28-M through the USB connection.

Panel or enclosure installation of the display is simple, using a panel fixing clip to mount the display, and 4 screw terminals to connect the inputs.

### SPECIFICATIONS

	Minimum	Typical	Maximum	Unit
Accuracy		0.05	0.1	%
Linearity			±1*	Count
Sample rate		3		Samples / second
Operating temperature range	0 (+32)		+40 (+104)	°C (°F)
Supply voltage	4		30	V d.c.
Measurement voltage (single ended only)**	0		40	V d.c.
Supply current ***	35		190	mA

\* Depending on user calibration settings

\*\* The SGD 28-M uses a programmable gain amplifier. There are 8 different voltage ranges, to optimise the resolution. See page 2 for details.

\*\*\* Voltage dependent. See graph on Page 2.

### ORDERING INFORMATION

Standard Display (Panel meter, fixing kit, quick start guide) SGD 28-M

USB Cable (Type A to mini-B) CABLE USB A-MF



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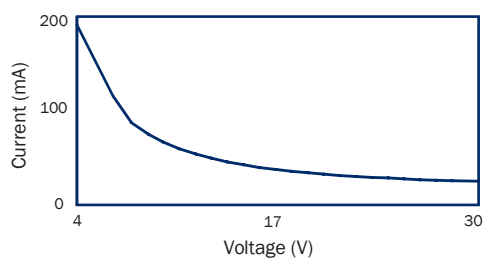
### HARDWARE

#### Screw Terminal Functions

- |   |     |  |
|---|-----|--|
| 1 | IN2 | Analogue voltage input 2 (maximum of 40V d.c.) |
| 2 | IN1 | Analogue voltage input 1 (maximum of 40V d.c.) |
| 3 | 0V  | 0V power supply input                          |
| 4 | V+  | Positive power supply input (4V – 30V d.c.)    |



#### Typical Supply Current



#### Voltage Input

The SGD 28-M features 2 voltage inputs, which use a Programmable Gain Amplifier (PGA) to make the best use of available resolution (the smallest voltage range offers the highest resolution). Each channel can be programmed independently, with the option of eight different input voltage ranges:

Voltage Range (V)	Resolution (mV)
0 - 1.25	0.3
0 - 2.5	0.6
0 - 4	1.0
0 - 5	1.2
0 - 8	2.0
0 - 10	2.4
0 - 20	4.9
0 - 40	9.8

The input voltage range is decided using the two voltages that the user enters in the scaling section of the Panel Pilot software. The software uses the smallest range available, which can accommodate both of the voltages entered by the user. The absolute maximum voltage input is 40V d.c.

For example:

Entering a voltage scale of 0 – 30V in the software will use the 0 – 40V range.  
Entering a voltage scale of 0 – 3V in the software will use the 0 – 4V range.  
Entering a voltage scale of 5 – 15V in the software will use the 0 – 20V range.

Note: V+, IN1 and IN2 share a common ground (i.e. not floating or isolated from each other).

#### USB connection

A 'Type A to Mini-B' USB cable is required to program and customise the SGD 28-M. It typically takes 10 seconds to send a configuration, with an additional 5 seconds needed for the hardware to reset.

The SGD 28-M can be powered directly from USB and is compatible with both USB 1.1 and USB 2.0. The screw terminals and advanced connector can remain connected whilst using USB, but it is not necessary for V+ to be powered.



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### PANELPILOT SOFTWARE

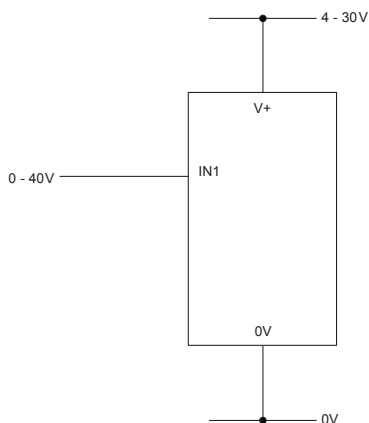
Lascar's PanelPilot software is available for download free of charge from [www.PanelPilot.com](http://www.PanelPilot.com). Easy to install and use, the control software runs under Windows 2000, XP, Vista and 7. The software is used to setup the appearance and operation of the meter and then upload these settings to the meter.

Multiple types of voltmeter are supplied with the software. Additional voltmeters and functions will be made available using an annual subscription based service through [www.PanelPilot.com](http://www.PanelPilot.com). See the website for details of available meters.

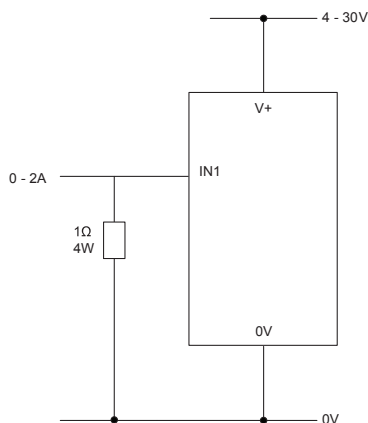
The software allows the following parameters to be configured:

- Meter type
- Text labels (including units and graph labels)
- Background, graph segment and text colors
- Input scaling / calibration (at two points)
- Decimal points (entered during scaling)
- Splashscreen image selection (to display a user image, such as a logo, when the meter is powered up)

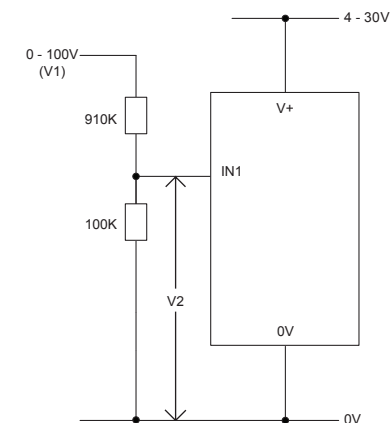
### VARIOUS OPERATING MODES



Measuring a voltage source



Measuring 0 - 2 amps current range.  
Use a 1  $\Omega$  resistor, with a 4W rating.  
Setup scaling in software: 0V = 0.00 and 2V = 2.00



Measuring 0 - 100V (d.c. only).  
Input a known voltage of between 0 and 100V (V1)  
Measure the voltage between IN1 and 0V (V2)  
Setup scaling in software: 0V = 0.0  
V2 = V1 (Enter with the same number of decimal points,  
i.e 50.0)