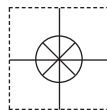


1 YEAR
WARRANTY



Ω OMEGA® **User's Guide**

Shop online at
omega.com®

e-mail: info@omega.com
For latest product manuals:
www.omegamanual.info



OM-SGD-24-M-420

Current Loop Indicator Smart Graphics Display



omega.com info@omega.com

Servicing North America:

U.S.A.:

Omega Engineering, Inc., One Omega Drive, P.O. Box 4047
Stamford, CT 06907-0047 USA

Toll-Free: 1-800-826-6342 (USA & Canada only)

Customer Service: 1-800-622-2378 (USA & Canada only)

Engineering Service: 1-800-872-9436 (USA & Canada only)

Tel: (203) 359-1660

Fax: (203) 359-7700

e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

OM-SGD-24-M-420

Current Loop Indicator Smart Graphics Display

ORDERING INFORMATION

Standard Display OM-SGD-24-M-420
(Panel meter, fixing kit,
quick start guide)

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

FEATURES

- 2.4" color TFT screen
- Use PanelPilot software, to setup and customize the display
- Compatible with Windows XP, Vista, 7 and 8
- Over 40 meter templates to choose from
- New templates automatically download in PanelPilot software
- Programmable via the USB interface
- Simple panel mounting solution
- Wide operating voltage of 4V – 30V d.c.
- Measures current from 4-20mA



The OM-SGD-24-M-420 is a smart graphics display with a 320 x 240 pixel (QVGA) color display and USB programming interface.

Using the PanelPilot software (available for Windows XP, Vista, 7 and 8), users are able to choose from an ever-increasing number of configurations which can then be customised to their needs.

Colors, text labels, splash screen and input scaling can all be customised by the user through the software and then uploaded to the OM-SGD-24-M-420 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.

Note: Requires fully floating PSU with respect to current loop

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.
Supply current **	35		190	mA
Measurement range	0	4-20	50	mA
Loop volt drop	0	0.4-2.0	5.0	V

* Depending on user calibration settings

** Voltage dependent. See graph on Page 2.

www.omega.com

OM-SGD-24-M-420

Current Loop Indicator Smart Graphics Display

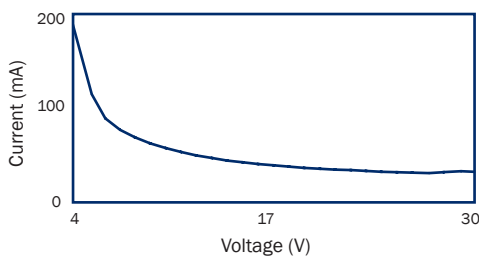
HARDWARE

Screw Terminal Functions

- | | | |
|---|----|---|
| 1 | NC | Do not connect |
| 2 | I+ | Positive connection from current loop |
| 3 | I- | Negative connection to current loop, and 0V power supply return |
| 4 | V+ | Positive power supply connection (4V – 30V d.c.) |



Typical Supply Current



USB connection

A 'Type A to Mini-B' USB cable is required to program and customise the OM-SGD-24-M-420. It typically takes 10 seconds to send a configuration, with an additional 5 seconds needed for the hardware to reset.

The OM-SGD-24-M-420 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.

A USB power supply is available - OM-EL-WIFI-ADAPTOR-UK (UK plug format) or OM-EL-WIFI-ADAPTOR (USA plug format). This may be used as a convenient means to provide a fully floating power supply for the loop indicator.

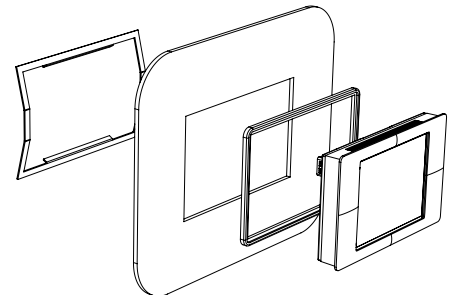
Display

The display is a 2.4" TFT panel, with a resolution of 320 x 240 pixels and a 16-bit color depth. Any graphics that are uploaded to the meter are automatically converted to this specification. A resistive touchscreen is fitted, for use with supporting applications. Clean the screen with a damp, soft, lint free cloth.

Panel Mounting

The OM-SGD-24-M-420 can be fitted into panels of up to 3mm deep. A silicone seal is included to improve fitting on thin panels, however the maximum panel thickness is reduced to 2mm when fitted. Panel cut-out is 74 x 46mm.

NOTE: The display is NOT protected against moisture or dust.

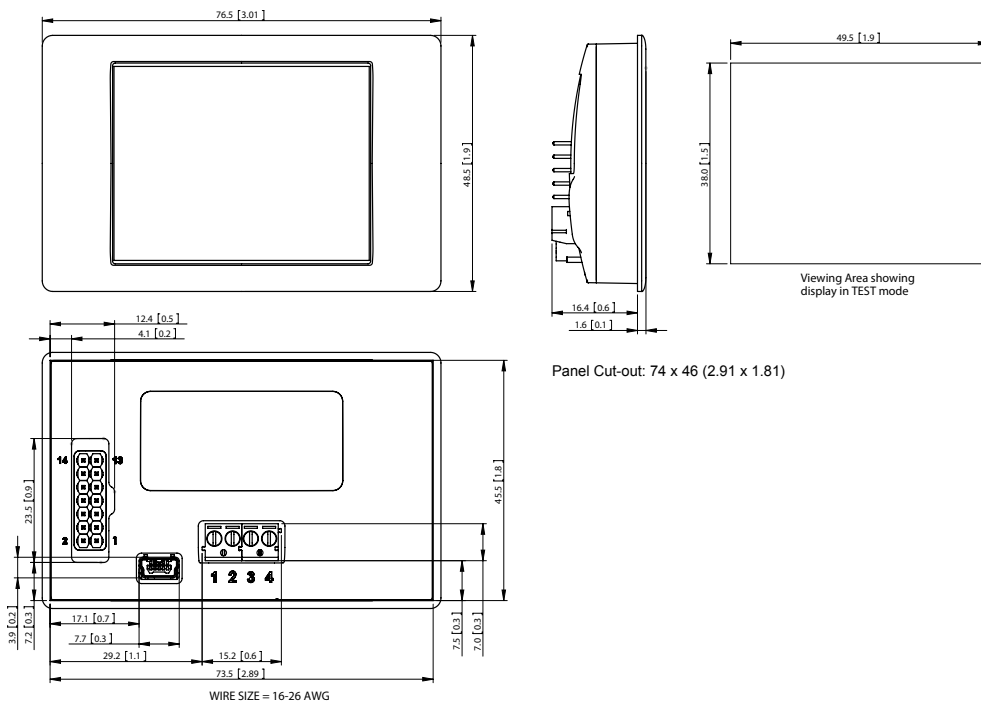


OM-SGD-24-M-420

Current Loop Indicator Smart Graphics Display

DIMENSIONS

All dimensions in mm (inches)



PANELPILOT SOFTWARE

Omega's PanelPilot software is available for download free of charge from www.omega.com. Easy to install and use, the control software runs under Windows XP, Vista, 7 and 8. The software is used to setup the appearance and operation of the meter and then upload these settings to the meter.

Multiple types of meter are supplied with the software. Additional types will be made available to download - see www.omega.com for details of available meters.

N.B. Do not select any dual channel meters - as these are incompatible with current loop monitoring.

The software allows the following parameters to be configured:

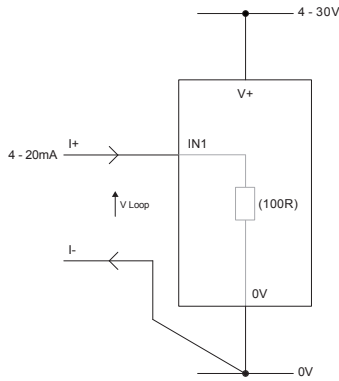
- Meter type
- Text labels (including units and graph labels)
- Background, graph segment and text colors
- Decimal points (entered during scaling)
- Splashscreen image selection (to display a user image, such as a logo, when the meter is powered up)
- Input scaling / calibration (at two points) - fixed for 4-20mA applications

www.omega.com

OM-SGD-24-M-420

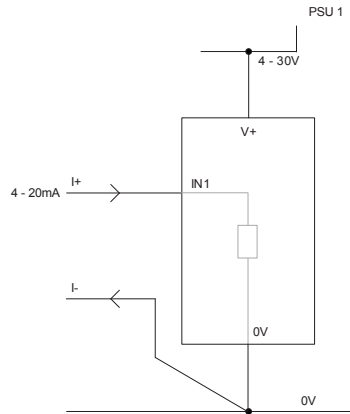
Current Loop Indicator Smart Graphics Display

VARIOUS OPERATING MODES



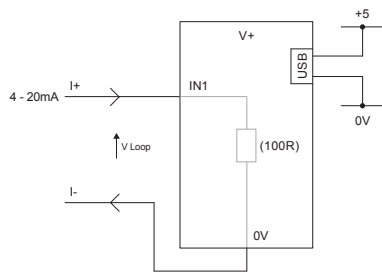
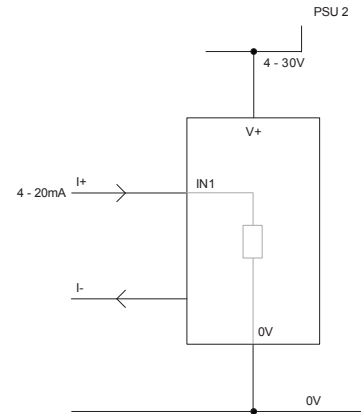
MEASURING 4-20mA

Power supply to meter must be fully floating (isolated from the 4-20mA current loop)

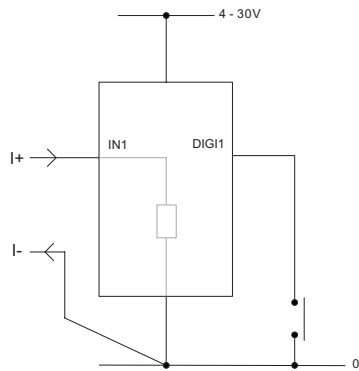


USING TWO SGD DISPLAYS IN SAME INSTALLATION

Each OM-SGD must be powered from a separate, fully floating, power supply

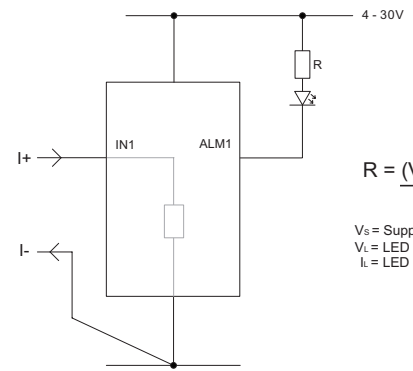


MEASURING 4-20mA USING A USB POWER SUPPLY



DIGITAL HOLD

DIGI1 will hold the display



ALARM OUTPUT

Applications that feature an alarm can be connected as above. ALM1 must not sink more than 10mA maximum each. If supply voltage varies, use an appropriate voltage regulator.

$$R = \frac{(V_s - V_L)}{I_L}$$

V_s = Supply voltage
 V_L = LED Voltage drop
 I_L = LED current

OM-SGD-24-M-420

Current Loop Indicator Smart Graphics Display

CURRENT LOOP

Internally the OM-SGD-24-M-420 uses a Programmable Gain Amplifier (PGA) to make the best use of available resolution (theoretically there are eight different ranges available to the OM-SGD. However for the 4-20mA application, this is effectively restricted to the 0-2.5 range.

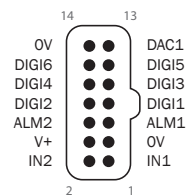
Voltage Range (V)	Resolution (mV)
0 - 1.25	0.3
0 - 2.5	0.6 (4-20mA)
0 - 4	1.0
0 - 5	1.2
0 - 8	2.0
0 - 10	2.4
0 - 20	4.9
0 - 40	9.8

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.

Note: I+ and I- share a common ground (i.e. not floating or isolated from each other).

ADVANCED CONNECTOR

The DIL IDC socket provides an alternative connection method to the screw-terminals (V+, OV, IN1 and IN2 are duplicated). It also includes provision for future expansion using data buses (SPI and I2C) and alarm outputs. Some expansion options may require an additional interface board - Visit www.omega.com for information on which features are currently supported.



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 2014 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.

Where Do I Find Everything I Need for Process Measurement and Control? **OMEGA...Of Course!** *Shop online at omega.comSM*

TEMPERATURE

- ☑ Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- ☑ Wire: Thermocouple, RTD & Thermistor
- ☑ Calibrators & Ice Point References
- ☑ Recorders, Controllers & Process Monitors
- ☑ Infrared Pyrometers

PRESSURE, STRAIN AND FORCE

- ☑ Transducers & Strain Gages
- ☑ Load Cells & Pressure Gages
- ☑ Displacement Transducers
- ☑ Instrumentation & Accessories

FLOW/LEVEL

- ☑ Rotameters, Gas Mass Flowmeters & Flow Computers
- ☑ Air Velocity Indicators
- ☑ Turbine/Paddlewheel Systems
- ☑ Totalizers & Batch Controllers

pH/CONDUCTIVITY

- ☑ pH Electrodes, Testers & Accessories
- ☑ Benchtop/Laboratory Meters
- ☑ Controllers, Calibrators, Simulators & Pumps
- ☑ Industrial pH & Conductivity Equipment

DATA ACQUISITION

- ☑ Data Acquisition & Engineering Software
- ☑ Communications-Based Acquisition Systems
- ☑ Plug-in Cards for Apple, IBM & Compatibles
- ☑ Data Logging Systems
- ☑ Recorders, Printers & Plotters

HEATERS

- ☑ Heating Cable
- ☑ Cartridge & Strip Heaters
- ☑ Immersion & Band Heaters
- ☑ Flexible Heaters
- ☑ Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

- ☑ Metering & Control Instrumentation
- ☑ Refractometers
- ☑ Pumps & Tubing
- ☑ Air, Soil & Water Monitors
- ☑ Industrial Water & Wastewater Treatment
- ☑ pH, Conductivity & Dissolved Oxygen Instruments