



OMRON

*H-T40M-P*  
*Status Display Touchscreen*

***Installation and Operating Manual***

# ***H-T40M-P Installation & User Manual***

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# 1 IMPORTANT MESSAGE

# 1

Please read the entire installation manual prior to installing and using this equipment. Only qualified personnel may install, operate or repair this equipment. Omron Scientific Technologies Inc. is not responsible for modified, altered or renovated equipment. Because the equipment has a wide range of applications, users must acquire the appropriate knowledge to use the equipment properly in their specific applications. Persons responsible for the application and the equipment must themselves ensure that each application is in compliance with all relevant requirements, standards and legislation in respect to configuration and safety. Only parts and accessories manufactured according to the specifications set by Omron Scientific Technologies Inc. may be used.

OMRON Scientific Technologies Inc. shall not be liable to anyone for any direct, indirect, special, incidental or consequential damages resulting from the installation, use or repair of this equipment, whether arising in tort, contract, or otherwise. Buyer's sole remedy shall be the replacement, or refund of purchase price, and the choice of the applicable remedy shall be at the sole discretion of OMRON Scientific Technologies Inc.

## 2 INTRODUCTION

# 2

H-T40M-P is a status display touchscreen with a 3.3" STN Liquid Crystal Display, and is water- and dust-resistant according to IP65/NEMA 4X (indoor use only.)

H-T40M-P is CE-marked and is highly transient-resistant while in operation.

Also, its compact design makes connections with other machinery more flexible, thus achieving the optimal performance for machines.

## 3 SAFETY PRECAUTIONS

# 3

Both the installer and the owner and/or operator of the status display touchscreen must read and understand this installation manual.

### 3.1. GENERAL

- Only qualified personnel may install or operate the status display touchscreen
- The status display touchscreen must be installed according to the installation instructions.
- The status display touchscreen is designed for stationary installation on a plane surface, where the following conditions are fulfilled:
  - no high explosive risks
  - no strong magnetic fields
  - no direct sunlight
  - no large, sudden temperature changes
  - for use in Pollution Degree 2 Environment
  - for use on the flat surface of Types 1 and 4X (indoor use only) enclosures
- Never allow fluids, metal filings or wiring debris to enter any openings in the status display touchscreen. This may cause fire or electrical shock.
- The status display touchscreen fulfills the requirements of EMC directive 2004/108/EC.

- Storing the status display touchscreen where the temperature is lower or higher than recommended in this manual can cause the LCD display liquid to congeal or become isotopic.
- The LCD display liquid contains a powerful irritant. In case of skin contact, wash immediately with plenty of water. In case of eye contact, hold the eye open, flush with plenty of water and get medical attention.
- The supplier is not responsible for modified, altered or reconstructed equipment.
- Use only parts and accessories manufactured according to specifications of the supplier.
- Peripheral equipment must be appropriate for the application and location.
- The figures in this manual serve an illustrative purpose. Because of the many variables associated with any particular installation, the supplier cannot assume responsibility for actual use based on the figures.
- The supplier neither guarantees that the status display touchscreen is suitable for a customer's particular application, nor assumes responsibility for a customer's product design, installation or operation.

### **3.2. POWER SOURCE**

The status display touchscreen is equipped with a 24VDC input. Supplying power other than 24VDC +/- 15% will severely damage the status display touchscreen. Thus, check the power supply supporting the DC power regularly.

### **3.3. GROUNDING**

Without grounding, the status display touchscreen may be severely affected by excess noise. Make sure that the grounding is done properly from the power connector at the rear side of the status display touchscreen. When power is connected, make sure that the wire is grounded.

Use a cable of at least 2mm<sup>2</sup> (AWG 14) to ground the status display touchscreen. Ground resistance must be less than 100 Ω (class 3). Note that the ground cable must not be connected to the same ground point as the power circuit.

### **3.4. INSTALLATION**

Communication cables must be separated from power cables for operational circuits. Only use shielded cables to avoid unpredictable problems.

### **3.5. DURING USE**

- Emergency stop and other safety functions may not be controlled from the status display touchscreen.
- Do not use too much force or sharp objects when touching the keys, display, etc.

### **3.6. SERVICE AND MAINTENANCE**

Only qualified personnel should carry out repairs.

- The agreed warranty applies.
- Before carrying out any cleaning or maintenance operations, disconnect the equipment from the electrical supply.
- Clean the display and surrounding front cover with a soft cloth and mild detergent.
- Replacing the battery incorrectly may result in explosion. Only use batteries recommend by supplier.

### **3.7. DISMANTLING AND SCRAPPING**

- The status display touchscreen or parts thereof shall be recycled according to local regulations.
- The following components contain substances that might be hazardous to health and the environment: lithium battery, electrolytic capacitor and display.

## **4 PACKAGE CONTENTS**

# 4

The following parts are found in the box:

- (1) Status Display Touchscreen H-T40M-P
- (4) Installation fasteners
- (1) Power connector (connected to 24VDC power input)
- (1) Communication cable from HMI status display touchscreen to G9SP

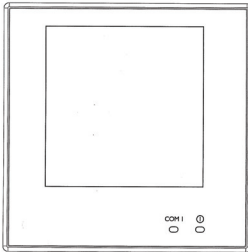


Figure 4-1 Status Display Touchscreen H-T40M-P

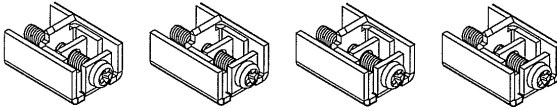


Figure 4-2 Installation Fasteners

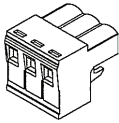


Figure 4-3 Power connector

# 5 SPECIFICATIONS

# 5

## 5.1. TECHNICAL SPECIFICATIONS

Parameter	H-T40M-P
Front panel W x H x D	96.0 x 96.0 x 7.0 mm
Mounting Depth	40.6 mm
Cut out dimensions	89.3 x 89.3 mm
Front panel seal	IP 65 / NEMA 4X (indoor use only)
Weight	0.21 kg
COM 1	9-pin female connector: RS232
Screen Size	3.3" diagonal
Display	Mono FSTN LCD, 16 shades of gray
Pixels	240 x240 pixels
Back light type	LED
Back light lifetime	10,000 hours
Touch screen operations	> 1,000,000
Active area of display W x H	58.5 x 58.5 mm
Brightness (cd/m <sup>2</sup> )	110
Processor	32 - bit RISC
Status LED	PWR, COM1
Storage temperature	-10 to +60 C
Relative operating humidity	20 - 90% RH
Vibration	0.5 displacement, 10-55Hz, 2 hours X-, Y-, Z-axis
Shock resistance	10G, 11ms 3 times in each direction of X-, Y-, Z-axis
Cooling	Natural Cooling
Electrostatic discharge	IEC 61000-4-2
RF susceptibility	IEC 61000-4-3
High frequency transients	IEC 61000-4-4
CE approvals	EN 6100-6-4, EN 6100-6-2
RF emissions	CISPR 22, Class A

**Table 5-1 Product Specifications**



## 5.2. DESCRIPTION OF THE PARTS

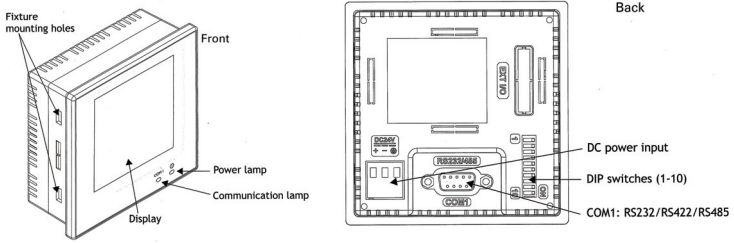


Figure 5-1 H-T40M-P Mechanical Drawing

## 5.3. EXTERNAL AND CUT-OUT DIMENSIONS

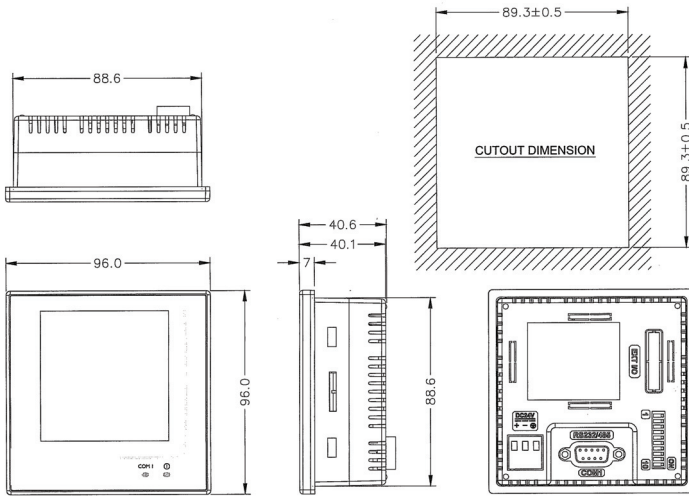


Figure 5-2 External and Cut-out Dimensions

# 6 MOUNTING PROCEDURE

# 6

1. Cut out the control front panel to match the dimensions (mm) specified in the External and Cut-out-Dimensions section.
2. Mount the status display touchscreen into the cut-out. Insert the fixtures to the holes on the unit and fasten the screws into the front of the panel. Do not tighten the screws with too much or uneven force or it may cause the deformation of the status display touchscreen.

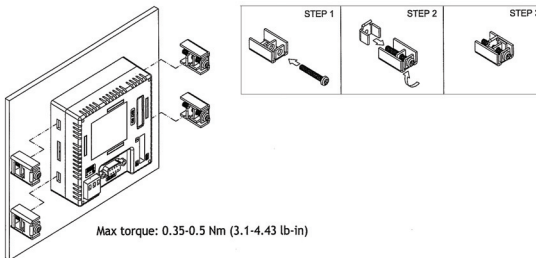


Figure 6-1 Mounting

3. The status display touchscreen is to be installed within the angle of 0 to 135° as shown below.

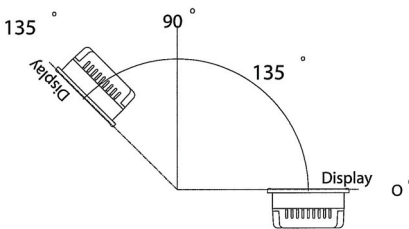


Figure 6-2 Install Angle

# 7 GROUNDING

7

To make sure the status display touchscreen works properly and to prevent it from radiating radio frequency noise, it must be connected to earth ground.

# 8 POWER SUPPLY & WIRING

8

H-T40M-P must use the power supply with 24 VDC and the power consumption is 4 W.

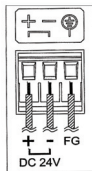
**⚠ WARNING!** To avoid an electrical shock, be sure to switch off the power before connecting the communication cable to the status display touchscreen.

Perform the following steps to wire the power connector:

- 1 **Unplug the power connector and unscrew the screws.**
- 2 **Strip approximately 7-8 mm of insulation. Insert the wire all the way into the power connector and then turn the screws tight.**
- 3 **Plug in the connector to the power input of the status display touchscreen.**

*Note: The power connector is already plugged into the power input of the status display touchscreen when the package is first opened.*

Use copper conductors only:



Type	Wire Gauge (AWG)	Stripped Length	Torque
Solid	28-12	7-8mm	4.5 lb-in
Stranded	30-12	7-8mm	4.5 lb-in

Figure 8-1 Connector Wiring

# 9 DIP SWITCHES

# 9

All the dipswitches are preset by the factory. Please leave the dipswitches in the default position.

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10
ON	ON	ON	ON	ON	OFF	OFF	ON	ON	ON

**Table 9-1 Default Factory Position**

# 10 CONNECTION TO THE G9SP

# 10

1. Locate the included RS-232 cable with two DB9 connectors.
2. Connect the HMI side of the cable to the status display touchscreen serial DB9 COM1 port.
3. Connect the G9SP side of the included RS-232 cable to the DB9 serial option board on the G9SP.

*Note: Be sure to connect the cable to the appropriate ports. If the cable is connected backwards, the unit will not perform as specified and/or damage may result.*

# 11 OPERATION

# 11

Power up the G9SP and status display touchscreen. The “Communicating” indicator should be blinking on the bottom of the main page of the Status Display Touchscreen. If it is not, verify the G9SP is powered up, has a program running, and the communication cable is correctly connected. No programming in the G9SP is required to view the safety inputs or safety outputs or their corresponding error codes. To use the reset functions see Reset Function section.

# 12 NAVIGATING THE SCREENS

# 12

## 12.1. MAIN SCREEN - DEFAULT SCREEN

Communicating Light: This light will blink when the status display touchscreen is connected to the G9SP. If this light is not blinking, check the G9SP power and/or cable connection.

### 12.1.1 ZONES

The zones allow the user to quickly see if a particular zone is in a run or stop mode. Using the zone function with the G9SP requires the programming of the optional communication transmission output bits in the G9SP configurator software. The status of up to four zones can be displayed.

The optional communication transmission bits are located at the bottom left corner of the G9SP configurator software under the I/O Tag List, under the Output tab. If the G9SP optional output communication bit is high (on) the display will display “RUN”. If the bit is low (off) the display will display “STOP”.

G9SP SAFETY CONTROLLER STATUS DISPLAY			
ZONE 1	STOP	ZONE 2	STOP
ZONE 3	STOP	ZONE 4	STOP
Safety Input Status		Safety Output Status	
Reset Screen		Screen Properties	
Communicating 			

Figure 12-1 Main Screen - Default Screen

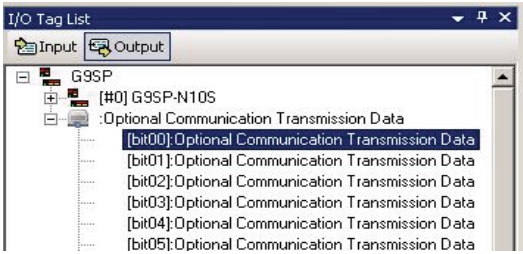


Figure 12-2 Output Tag List

G9SP Optional Output Communication Bit	Zone Status
[bit00]: Optional Communication Transmission Data	Zone 1
[bit01]: Optional Communication Transmission Data	Zone 2
[bit02]: Optional Communication Transmission Data	Zone 3
[bit03]: Optional Communication Transmission Data	Zone 4

Table 12-1 G9SP Optional Output Transmission Data

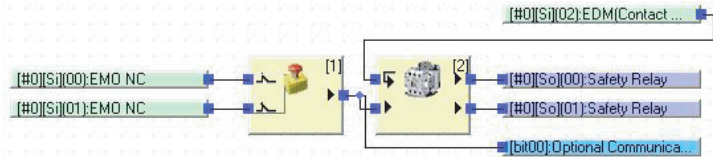


Figure 12-3 G9SP Configuration Example

## 12.2. SAFETY INPUT STATUS

This screen page will display the current state of the G9SP safety inputs. A dark box represents a closed condition (power is going to the input) i.e., light curtain is unblocked, e-stop is not pressed, safety door interlock is closed. A light grey box represents an open signal (power removed from signal) i.e. light curtain blocked, e-stop pressed, door open.

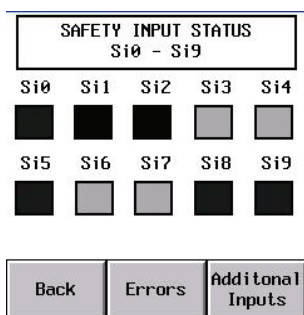


Figure 12-4 Input Status

The “Additional Inputs” button will display the status of Si10-Si19 (when using the G9SP-20S).

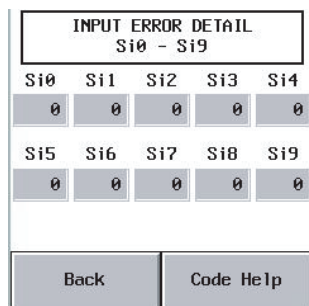


Figure 12-5 Input Error Details

To view any errors press the “Errors” button. The Input Error Detail screen will display any detected errors. A zero(0) indicates that there are no errors present, i.e. normal operations. If an error code is displayed, click on the “Code Help” button for a description of the error.

### 12.3. SAFETY OUTPUT STATUS

This screen will display the current state of the G9SP safety outputs. A dark box represents a closed condition i.e., machine is running. A light grey box represents an open condition, i.e. machine is stopped. The G9SP-N10S will only use So0-So3.



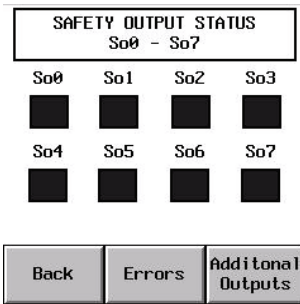


Figure 12-6 Safety Output Status

Pressing the “Additional Outputs” button will display So8-So15 (for the G9SP-10D).

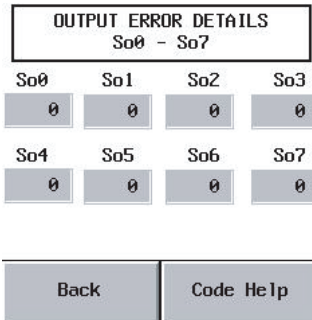


Figure 12-7 Output Error Details

To see if there are any errors on the safety outputs, press the “Errors” button. The Output Error Detail screen will display any detected errors. If all zeroes (“0”) are displayed, no errors are present, i.e. normal operations. If an error code is displayed, click on the “Code Help” button for a description of the error.

## 12.4. RESET SCREEN

Using the reset function with the G9SP requires the programming of the optional communication input bits in the G9SP configurator software. The optional communication bits are located at the bottom left corner of the G9SP configurator software under the I/O Tag List, under Input Tag.

*Note: The status display cannot be used to initiate any kind of machine safety stop since the communication between the G9SP and status display touchscreen is not control reliable. The Reset function, however, is not used to stop the machine. The machine is already in a safe state before the reset command is initiated. If power loss or communication failure were to occur, the machine would remain in a safe state. Because there is a chance of this, a redundant manual reset switch is recommended.*

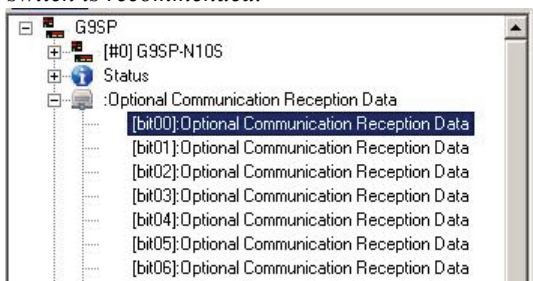


Figure 12-8 G9SP Configurator

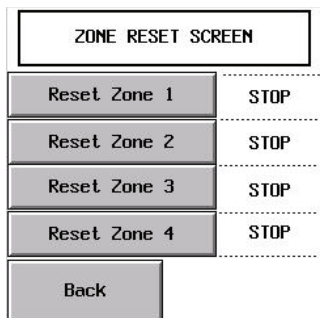


Figure 12-9 Zone Reset Screen

G9SP Optional Input Communication Bit	Zone Status
[bit00]: Optional Communication Reception Data	Reset Zone 1
[bit01]: Optional Communication Reception Data	Reset Zone 2
[bit02]: Optional Communication Reception Data	Reset Zone 3
[bit03]: Optional Communication Reception Data	Reset Zone 4

Table 12-1 Optional Input Communication Bit

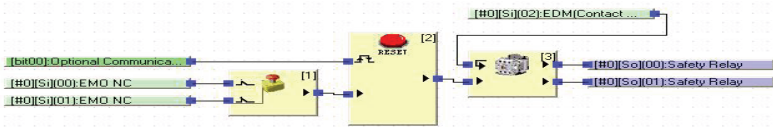


Figure 12-10 G9SP configuration example

Using Optional Communication Bit 00 as reset for an E-Stop circuit.

# 13 SCREEN PROPERTIES 13

From the Screen Properties screen the contrast and brightness of the screen can be adjusted. Press the up or down button and the display will change immediately. Press the S button on the right to save the setting. When done, press the Back button to return to the main menu.

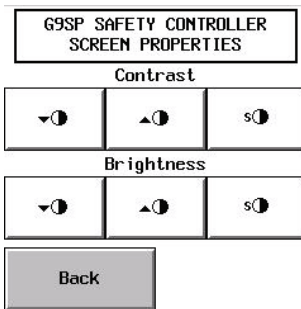


Figure 13-1 Safety Controller Screen Properties

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1. **Offer; Acceptance.** These terms and conditions (these "**Terms**") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "**Products**") by Omron Electronics LLC and its subsidiary companies ("**Omron**"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
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6. **Governmental Approvals.** Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
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