User Manual

HMI / Display - Single Sensor

Model: DIS2

This page is intentionally blank

Table of Contents

Notices and Warnings

Notices

Please **read all of this manual** before you install, operate or maintain this product. Pay attention to notes, warnings and instructions. The manufacturer cannot be held liable for any damage which occurs as a result of noncompliance with this manual.

Do not tamper with device. Should the device be tampered with in any manner other than a procedure which is described and specified in this manual, the warranty is cancelled, and the manufacturer is exempt from liability.

The product is designed exclusively for the described application. Use of this product in conditions not specified in this manual or, contrary to the instructions provided by the manufacturer, is considered improper handling / use of the product and will void your warranty. The manufacturer will not be held liable for any damages resulting from improper use of the product.

This manual should be read carefully by relevant personnel and the end user**.** This manual should be kept with the product and be made available as needed. **Once you install or use the product, you accept that you have read, understood and complied with this manual**.

CAA Sensors endeavours to make the content of this manual correct but is not responsible for omissions or errors and the consequences caused. In case of any doubts or questions regarding this manual or the product, please contact CAA Sensors.

Warnings

Ignoring the warnings can lead to serious injury and/or cause damage!

When handling, operating or carrying out maintenance on this product, personnel must employ safe working practices and observe all local health & safety requirements and regulations.

Improper operation or maintenance of this product could be dangerous and result in an accident-causing damage to machinery or injury or death.

The manufacturer cannot anticipate every possible circumstance which may represent a potential hazard. The warnings in this manual cover the most common potential hazards and are therefore not all-inclusive. If the user employs an operating procedure, an item of equipment or a method of working which is not specifically recommended by the manufacturer they must ensure that the product will not be damaged or made unsafe and that there is no risk to persons or property.

NEVER CHANGE ORIGINAL COMPONENTS WITH ALTERNATIVES.

Compressed Air Safety

Any contact with quickly escaping air or bursting parts of the compressed air system can lead to serious injuries or even death.

- Do not exceed the maximum permitted pressure.
- Only use pressure rated installation materials and parts.
- Avoid getting hit by escaping air or bursting parts.
- The system must be pressure-less during maintenance work.

Electrical Safety

Any contact with energised parts of the product, may lead to an electrical shock which can lead to serious injuries or even death. The user shall take all measures necessary to protect against electrical shock.

Consider all regulations for electrical installations.

The system must be disconnected from any power supply during maintenance work.

Any electrical work on the system is only allowed by authorised qualified personnel.

Storage and transportation

- Make sure that the transportation and storage conditions are:
  - Ambient temperature is between: -20°C to 60°C (14°F to 140°F).
  - Ambient humidity is <90%, no condensation.
- Avoid direct UV and solar radiation during storage.

Cleaning

If you need to clean the display it is recommended to use a clean, dry cloth. For stubborn marks, use distilled water or isopropyl alcohol only.

Please note: contamination on wires will affect the display. Removal of the contamination may not fix the issue.

Disposal

Electronic devices are recyclable material and do not belong in the household waste. The product, accessories and its packing material must be disposed according to local statutory requirements.

Specifications

Intended use

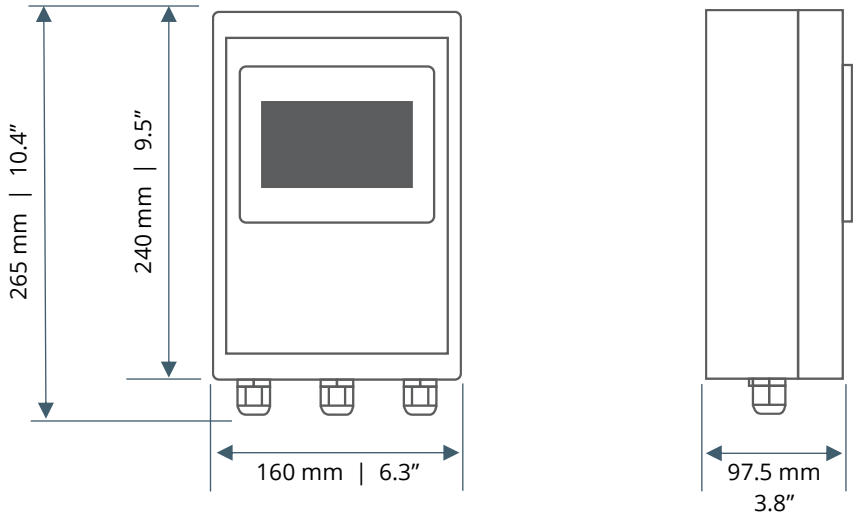
CAA Sensors HMIs are suitable for use in manufacturing, industrial and base building environments providing the specifications are met.

Specifications

Display	4.3” TFT LCD display
Resolution	480 x 272
Touch Panel Type	4-wire resistance
Touch Accuracy	Action zone length (X) ±2%, width (Y) ±2%,
Flash Memory	128 MB
RAM Memory	128 MB
Processor	32 Bits RISC Cortex-A8 300 MHz
	Data In
Data In Connection	M12 Female, 5 Pin
Communication	Modbus RTU (RS485)
Sensor Types	For use with CAA Sensors Dew Point Sensors, Flow Meters or Pressure Sensors
	Data Out
Data Out Connection	Modbus RTU (RS485)
	Power Supply
Power Supply	Standard wall socket, 85-264vAC
Electrical Connection	M12 PG Plug
EMC	Meets IEC 61326-1
Supply Isolation	Built-in
CE	Meets CE certification standards

	Other Information
Protection Level	IP65 NEMA4 Compliant Front Panel
Alarm	Optional
Operating Temperature	0°C to +50°C | +32°F to +122°F
Relative Humidity	10 to 90% RH (non-condensing)
Storage Temperature	-20°C to +60°C | +4°F to +140°F
Dimensions	160 mm long x 265 mm tall X 98 mm deep
Mounting	Wall Mount
Casing	Plastic
Installation Type	Permanent or temporary installation
Warranty	12 months

Dimensions (mm)



Installation

Installation Overview

Step 1 – Attach HMI to a suitable location.

- The HMI must be installed on a solid, vertical surface (e.g. a wall or post), near a power supply.

Step 2 – Connect sensor to the HMI using the M12 cable

Step 3 – (Optional) Connect Modbus output using 2-wire cable

Step 4 – Plug in HMI.

Tools and Equipment needed for installation

(not included with HMI)

Drill

Screws

Screwdriver

Installation

WARNING! Incorrect installation can damage the HMI or cause it to work incorrectly.

Notes

- **Before installing the product, make sure it is rated for your system** (refer to the “Specifications” section).
  - Use of the product outside specified ranges or operating parameters can lead to malfunctions and may damage the product or system.
- **The HMI must be disconnected from any power supply during installation and maintenance work.**
- The HMI must be installed on a solid, vertical surface (e.g. a wall or post).
- Do not use this product in explosive areas.
- Do not use this product outdoors. The HMI is only suitable for indoor applications.
- Always use the correct tools (e.g. screwdriver, spanner / wrench) to install the product.
- Only use pressure rated materials and parts when installing and maintaining the product.
- Do not disassemble the product.
- Please follow local and national regulations before/during installation and operation.
- The product must be installed properly otherwise it may lead to inaccurate measurement values.

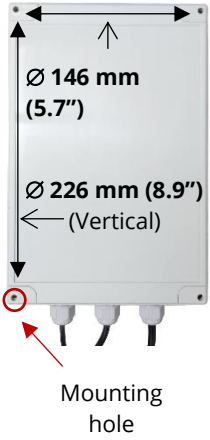
Step 1 – Attach HMI to suitable location

The HMI must be installed on a solid, vertical surface (e.g. a wall or post). Make sure the HMI is installed near a power point.

There are 4 mounting holes on the back of the HMI. You access these inside the cabinet.

- Drill 4 holes to match dimensions shown below.
    - Horizontal spacing: ∅ 146 mm (5.7”)
    - Vertical spacing: ∅ 226 mm (8.9”)
- Remove caps from each corner of the front panel.
- Unscrew the front panel and open.
- Attach HMI to a solid, vertical surface using screws (not supplied).
    - Fix firmly to prevent loosening or shaking.
- Close and secure / screw front panel. Insert caps in each corner.

Back of HMI



Mounting hole

Remove caps and unscrew front panel

Mounting holes

Step 2 – Connect HMI to Sensor

The HMI has 3 cables:

- Power cable with an M12 PG Plug
- Cable to connect the HMI to a CAA Sensors sensor. This cable has a 5 pin, M12 connector on it.
- Cable to export data to a SCADA or other device. This cable has two wire connectors. One wire is labelled Data A (Data +), and the other wire is labelled Data B (Data -).

Connect the HMI cable with the M12 connector to the sensor.

Step 3 – (Optional) Connect Modbus output using 2-wire cable

The HMI has 3 cables:

- Power cable with an M12 PG Plug
- Cable to connect the HMI to a CAA Sensors sensor. This cable has a 5 pin, M12 connector on it.
- Cable to export data to a SCADA or other device. This cable has two wire connectors. One wire is labelled Data A (Data +), and the other wire is labelled Data B (Data -).

If you want to export data from the HMI to another device, connect the thin cable on the HMI cable to your device.

Step 4 – Plug in HMI (Power on)

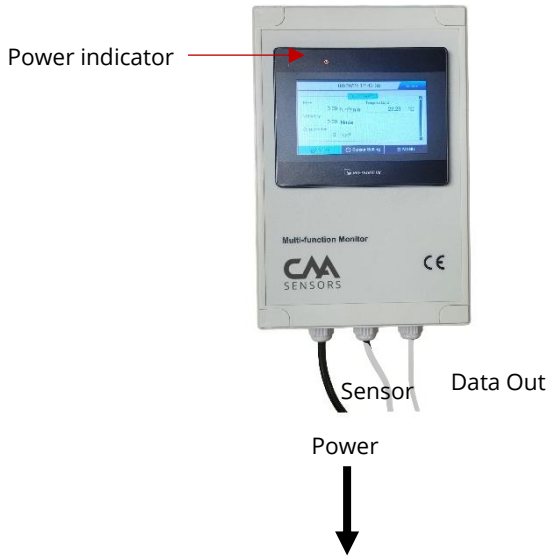
WARNING! Incorrect wiring can damage the HMI or cause it to work incorrectly.

Notes:

- Only connect the HMI to a **standard wall socket, 85-265vAC**. High voltages will damage the product.
- Consider all local and national safety requirements and regulations for electrical installations.
- Any electrical work on the system is only allowed by authorised and qualified personnel.
- Do not tamper with the wiring inside the HMI. Modifying the wiring will void your warranty and could damage the sensor.

Plug in the HMI and turn the power point on.

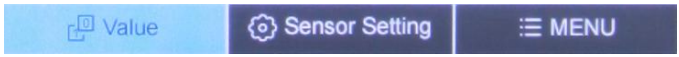
- There is no on/off switch on the HMI.



Using the Display

Using the Display

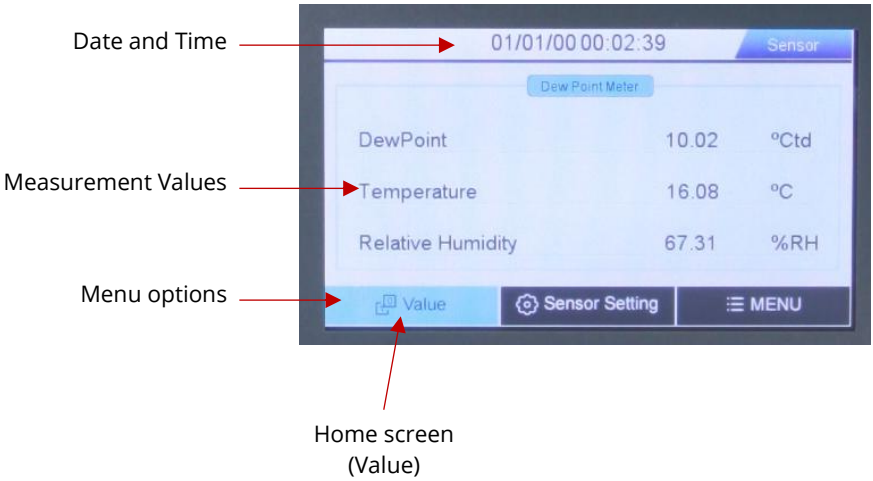
The touch screen display has three (3) main menus (along the bottom of the screen) – 'Value', 'Sensor Setting' and 'Menu'.



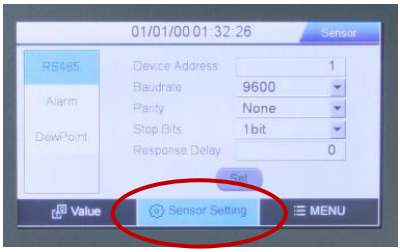
- **Value** (or home screen) shows you the sensor readings.
- **Sensor Setting** allows you to view / change the sensors settings.
  - Example: if using the HMI with a flow meter, the Sensor Setting screen will show you the Pipe Diameter, Gas Type, Units and Modbus (RS485) settings.
- **Menu** allows you to:
  - change the brightness of the screen, set the date and time, view the device information (serial number, hardware version and software version) and
  - update the modbus settings of the display to match the modbus settings of the sensor.

Value Screen

The Value screen (or home screen) shows you the sensor readings.



Sensor Setting – shows Sensor Information



The Sensor Setting options will vary depending on which sensor is connected to the HMI. Sensor settings allow you to view and update settings on the actual sensor, i.e. the flow meter, dew point sensor or pressure sensor.

Sensor Setting > RS485 Setting = Modus Settings for Sensor

The RS485 setting on the Sensor Setting page shows the Modbus Communication settings of the Sensor.

The Modbus Settings of the touch screen (Menu > Communication) **must match** the Modbus settings of the Sensor (Sensor Settings > RS485). If you change the Modbus settings on the sensor (Sensor Settings > RS485) you must update the touch screen settings (Menu > Communication) to match. And visa versa – if you change the Modbus setting of the touch screen display (Menu > Communication) you must update the sensor's Modbus settings (Sensor Settings > RS485).

Which Modbus screen do I use?

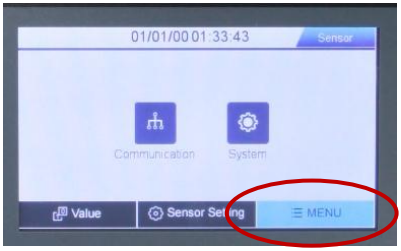
The HMI has two screens with Modbus information.

Sensor Setting > RS485 = Modbus setting of the sensor.

Menu > Communication = Modbus setting of the touch screen display

In order for the touch screen display to work the modbus settings of the display (Menu > Communication) **must match** the modbus settings of the sensor (Sensor Setting > RS485).

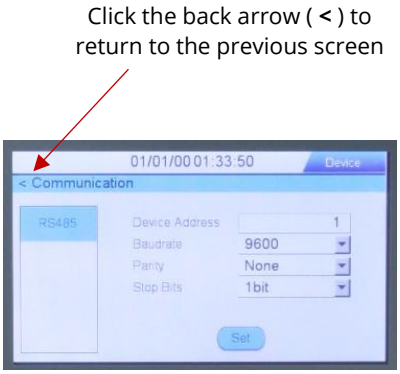
Menu Screen – shows HMI information



The menu screen has two options:

- **Communication** settings for the touch screen display on the HMI
- **System Settings** which allow you to:
  - Change the brightness of the HMI screen,
  - Change the date / time on the HMI and
  - view the HMI device information.

To return to the previous screen, click on the back arrow (**<**) on the top left of the screen.



Menu > Communication = Modbus Settings of HMI touch screen

The Menu > Communication screen allows you to view and change the Modbus settings of the touch screen display.

To change the Modbus settings of the display:

- Click on the relevant modbus setting
- Update the setting(s)
- Click **Set** when done
- Click on the back arrow (**<**) at the top left of screen to return to the previous page.

The Modbus Settings of the touch screen (Menu > Communication) **must match** the Modbus settings of the Sensor (Sensor Settings > RS485). If you change the Modbus settings on the sensor (Sensor Settings > RS485) you must update the touch screen settings (Menu > Communication) to match. And visa versa – if you change the Modbus setting of the touch screen display (Menu > Communication) you must update the sensor's Modbus settings (Sensor Settings > RS485).

Which Modbus screen do I use?

The HMI has two screens with Modbus information.

Sensor Setting > RS485 = Modbus setting of the sensor.

Menu > Communication = Modbus setting of the touch screen display

In order for the touch screen display to work the modbus settings of the display (Menu > Communication) **must match** the modbus settings of the sensor (Sensor Setting > RS485).

If the display has frozen, check the Modbus setting on both screens (Sensor Setting > RS485 and Menu > Communication) and make sure they match. If they don't match, change the relevant settings and click the 'Set' button. Then power off and repower the HMI.

Trouble Shooting

Trouble Shooting

Problem	Possible Causes	Suggested Action
HMI screen has frozen	Modbus address of the HMI display is different to the Modbus address of the sensor	1. Check the Modbus settings of the sensor (go to Sensor Setting > RS485). Write these settings down as you will need them for step 3. 2. Go to the Modbus settings of the HMI display (Menu > Communication) 3. Check if the two Modbus settings are the same. If not, update the HMI settings (Menu > Communication) to match the sensor settings (see step 1) 4. Unplug (power off) the HMI, wait 30 seconds then plug in (power on) the HMI
The touch screen doesn't work	Dirty screen, using a hard object to touch the screen, pressing too hard, etc.	• Clean the screen. • Use the fleshy part of your finger to touch the screen. • Use your fingernail to touch the screen. • Try pressing harder, or softer.
Readings don't change or readings stuck on a certain number	Sensor damaged	Contact CAA Sensors
	Incorrect sensor for your system	Check that the sensor's specifications are suitable for your system.
I can't output data to my SCADA / energy management system	Incorrect wiring	Check you have connected the Data + (Data A) and Data – (Data B) to the correct inputs on your SCADA

Problem	Possible Causes	Suggested Action
	Modbus address' don't match	• Check the Modbus settings on your SCADA match the HMI / sensor settings

Warranty

CAA Sensors provides a 12-month warranty for all sensors. The warranty covers materials and workmanship under the stated operating conditions from the date of delivery. Please report any findings immediately and within the warranty time.

If faults occur during the warranty period CAA Sensors will repair or replace the defective unit, without charge for repair labour and material costs but there is a charge for other services such as labour to remove or reinstall the instrument, transport and packing. Warranty repairs do not extend the period of warranty.

The following damage is excluded from this warranty:

- Improper use and non-adherence to the user manual.
- Use of unsuitable accessories.
- External influences (e.g. damage caused by vibration, damage during transportation, excess heat or moisture).

The warranty is cancelled when one of the following situations occurs:

- The user opens the measurement instrument without a direct request written in this manual.
- Repairs or modifications are undertaken by third parties or unauthorised persons.
- The serial number has been changed, damaged or removed.

Other claims, especially damage occurring on the outside of the instrument (e.g. dents, marks), are not included unless responsibility is legally binding.

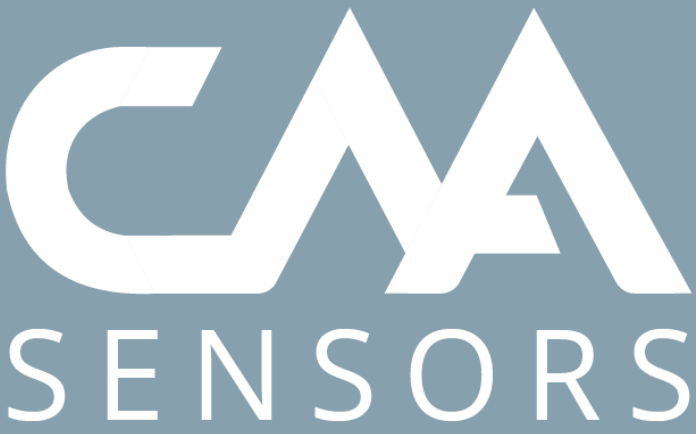
Need help?

Contact your local distributor.

Alternatively, contact CAA Sensors via:

- Phone: +61 494095632
- WhatsApp: +61 494095632
- E-mail: sales@caasensors.com

This page is intentionally blank



CAA Sensors Pty Ltd

Address: 2/7 Narabang Way, Belrose NSW 2085, Australia

Phone / WhatsApp: +61 494 095 632

E-mail: sales@caasensors.com

Website: www.caasensors.com