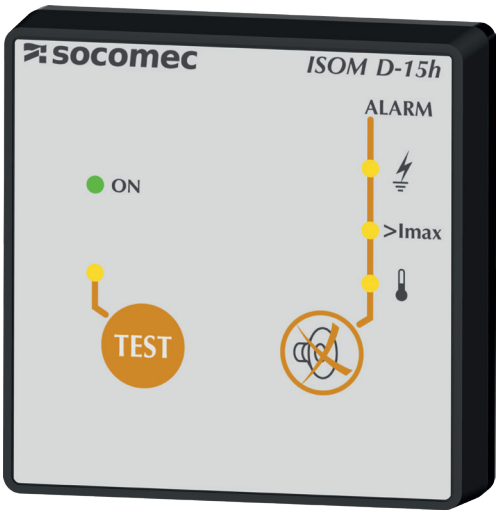
Control and power supply interface

ISOM D-15h and ISOM Digiware D-x5



socomec
Innovative Power Solutions

CONTENTS

1. DOCUMENTATION

All the documentation on the
ISOM Digiware range can be found on the SOCOMEC site at the following address:
www.socomec.fr

2. HAZARDS AND WARNINGS

The term "device" used in the following paragraphs covers ISOM D-15h and ISOM Digiware D-55 / D-55h / D-75 / D-75t / D-75h displays.
The assembly, use, servicing (including cleaning) and maintenance of this equipment must only be carried out by trained, qualified professionals (in case of failure, please contact our Customer Services).
SOCOMEC shall not be held responsible for failure to comply with the instructions in this manual.

2.1. Risk of electrocution, burns or explosion

	Caution: risk of electric shock	Réf. ISO 7000-0434B (2004-01)
	Caution: refer to the accompanying documentation each time this symbol is shown	Réf. ISO 7010-W001 (2011-05)

- This device must only be installed and serviced by qualified personnel who have in-depth knowledge of installing, commissioning and operating the device and who have had appropriate training. He or she should have read and understood the various safety measures and warnings stated in the instructions.
- Be aware of protection devices (insulation monitoring system), annual preventive maintenance should be carried out to test the system's basic functions.
- Use connection cables compatible with the voltage and connection terminals of the devices.
- Prior to any work on or in the unit, disconnect all power sources (voltage inputs, the unit's auxiliary power supply and dry contact supplies).
- The isolation options must be:
  - within the electrical installation itself
  - located somewhere convenient and easily accessible
  - labelled as the unit's power switching device
- Always use an appropriate voltage detection device to confirm the absence of voltage.
- Replace all devices, doors and covers before turning on power to this equipment.
- Always power the device with the correct rated voltage.
- Install the unit following the recommended installation instructions and in a suitable electrical cabinet.
- For safety reasons, only use accessories that conform to the manufacturer's specifications.
- During installation, the safety of any system integrating the device is the responsibility of the system installer.

Do NOT clamp or pull out NON-INSULATED conductors carrying DANGEROUS VOLTAGE which could cause an electric shock, burn or arc flash.
Ref. IEC 61010-2-032

Failure to take these precautions could cause death or serious injuries.

If there is a problem, please contact
SOCOMEC,1 rue de Westhouse, 67235 BENFELD, FRANCE
Tel. +33 3 88 57 41 41
info.scp.isd@socomec.com

2.2. Risk of damaging the unit

To ensure that the unit operates correctly, make sure that:

- The unit is correctly installed.
- The auxiliary power supply voltage indicated on the device: 24 VDC ± 15%.
- Use a 230 VAC / 24 VDC SOCOMEC power supply (4829 0120) or use a 1 A 24 VDC fuse.
- The 24VDC power supply should be a SELV (safety extra-low voltage).
- Only use RJ45 SOCOMEC cables to interconnect the modules via the Digiware bus.
- The devices are designed for indoor use.
- When connecting, make sure you separate the low voltage (LV) section and the very low voltage (SELV) section to prevent any risk of electric shock.
- Use the conductors suitable for temperatures of +85°C when connecting the device in ambient temperatures exceeding +60°C.

Failure to respect these precautions could cause damage to the unit or risk an electrical shock.

2.3. Responsibility

- Assembly, connection and use must be carried out in accordance with the installation standards currently in force.
- The unit must be installed in accordance with the rules given in this manual.
- Failure to observe the rules for installing this unit may compromise the device's intrinsic safety.
- The unit must be positioned within an installation which complies with the standards currently in force.
- Any cable which needs to be replaced may only be replaced with a cable with the correct rating.

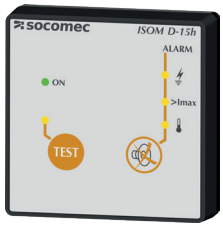
3. BEFORE YOU START

To ensure the safety of personnel and the product, please carefully read the contents of these instructions before installation.
Check the following points as soon as you receive the package containing the unit, one or several sensors:

- The packaging is in good condition
- The unit has not been damaged during transportation
- The device reference number conforms to your order
- The packaging includes the unit fitted with removable terminal blocks and a Quick Start guide.

4. PRESENTATION

4.1. Range



ISOM D-15h (*)
Alert notification
for medical centres
Réf. 4729 0200

-

ISOM Digiware D-55
Multipoint display

Réf. 4729 0203

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

ISOM Digiware D-55 BLE
Multipoint display with
Bluetooth Low Energy
Réf. 4729 0210

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

ISOM Digiware D-55h (*)
Multipoint display
for hospital settings
Réf. 4729 0204

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

-

ISOM Digiware D-55h BLE
Multipoint display with
Bluetooth Low Energy
Réf. 4729 0211

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

-

ISOM Digiware D-75h
Multipoint display with
Bluetooth Low Energy
Réf. 4729 0213

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

Embedded web server WEBVIEW-M
+ Photoview

ISOM Digiware D-75
Multipoint display
Réf. 4729 0205

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

Embedded web server WEBVIEW-M + Photoview

ISOM Digiware D-75t
Multipoint display
Réf. 4729 0206

Ethernet
Modbus TCP
BACnet IP
SNMP v1, v2 & v3

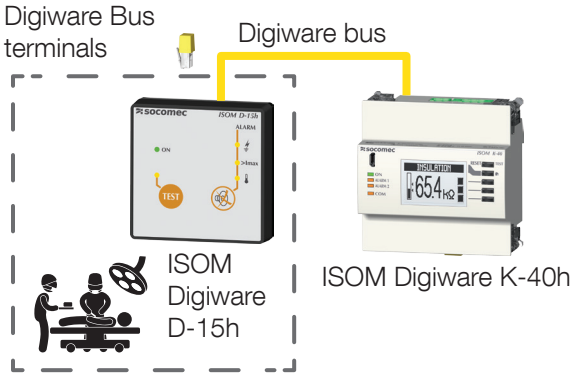
Embedded web server WEBVIEW-M + Photoview

(*) h --> for medical centres
(**) t --> heavy-duty model for extreme environments (humidity, impact, vibrations)

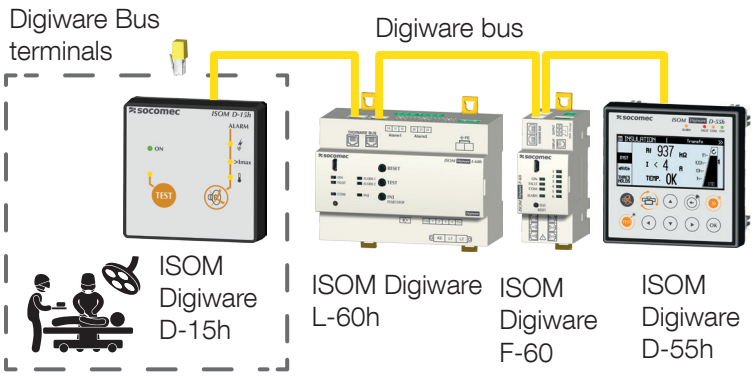
4.2. Principle

The ISOM D-15h shows an overview of the alarms from insulation monitoring, overheating and overloads of the medical IT transformer measured by a K-40h IMD or by the ISOM Digiware IMD.

It is connected to the IMD K-40h via an RJ45 cable (Digiware bus).



With 2x RJ45 ports you can integrate it into your insulation monitoring system ISOM Digiware via the same communication bus.



4.3. Introduction to ISOM Digiware D-x5

ISOM Digiware D-x5 units are multipoint displays that show the data from modules L-60 and F-60.

They can also show measurements coming from other devices such as DIRIS Digiware, DIRIS B, DIRIS A, or COUNTIS E devices.

They give an overview of the data from up to 32 devices.

These products may be connected by a Digiware bus and/or an RS485 bus.

Centralised products can be shown and configured on ISOM Digiware D-x5 displays.

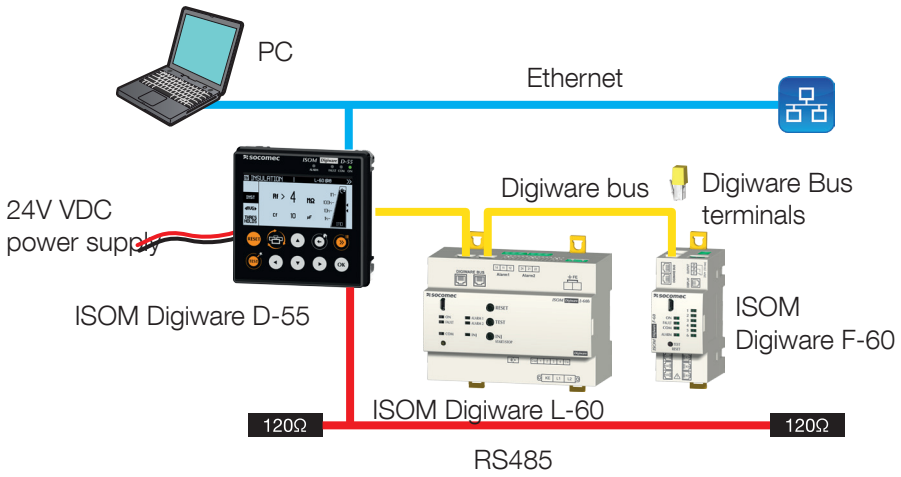
4.3.1. Introduction to ISOM Digiware D-55

An ISOM Digiware D-55 display is a master device on the RS485 bus and master on the DIRIS Digiware bus. It acts as the Ethernet gateway.

The Ethernet port is for:

Sharing on the Ethernet network in ModbusTCP all the data taken from the devices connected to its Digiware and RS485 ports.

You can also show on the ISOM Digiware D-55 the data coming from remote devices on the local Ethernet network.



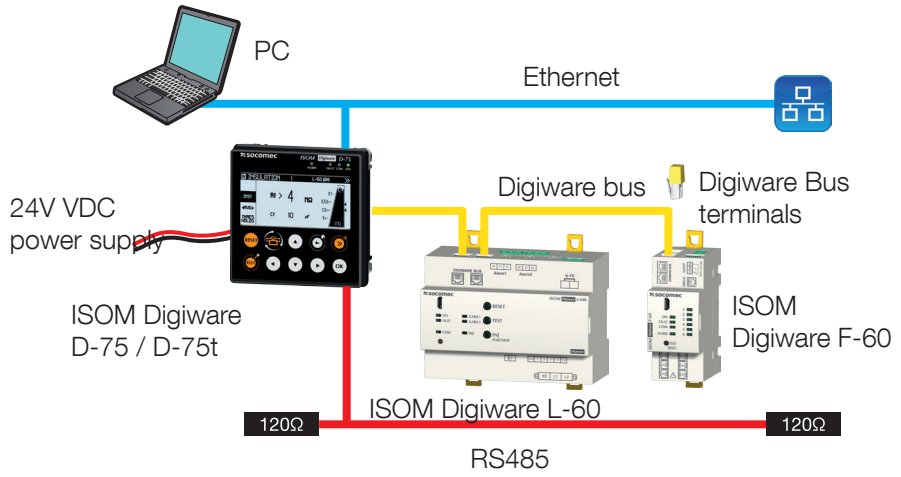
4.3.2. Introduction to ISOM Digiware D-75

The ISOM Digiware D-75 display shows the data locally from devices connected via RS485, Digiware and remotely on the local Ethernet network.

This is a master device of the RS485 and Digiware buses, acting as the Ethernet gateway.

The Ethernet port is for:

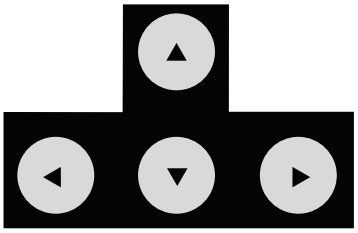
- Providing in realtime the data measured and archived on the embedded web server, WEBVIEW-M
- Sharing on the Ethernet network in ModbusTCP all the data taken from the devices connected to its Digiware and RS485 ports.
- Automatically exporting data via FTPS, Monitoring.
- Automatically sending emails (SMTPS) in case of alerts and events on a connected device.



4.4. Keys on D-5x displays

ISOM Digiware D-x5 displays comprise a screen and 10 hotkeys:

TEST	Launch an autotest sequence on ISOM Digiware L-60 and F-60 After powering on the devices, all their internal measurement functions as well as the data memories and connections to the network and PE protection conductor are tested. The autotest can only be started from certain screens on the D-x5 (insulation screen)
RESET (D-5x) / (D-55h)	If you are using an ISOM Digiware D-x5 display, press "Reset" to OK ISOM alarms from L-60 and F-60 modules (if these are in manual reset mode (COM)) to cut the BUZZER if it is on. For a D-55h, this button should only cut off the BUZZER.

	Quick Access key: Quickly navigate between the ISOM menu pages.
	Arrow keys for navigation.
	Use to go up a level in the display navigation menus. Hold down to return to the main menu.
	Go to the next circuit/device.
	Use this to confirm your navigation or entry selection.

4.5. LED indicators for D-x5 displays

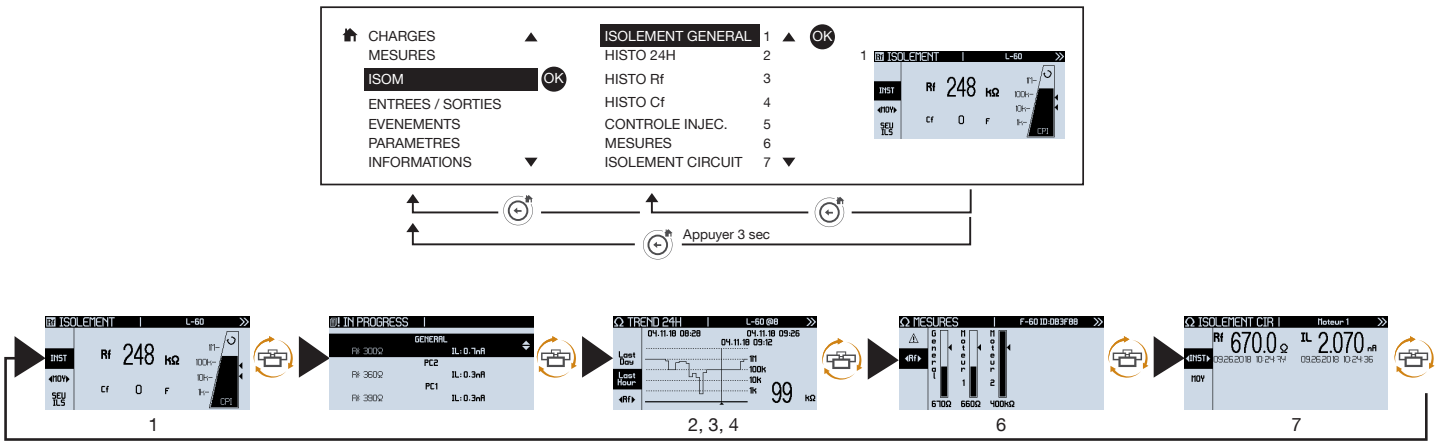
ALARM
- Off: no alarms in progress
- Constant: insulation fault detection alarm that sounds when the insulation value measured by the L-60 module drops under one of the thresholds set for ALARM 1 or ALARM 2

FAULT
- Constant: alarm (logical/analogue) is active or finished and not reset on one device connected to the display
- Flashing: system alarm (measuring circuit connection problem on the electrical network to be monitored, device temperature too high, communication lost, etc.)

COM
- Off: communication disabled
- - Flashing: communication in progress on the RS485 and/Digiware bus.

ON
- Lit: device is ON
- On: device working OK

4.6. Navigation concept of D-5x displays



INSULATION (+T°C > & I > FOR D-55h)

ALARMS IN PROGRESS

TRENDS

LOCATION F-60 device menu

Circuit insulations

1. Screen showing an overview of the main information about the overall insulation of the electrical system, especially its insulation resistance and its leakage capacity (D-55h: extra information on monitoring overheating and overloads on the medical IT transformer unit).
2. Screen showing the insulation curve on the last day or in the last hour, for all the circuits, broken down by Resistive and Capacitive.
3. Screen showing the curve of the insulation resistance Rf over the current month, week, or day for all the circuits configured on the ISOM Digiware F-60 FLD module.
4. Screen showing the curve of the leakage capacity Cf over the month, week, or day in progress for all the circuits configured on the ISOM Digiware F-60 FLD module. No Trend Cf on D-55h.
5. configuration screen for the IMD booster mode, either in auto mode or manual.

In auto mode, the "LCI" booster will start when the threshold is reached for "ALARM 2".

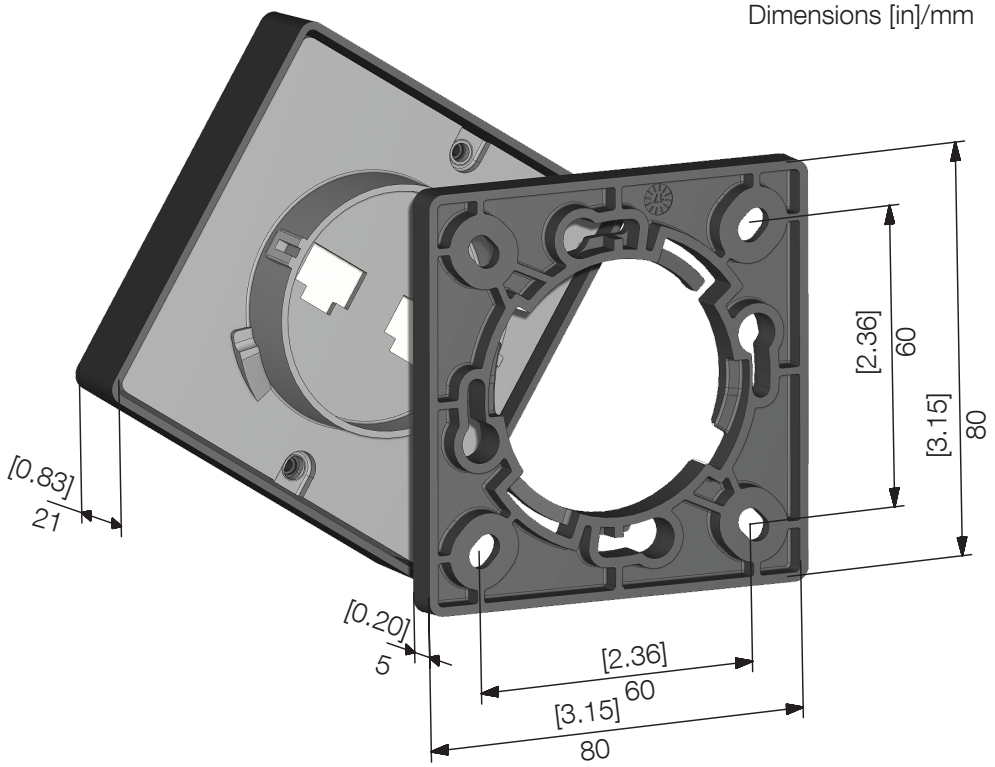
In manual mode the "LCI" booster will start when the pushbutton "INJ START/STOP" is pressed on the ISOM Digiware L-60 IMD module.

6. Screen showing the insulation level of all the circuits configured on the ISOM Digiware F-60 FLD module (choose from Rf, Cf, or IL) simultaneously.
7. Show the insulation values Rf and Cf by circuit, in realtime and average values.

4.7. Display dimensions

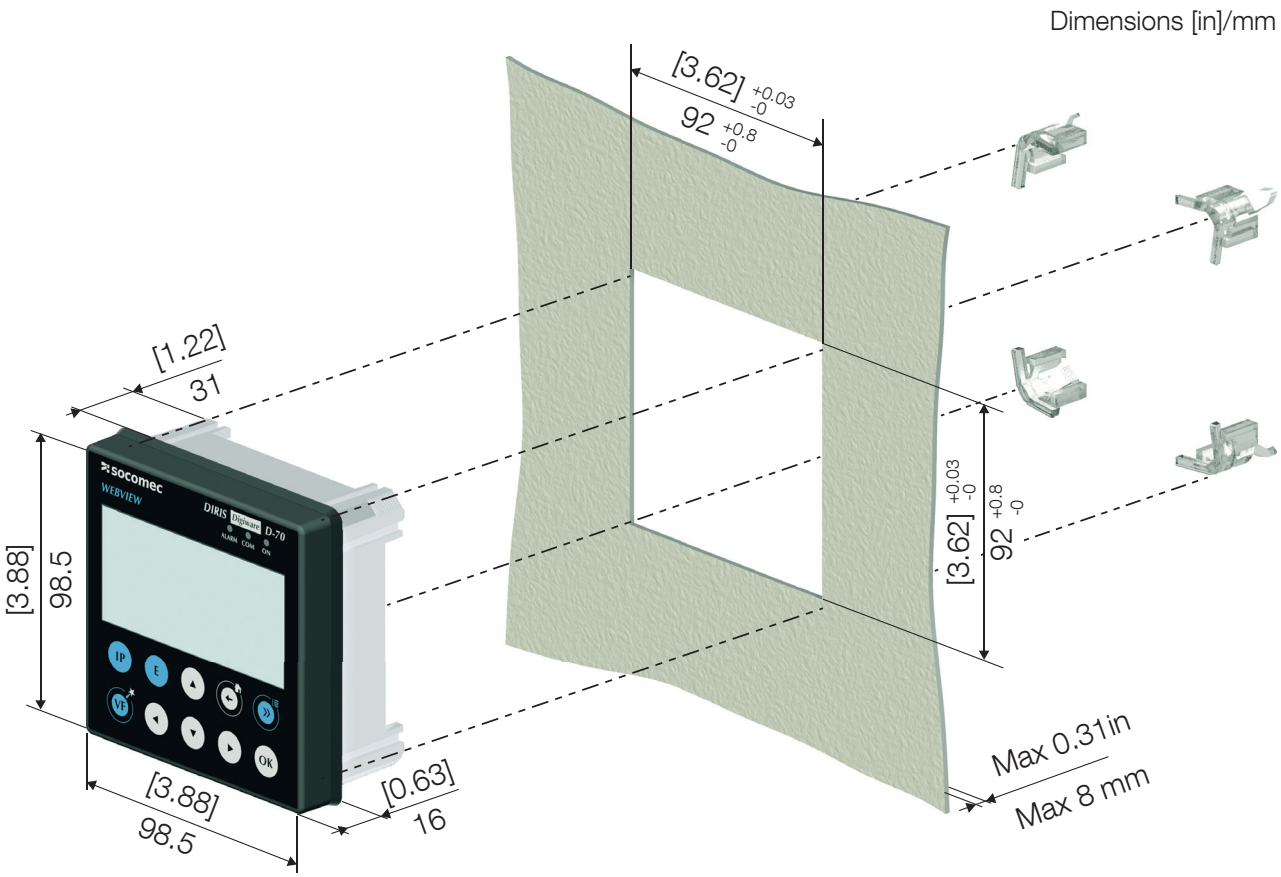
ISOM D-15h:

Dimensions [in]/mm



ISOM Digiware D-5x:

Dimensions [in]/mm



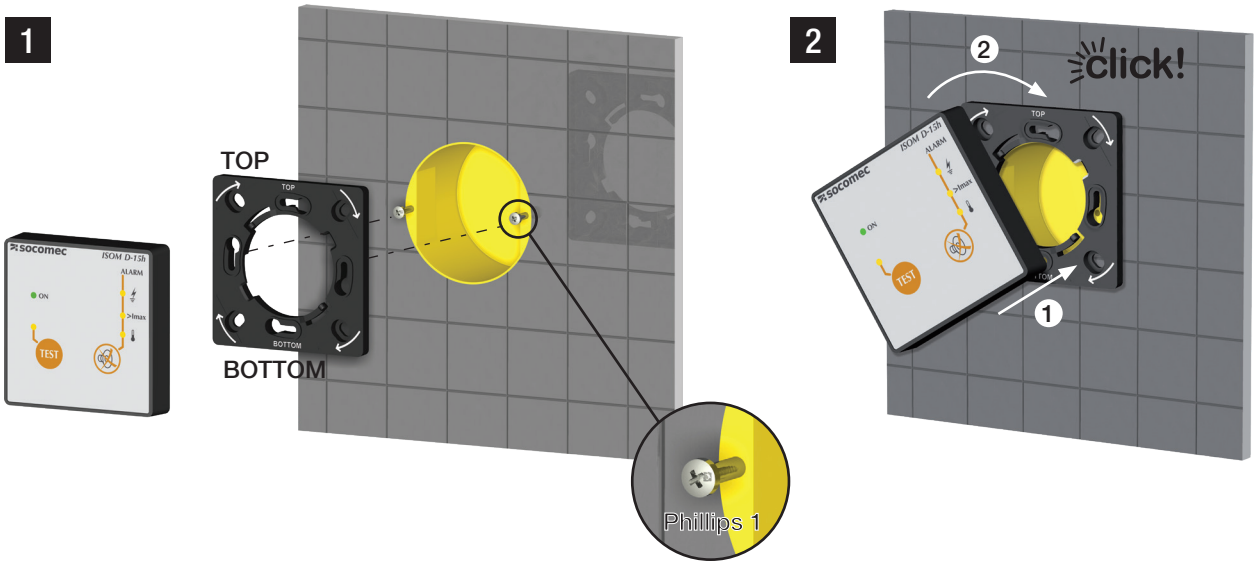
5. INSTALLATION

5.1. Security recommendations

Refer to the safety instructions (section" 2. Hazards and warnings", page 5)

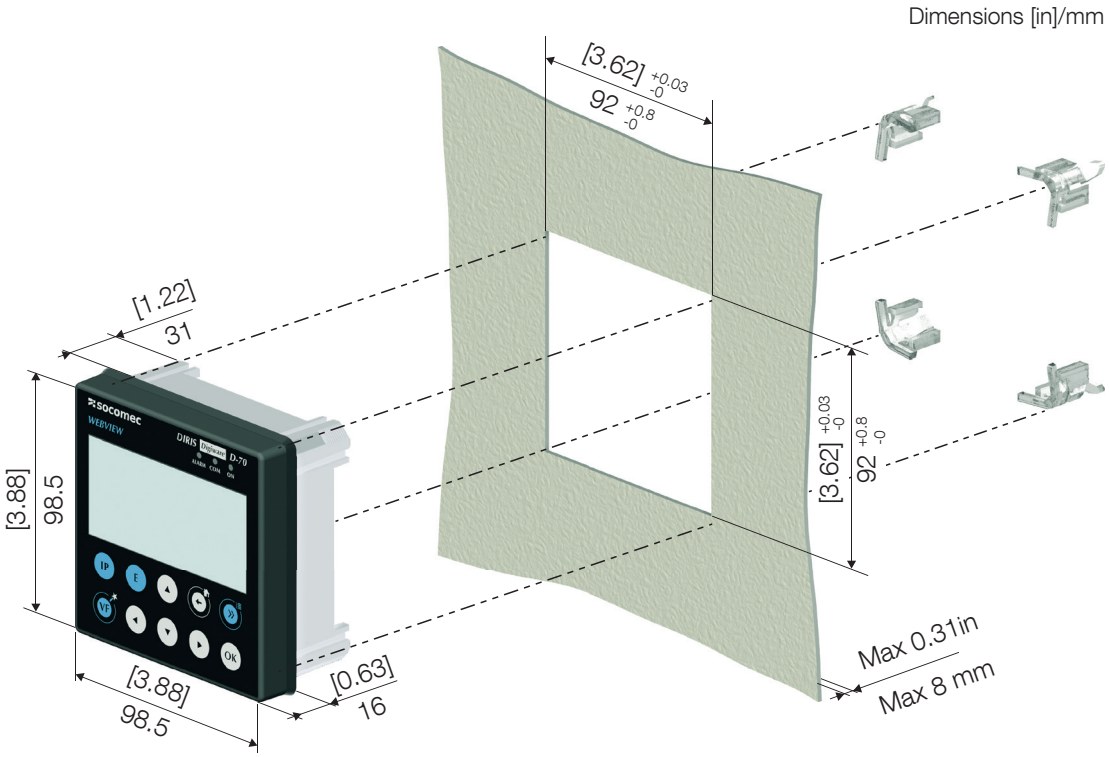
5.2. Plate mounting

5.2.1. ISOM D-15h

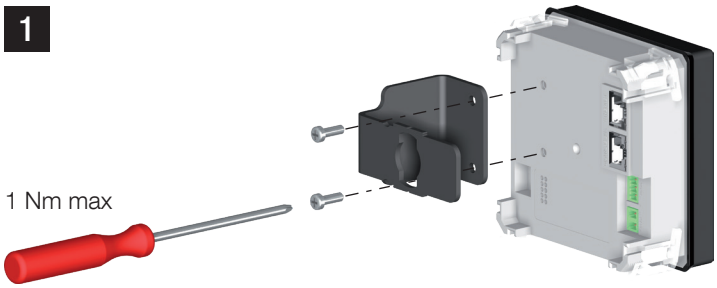


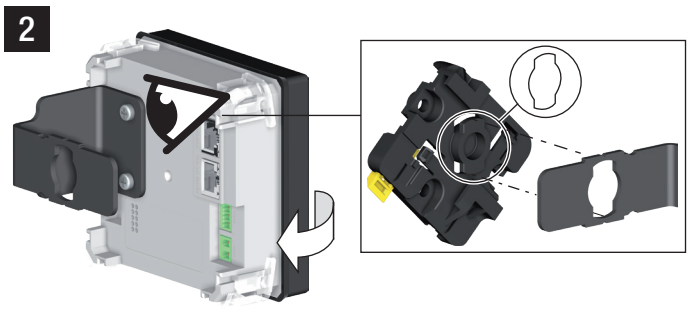
5.2.2. ISOM Digiware D-x5

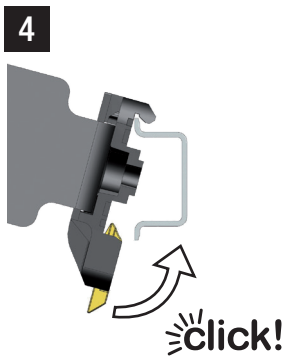
5.2.2.1. Mounted in enclosure on the cabinet door

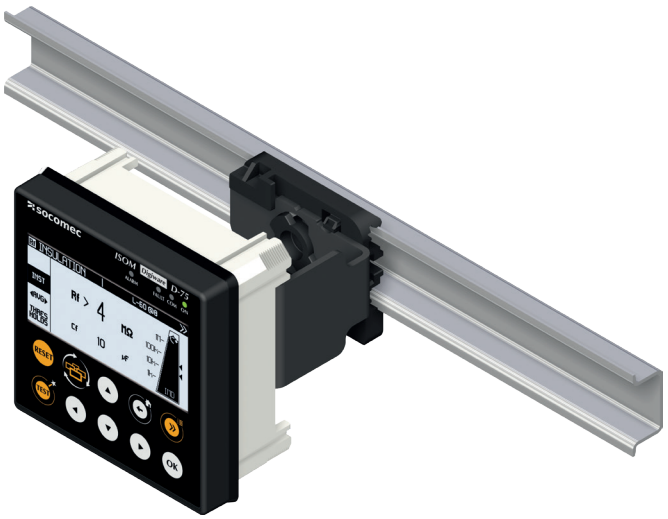


5.2.2.2. DIN rail mounted



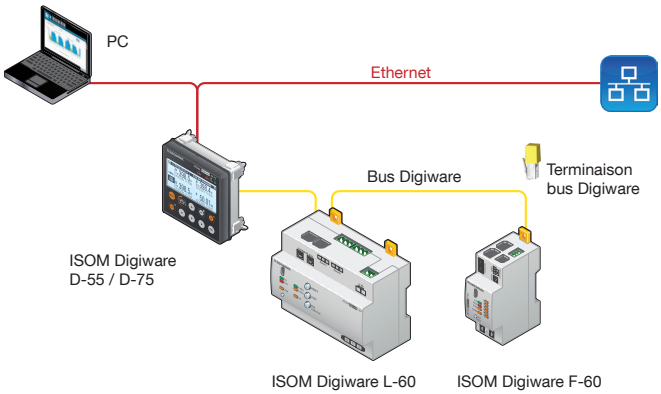


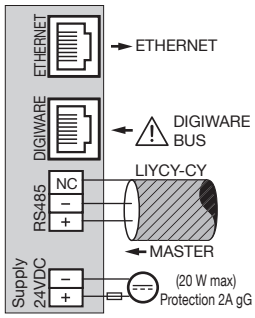




6. CONNECTION

6.1. ISOM Digiware D-55 / D-75 connection





7 mm
3 positions - screw connection, 0.25 Nm max.
Rigid 0.14 mm^2-> 1.5 mm^2
Flexible 0.14 mm^2 -> 1.5 mm^2

7 mm
2 positions - screw connection, 0.25 Nm max.
Rigid 0.2 mm^2-> 2.5 mm^2
Flexible 0.2 mm^2 -> 2.5 mm^2

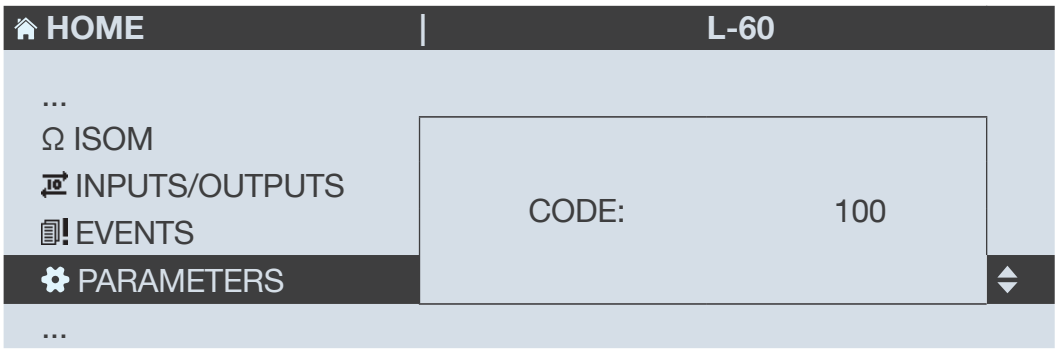
(*) The use of a 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not supplied by Socomec.
All inputs / outputs are considered in SELV (Safety Extra Low Voltage).

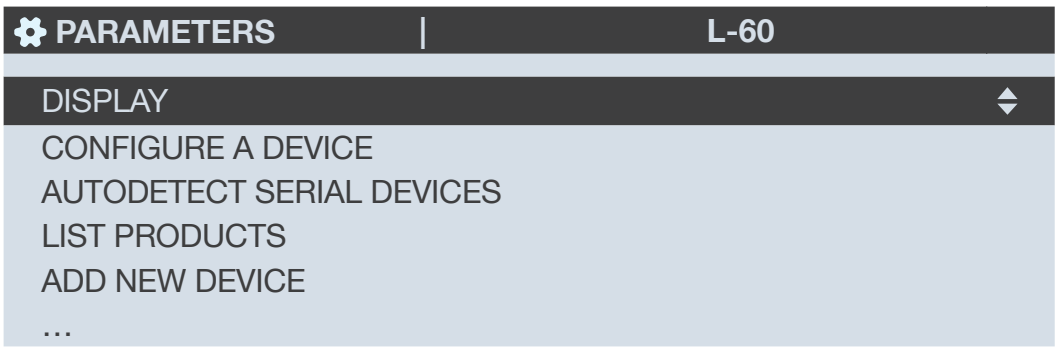
7. CONFIGURATION

When you turn on the display, press "OK" to go to the menus available on the main screen.

Select the "PARAMETERS" menu (the default language on delivery is English) by using the navigation key "DOWN ARROW" 5x and confirm with "OK":

Enter the code 100 using the arrow pad (4 arrow keys) and confirm with "OK":



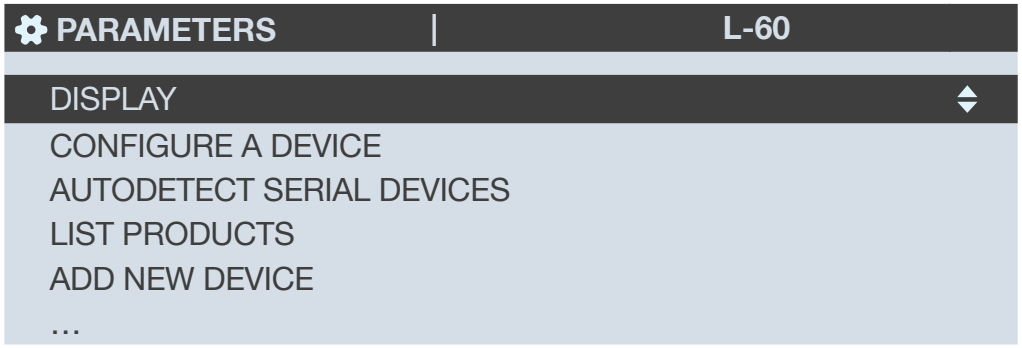


The basics of the PARAMETERS menu:

- DISPLAY: configure the display settings
- CONFIGURE A DEVICE: configure a device connected to the ISOM Digiware D-x5 display via the Digiware bus, RS485 and Ethernet
- AUTODETECT SERIAL DEVICES: to start auto-detecting the devices connected to the D-x5 by Digiware or RS485
- LIST PRODUCTS: show the list of devices available for the ISOM Digiware D-x5 display
- ADD NEW DEVICE: manually add a new device to use with the D-x5
- REMOVE DEVICE: remove a device from the D-x5
- RESTORE A PRODUCT FACTORY SETTINGS: restore the device to the default state
- PRODUCTS SOFT VERSION: show the software version by device listed for the D-x5

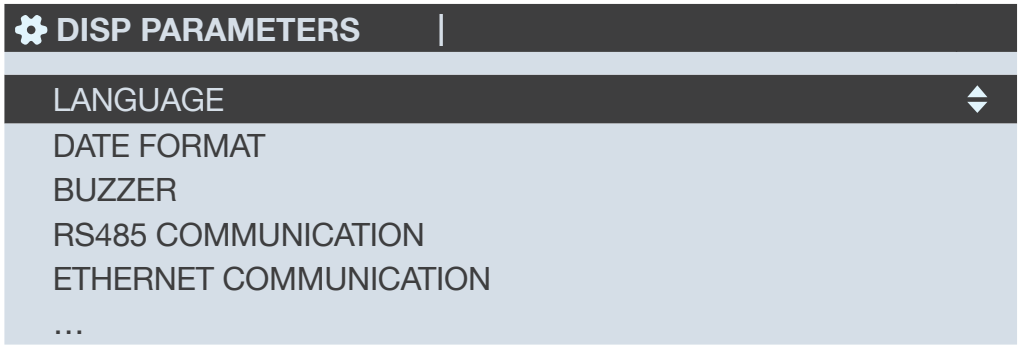
7.1. Specific display settings

Confirm with "OK" to go back to the "DISPLAY" menu.



7.1.1. DISPLAY menu

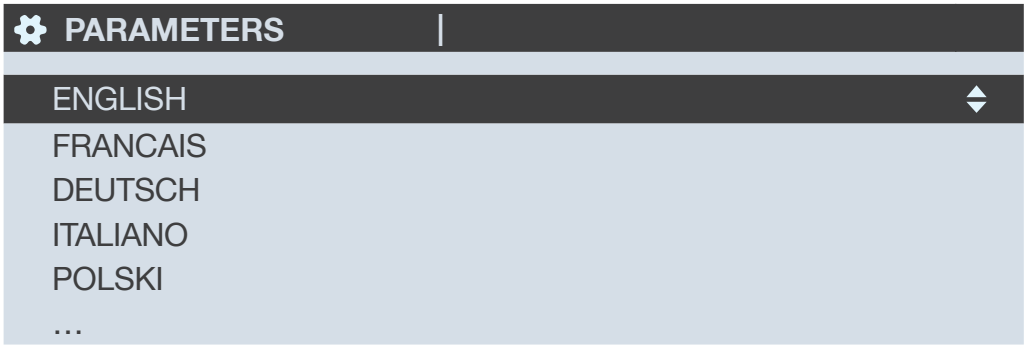
You can access different menus from the "DISPLAY" screen:



- LANGUAGE: change the display's navigation language
- DATE FORMAT: change the date and time format
- BUZZER: enable or disable the buzzer function
- RS485 COMMUNICATION: change the communication settings of the RS485 bus as the master
- ETHERNET COMMUNICATION: change the display's IP settings
- SET REMOTE DEVICE DATE/TIME: manually change the date and time of a device connected to the D-x5
- CHANGE PASSWORD: change the access password for settings menus (by default 100)

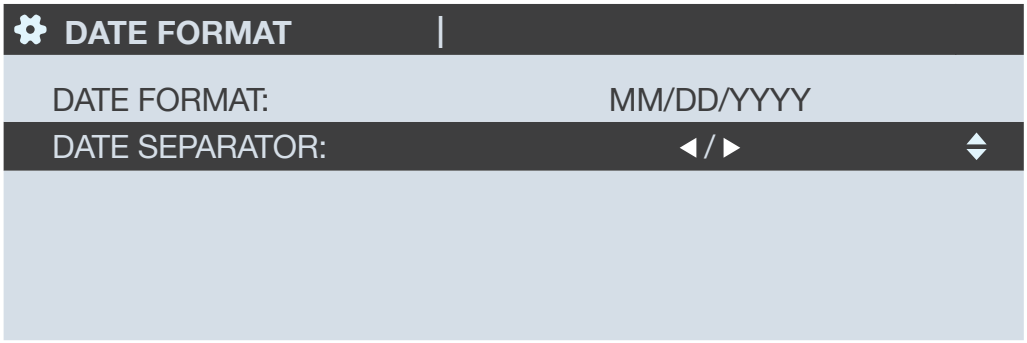
7.1.2. LANGUAGE menu

You can change the display's navigation language here.
Choose from the following languages: English, French, German, Italian, Spanish, Flemish, Polish, Turkish and Chinese.
Select your language with the arrow pad and confirm with "OK".



7.1.3. FORMAT DATE menu

Select the display's date format, including the separator between the day, month and year:



7.1.4. BUZZER menu

Enable or disable the BUZZER function in case of an insulation fault alarm:

7.1.5. RS485 COMMUNICATION menu

Configure the display's Modbus address.
Configure the baudrate, stop bits, parity of the RS485 bus.

PARAMETERS	
BAUDRATE:	◄ 38400 ►
STOP:	1BIT
PARITY:	NONE
ADDRESS:	001

7.1.6. COMMUNICATION ETHERNET menu

Configure the Ethernet settings of the display:

- DHCP (auto-addressing via the Ethernet network) ON/OFF
- IP address
- Subnet mask
- LAN gateway

PARAMETERS	
DHCP:	◄ DISABLED ►
IP ADDRESS:	192.168.000.003
MASK:	255.255.255.000
GATEWAY:	000.000.000.000

7.1.7. Communication date/time on the remote device

You can set the time on the display:

- Manually by entering the year, month, day, hour yourself
- Automatically (like a computer) via the SNTP server

If the display time has been set via SNTP, it will appear

CONF. DATE/TIME	
AUTO. REMOTE DATE/TIME SET	◄ MANUAL ►
YEAR	00
MONTH	01
DAY	01
TIME	00
…	

To configure via SNTP you need advanced IT knowledge (see your IT Department) to enter the following fields:

- SNTP server IP address
- SNTP server port

7.1.8. Changing the display locking code

The SETTINGS menu of the display is locked with a code (100 by default). We recommend changing this default lock code:

LOCK CODE	
CODE	100

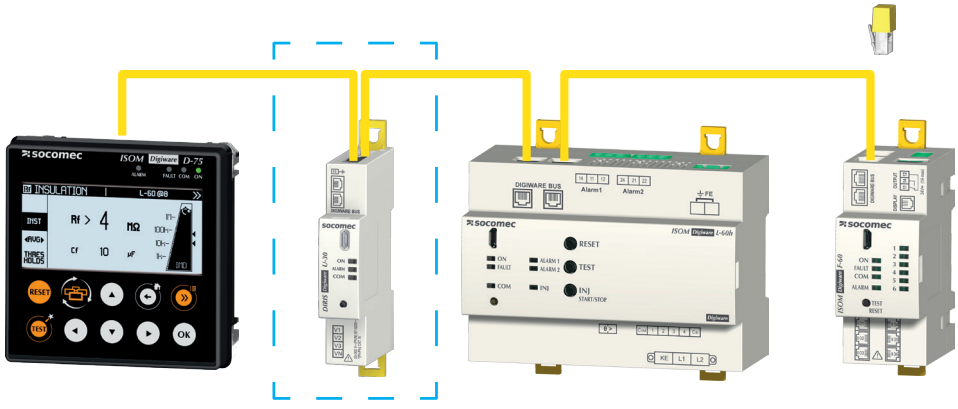
CONF. DATE/TIME	
AUTO. REMOTE DATE/TIME SET	◀ SNTP ▶
SERVER IP ADDRESS:	000.000.000.000
SERVER PORT:	00123
TIME ZONE:	GMT +9:00
OK	

7.2. Locating and addressing

Auto detection mode automatically scans and detects the connected devices on the Digiware bus or via RS485 for the D-X5.

For ISOM Digiware and PMD devices of type DIRIS Digiware or DIRIS B, Modbus addresses are automatically assigned during the auto-detection process.

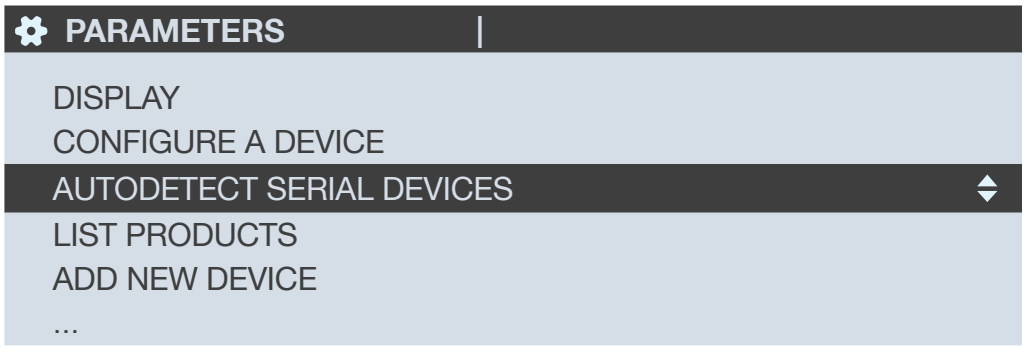
Manual addressing should be done on other RS485 or Ethernet devices.



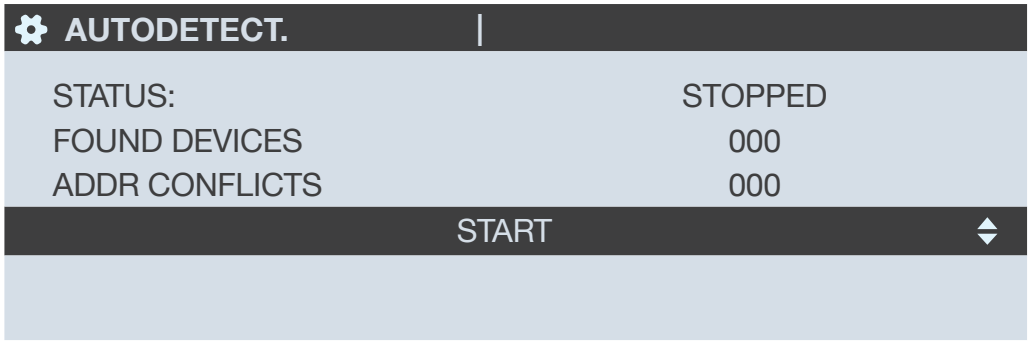
L-60 @6 F-60 @7 F-60 @8 F-60 @9

To start auto-detecting devices, go to PARAMETERS / AUTODETECT SERIES DEVICES:

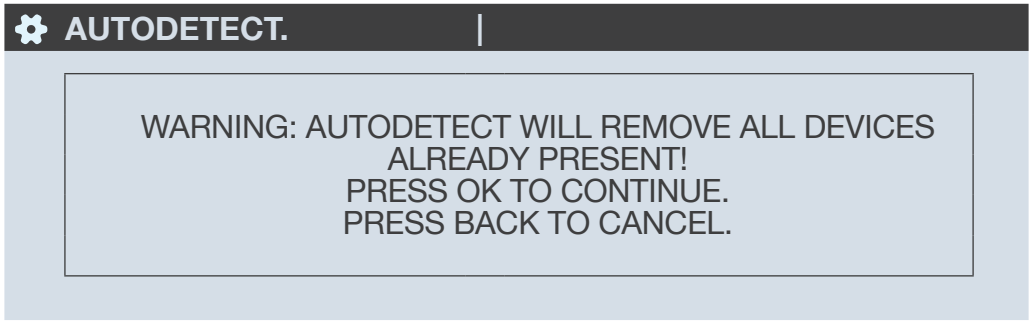
This function detects all devices connected by the Digiware bus and/or the RS485 bus on the ISOM Digiware D-X5 display.



Select "START" and then "OK" to start the scan/detection (this can take up to 7 minutes but can be interrupted once all devices have been detected.



Warning, all devices previously detected will be removed from the list (if they are still there, they will be detected again).



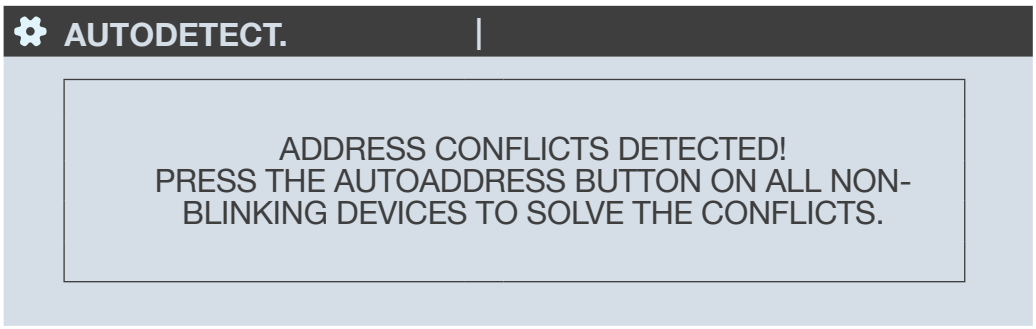
Various phases will automatically follow:

- ADDRESS DETECTION

- SCAN ADDRESS

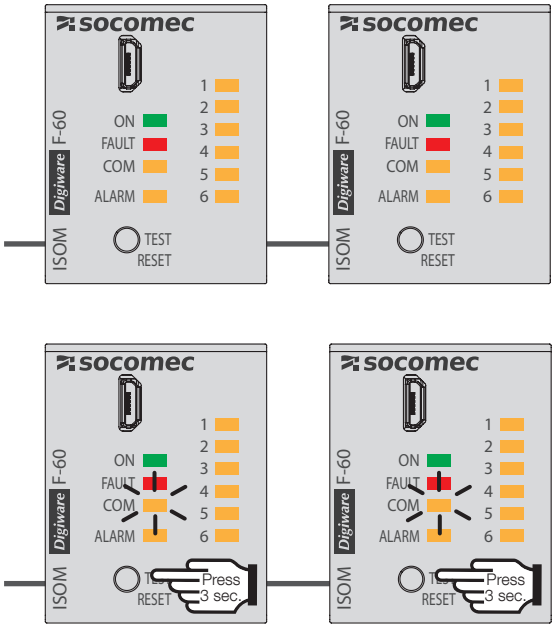
When the STATUS "STOPPED" appears, the system has ended its search.

The number of found devices is the number of devices that have been correctly located (two in this example).
If there is an address conflict (if 10 products have the same address, this is taken as a single conflict, not 10 conflicts), this means multiple products have the same address (two in this example). In this case, assign them individual and unique addresses.



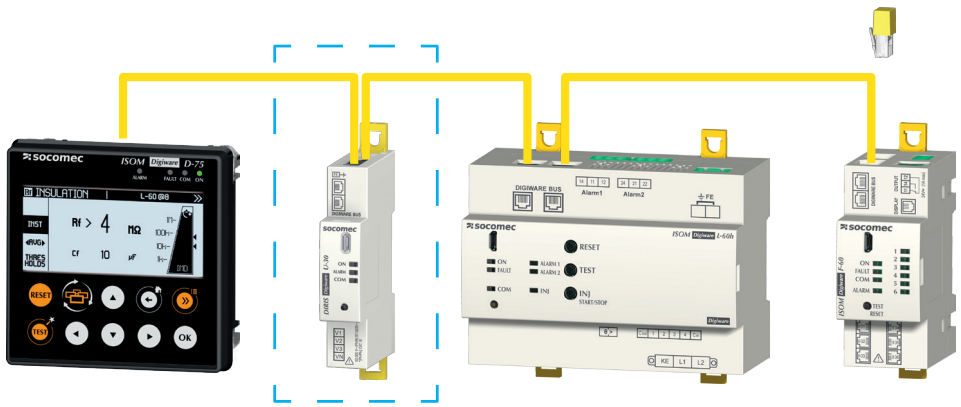
Press OK.

To go to this address, locate the lit "COM" LED on the front of each product. Press and hold down this button for a few seconds until the LED flashes:



LED COM ON = address conflict
LED COM FLASHING = product address identified correctly.

The display now shows the number of detected products increase and the number of conflicts decrease to reach zero once all products have a unique address.

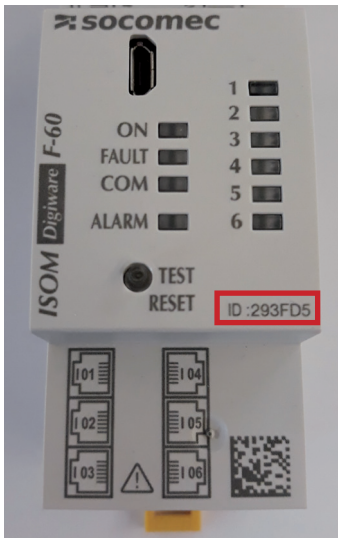


L-60 @6 F-60 @7 F-60 @8 F-60 @9

You can see the list of devices detected and their addresses in the "LIST DEVICES" menu.

PARAMETERS	LOAD1
DISPLAY	
CONFIGURE A DEVICE	
AUTODETECT SERIAL DEVICES	
LIST PRODUCTS	
ADD NEW DEVICE	
...	

You can find the codes on the device marking (293FD5 on one of the F-60 units), as in the photo:



We can now configure the products individually.

7.3. Configuring the ISOM Digiware system

You can configure units in the ISOM Digiware and DIRIS Digiware ranges on the remote display, ISOM Digiware D-x5.

"PARAMETERS" menu, "CONFIGURE A DEVICE"

PARAMETERS	
DISPLAY	
CONFIGURE A DEVICE	
AUTODETECT SERIAL DEVICES	
LIST PRODUCTS	
ADD NEW DEVICE	
...	

SELECT PROD		
L-60	ID: 563D40	@006
F-60	ID: 293FD5	@007
F-60	ID: 15DF5B	@008
F-60	ID: 497HG7	@009
...		

7.3.1. Configuring the ISOM Digiware L-60 IMD

You can change the various settings:

7.3.1.1. INSULATION MEASUREMENT menu

The following menus are available:

- PROFILE: Choosing the network profile is an easy way to support the measurement algorithm on the intended application, with improved filtering/measurement times. You can choose between 3 profiles:
  - Custom
  - Distribution
  - Control/command
- IMD MEASURING VOLTAGE: This data can set the measurement voltage according to the type of network. It either depends on the profile or you can select it in the "custom" profile.
- MAX INJ CURRENT: This lets you set the maximum value of the locating current. It either depends on the profile or you can select it in the "custom" profile.

① **Fuses 2 A gG**

- CF MAX: the max. leakage capacity permissible has a major impact on the integrity of the reading. Above all, it influences the measuring time of the device. It either depends on the profile or you can select it in the "custom" profile.
- FILTERING: Adjust the filter capacity on the device (LOW/HIGH) to minimise the impact of network disturbances on the measurements.
- NOISE LIMITATION: minimise the impact of network disturbances on the measurements.
- PERIOD INJECTION INJ: adjust the fault-locating signal period (fast = 6s ;
  normal = 12s ; slow = 24s). Optimise the IMD measurement in terms of the leakage capacity of the network.
- IMD MEASURING INPUT: input used by the IMD to start measuring the insulation resistance.
- IMD REPORT: use an output on the ISOM Digiware L-60 IMD to signal the status of the IMD insulation measuring unit.
- INJ FLD INPUT: use an input so that the ISOM Digiware L-60 IMD starts boosting the locating signal.
- INJ REPORT: use an output to alert as to the state of the IMD boost.
- MONITORING NETWORK: Enable or disable the network connection monitoring. This is particularly useful for a portable insulation fault search.

7.3.1.2. ISOM ALARM menu

2 insulation alarms can be configured on the ISOM Digiware L-60 IMD. On this screen you can configure the low threshold for each alarm, define the reset method (auto, from the ISOM Digiware D-x5 display / WEBVIEW or from one of the 4 ON/OFF inputs of the device) and issue an alert on the 2 ALARM 1 and ALARM 2 outputs of the ISOM Digiware L-60 IMD.

7.3.1.3. RELAYS menu

Set the mode of the ALARM 1 and ALARM 2 relays (NO or NF). You can also disable the relays for the manual test so they cannot be activated by a manual test during maintenance work, for example.

7.3.1.4. TRANSFORMER menu

Overload threshold: configure an overload threshold for the transformer
Overheating threshold: monitor the overheating status of the transformer via the temperature input of the ISOM Digiware L-60 IMD module.

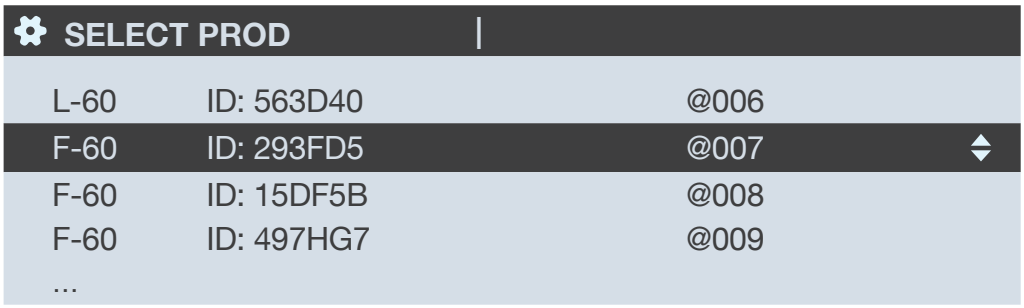
7.3.1.5. NETWORK menu

To configure the type of electrical network, its rated voltage, its rated frequency and direction of rotation of the phases (for networks 3P and 3P+N), it can only be used with Uxx.

7.3.1.6. INPUTS/OUTPUTS menu

In this menu, you can configure the 4 inputs/outputs of the L-60. If you are using multiple IMDs, you must configure one of the inputs in IMD disabled mode.

7.3.2. Configuring the FLD ISOM Digiware F-60



The FLD ISOM Digiware F-60 module has 6 measuring channels to both monitor insulation (connexion to locating core balance transformers) and measure load currents (connection to TE/TR/TF sensors).
This means you can fully configure one or more circuits.

7.3.2.1. CIRCUIT INSULATION menu:

First configure the "Circuit Insulations" starting with the inputs followed by the "Loads". In this menu, you can configure the inputs of the FLD ISOM Digiware F-60 module to locate faults. The 6 inputs of the module are activated by default as part of the insulation monitoring. If the module does not detect a locating core balance transformer on an input configured in insulation monitoring mode, the LED alarm on the front panel of the ISOM Digiware F-60 module flashing orange to show that the insulation monitoring will not be disabled on that input.

- INPUT: choose the input from 1 to 6
- STATE: Enable or disable an input in fault-locating mode.
- NAME: View the name of the circuit on which the fault was searched (by default Circuit insulation 1)

7.3.2.2. INSULATION MEASUREMENT menu

This menu shows you the settings configured in the ISOM Digiware L-60 IMD. Module ISOM Digiware F-60 and later cannot be modified.

7.3.2.3. ISOM ALARM menu

In this menu, you can configure the thresholds (in kΩ) for triggering the fault insulation alarm for each circuit (from 1 to 6).

7.3.2.4. RELAYS menu

Activates the relay if an insulation fault is detected on one of the inputs of the ISOM Digiware F-60 module.

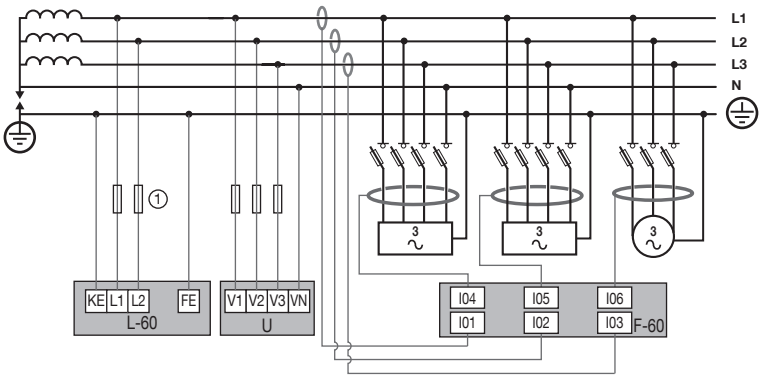
7.3.2.5. CIRCUIT MEASUREMENT menu

In this menu you can configure the inputs of the ISOM Digiware F-60 module to measure the load currents. For more details, please see paragraph 7.4, which gives an actual example.

7.4. Example of configuring an ISOM Digiware F-60 FLD module

This example shows how to configure the inputs of the module ISOM Digiware F-60 to share the insulation measuring and monitoring across multiple circuits, as shown in the diagram below:

Three-phase with neutral - 3 circuits
3P+N / IMD + FLD + input current measurement



- Go to SETTINGS --> CONFIGURE A DEVICE and select the ISOM Digiware F-60 module to configure.
- Go to the INSULATION CIRCUIT menu and enable inputs 4, 5, 6.
  Also remember to enable inputs 1, 2, and 3 (enabled by default) which are used for measuring.
- Go to the MEASURE CIRCUIT menu, click OK to configure the circuits.
- CIRCUIT: L1 for circuit number 1
  - NAME: to name the circuit. For a circuit sharing its insulation measuring and monitoring, it makes sense to use the same circuit name in the CIRCUIT INSULATION and CIRCUIT MEASUREMENT menu.
  - TYPE: the type of circuit (here, a three-phase circuit with neutral with one current sensor for each phase: 3P + N – 3CT)
  - I NOMINAL: the rated current of the three-phase circuit
  - CT1: should be on I1 (input I01 of the F-60 module as shown in the previous electrical diagram)
  - CT2: should be on I2 (input I02 of the F-60 module as shown in the previous electrical diagram)
  - CT3: should be on I3 (input I03 of the F-60 module as shown in the previous electrical diagram)
  - CONFIG CT: configure the following settings:
    - o direction: +/DIRECT = circuit current from P1 to P2 or –/INDIRECT = circuit current from P2 to P1
    - o Voltage allocation: CT1 on V1, CT2 on V2, CT3 on V3 in our example
    - o TC size: automatically detected.
- Click CONFIRM.
- Click SUBMIT SETTINGS.

The FLD module ISOM Digiware F-60 is now configured.

8. DISPLAY CHARACTERISTICS OF ISOM D-15H AND ISOM DIGIWARE D-55/D-55H/D-75/D-75t

8.1. Mechanical specifications

HMI models	D-15h: 3 LEDs – 2 keys D-55/D-75: Capacitive touchscreen technology, 10 keys, 4 LEDs
Screen resolution	D-55/D-75: 360 x 160 pixels
Degree of protection of front panel	D-15h: IP54 (front panel only) – marking conforms with IEC 60601-1 as on the ISO105-X12 D-55/D-75: IP65*
Material and flammability class of housing	Polycarbonate UL94-V0
Weight	D-15h: 100g D-55/D-75: 210g

(*) Front side only. The use of a silicone gasket may be necessary to ensure sufficient sealing of the junction between the D-55 / D-75 display and the cabinet door.

8.2. Communication specifications ISOM Digiware D-55/D-55h

Type of screen	D-55: Alert notification screen D-55h: Alert notification screen for medical premises (surgeries, etc.)
Ethernet RJ45 10/100Mbs	Digiware or RS485 gateway to the Ethernet Modbus TCP for D-55h only (32 simultaneous connections)
RJ45	Control and power supply interface function
RS485 2-3 wires	Modbus RTU master communication function
USB	Firmware and configuration updates via micro USB type B in Easy Config software

8.3. Communication specifications ISOM Digiware D-75/D-75t

Type of screen	Multipoint screen with WEBVIEW-M web server embedded
Ethernet RJ45 10/100Mbs	• Digiware or RS485 gateway to the Ethernet Modbus TCP (32 simultaneous connections) • WEBVIEW-M web server
Protocols and services	• SNTP: update the display from the SNTP server. The display sends the time to the connected devices. • SMTPS: send alert notification emails to one of the devices connected. • FTPS: automatically send data (trends, load curves, consumption index) on a standard or secure FTP server
RJ45	Control and power supply interface function
RS485 2-3 wires	Modbus RTU master communication function
USB	Firmware and configuration updates via micro USB type B in Easy Config software
® Bluetooth Low Energy (only with DIRIS Digiware D-50 BLE version)	
Use	Visualisation of data from Socomec Bluetooth sensors
Operating frequency	2402 to 2480 MHz
EIRP Power	EIRP Power for CE: 6.23 dBm (measured max average)
Max. Power for FCC/IC	3.15 dBm

8.4. Electrical characteristics ISOM D-15h and ISOM Digiware D-55/D-75

Power supply	D-15h: 24VDC RJ45 Digiware bus D-55/D-75: 24 VDC +/- 15%, Class 2 - 20 W max
Power consumption	D-15h: 0.5 VA D-55/D-75: 2.5 VA All the inputs/outputs are seen as SELV (safety extra-low voltage)

8.5. Electromagnetic characteristics ISOM D-15h/D-75/D-75t/D-55/D-55h/D-75h

CHARACTERISTICS	STANDARD	PERFORMANCE CRITERIA (IN ACCORDANCE WITH IEC 61326-2-4)	LEVEL
Immunity to electrostatic discharges (contact)	IEC 61000-4-2	A2	III
Immunity to electrostatic discharges (air)	IEC 61000-4-2	A2	III
Immunity to radiated, radio-frequency, electromagnetic fields	IEC 61000-4-3	A1	III
Immunity to electrical fast transients in bursts	IEC 61000-4-4	A2	III
Immunity to impulse waves (common mode)	IEC 61000-4-5	B	III
Immunity to impulse waves (differential mode)	IEC 61000-4-5	NA	NA
Immunity to conducted interference from radio-frequency fields	IEC 61000-4-6	A1	III
Immunity to mains frequency magnetic fields	IEC 61000-4-8	A1	IV
Immunity to voltage dips	IEC 61000-4-11	NA	NA
Conducted interference	CISPR11	NA	NA
Radiated interference	CISPR11	POSITIVE	Class B

8.6. Environmental specifications ISOM Digiware D-15h/D-55/D-55h/D-75/D-75t/D-75h

CHARACTERISTICS	VALUES
Use	Indoor
Pollution degree	2
Operating altitude	< 2000 m
Ambient operating temperature	**D-15h/D-55/D-55h/D-75/D-75t/D-75h:** -10°C to +55°C (IEC 60068-2-1 / EN/IEC 60068-2-2)
Storage temperature	D-15h/D-55/D-55h/D-75/D-75t/D-75h: -40°C to +70°C (IEC 60068-2-1 / IEC 60068-2-2)
Operating humidity	**D-15h/D-55/D-55h/D-75/D-75h:** 55°C / 90% RH (IEC 60068-2-30) **Reinforced model D-75t:** 55°C / 97% RH (IEC 60068-2-30)
Vibration	**D-15h/D-55/D-55h/D-75:** 2 Hz to 13.2 Hz – amplitude ± 1 mm (IEC 60068-2-6) 13.2 Hz to 100 Hz – acceleration ± 0.7g (IEC 60068-2-6) **Reinforced model D-75t:** 2.0 Hz to 25.0 Hz – amplitude ± 1.6 mm (IEC 60068-2-6) 25.0 Hz to 100 Hz – acceleration ± 4g (IEC 60068-2-6) 3Hz to 8.7Hz- amplitude ± 10 mm (IEC 60068-2-6) 8.7Hz to 150Hz – acceleration ± 3 g (IEC 60068-2-6)
Impact resistance	**D-15h/D-55/D-55h/D-75/D-75h:** 10 g / 11 ms, 3 pulses (IEC 60068-2-27) **Reinforced model D-75t:** 10 g / 11 ms, 3 pulses (IEC 60068-2-27) 30 g / 18 ms, 3 pulses (IEC 60068-2-27) 40 g / 6 ms, 3 pulses (IEC 60068-2-27)
Protection degree	IP65 (front panel) IEC 60529
PEP ecopassport – ISO 14025	ISOM Digiware: SOCO-00009-V01.01.

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