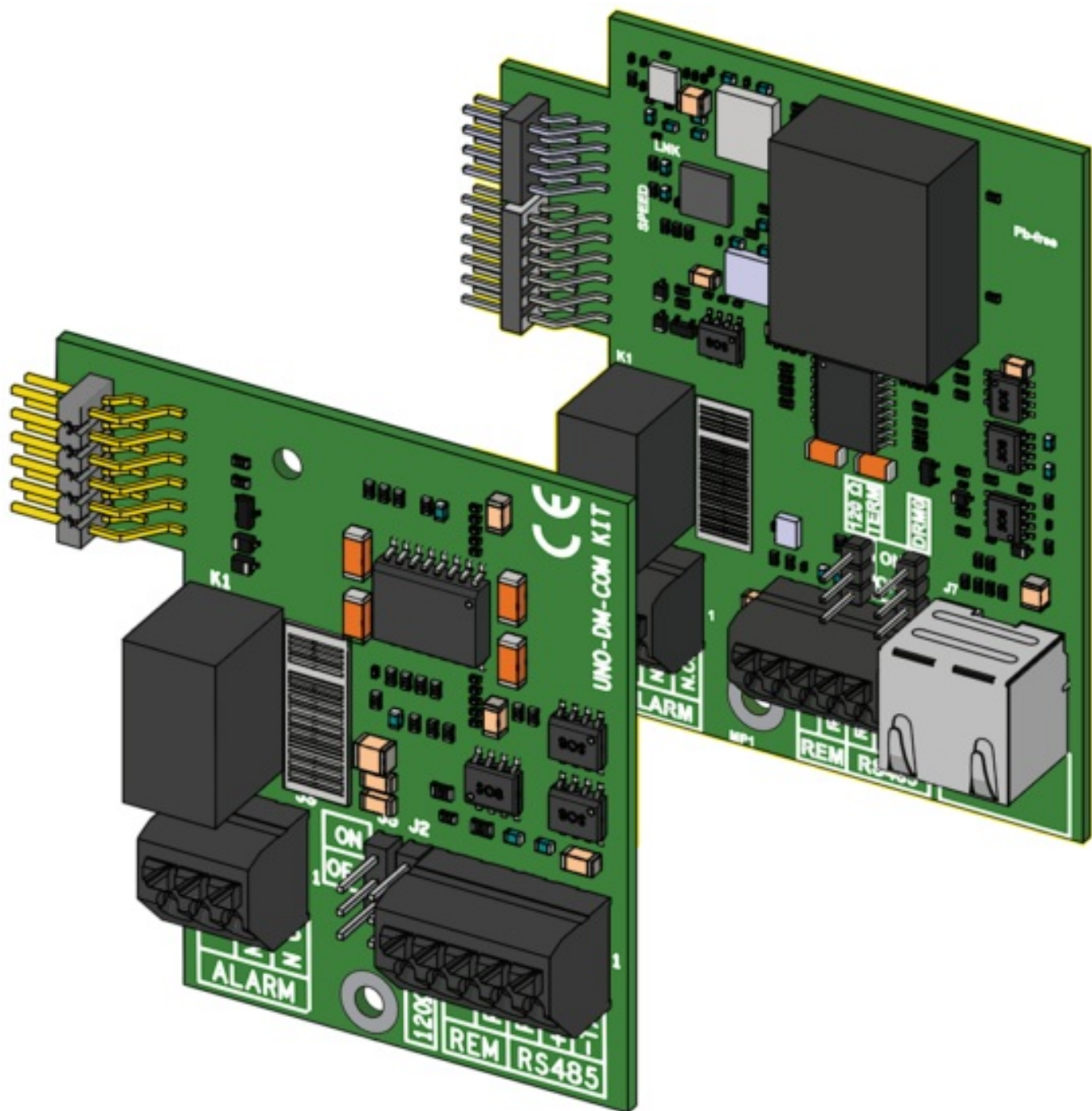


FIMER UNO-DM-COM Solar inverter KIT User Guide

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FIMER UNO-DM-COM Solar inverter KIT

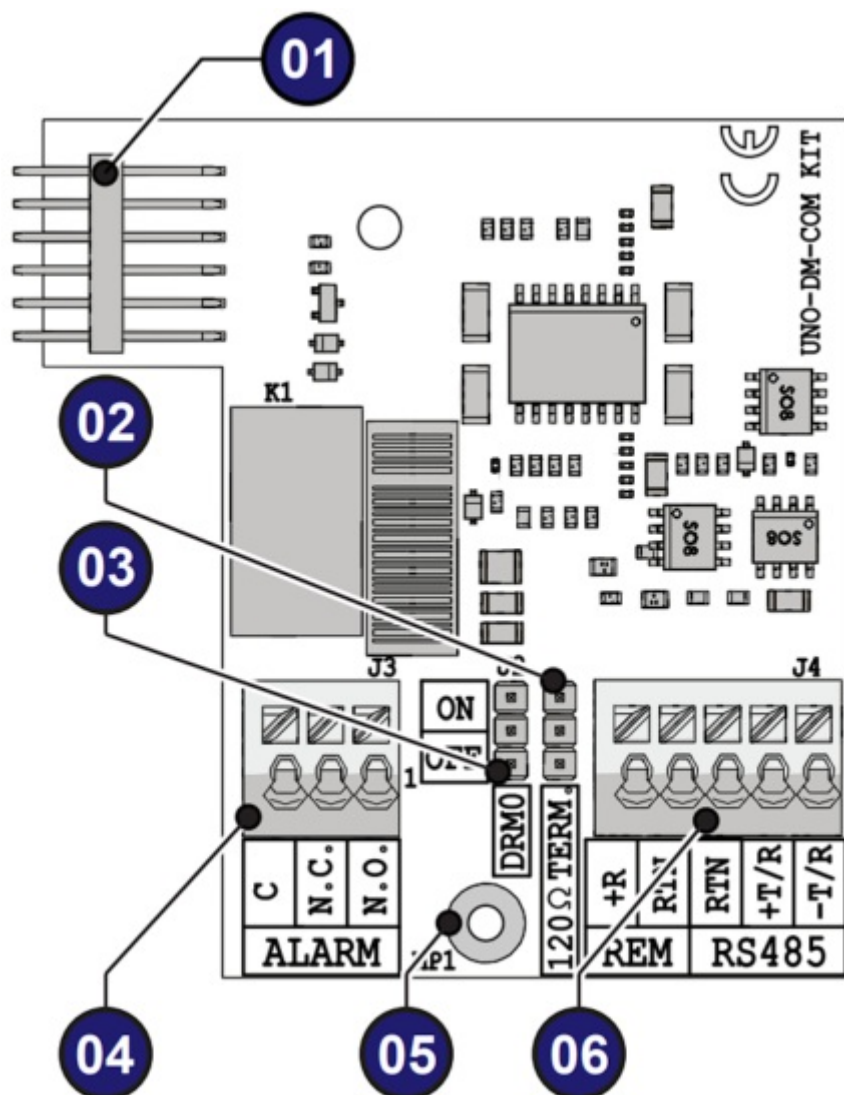


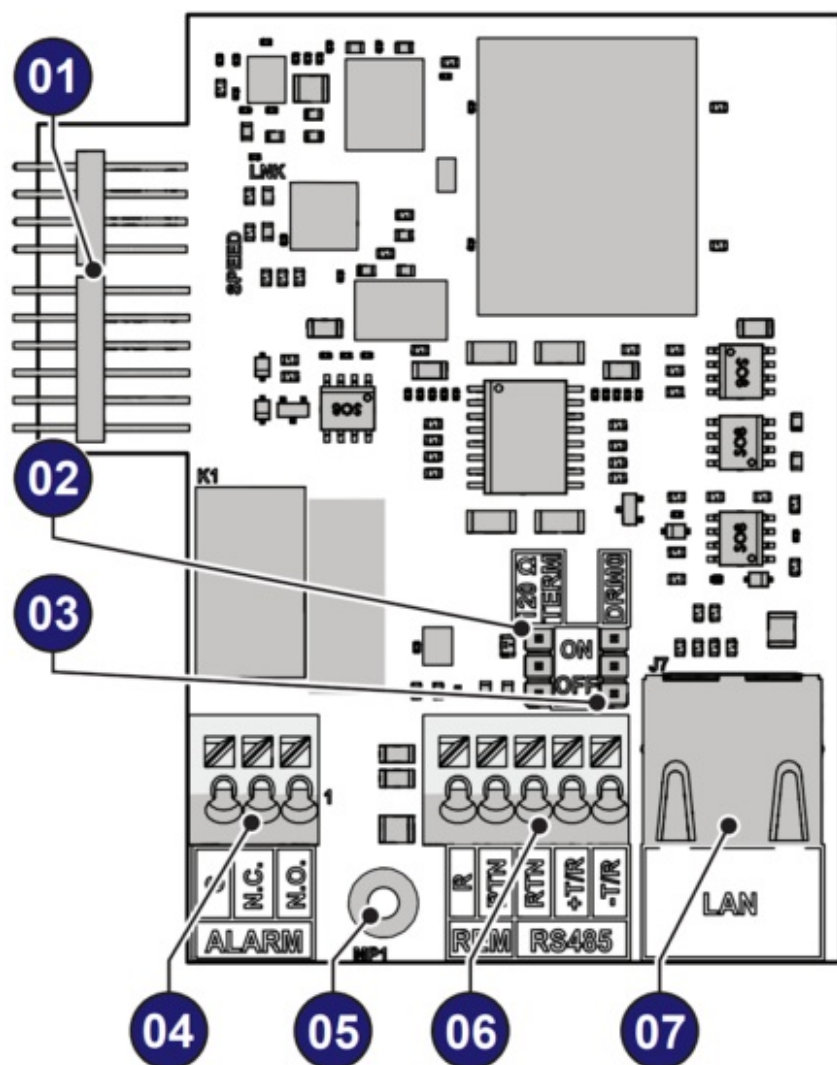
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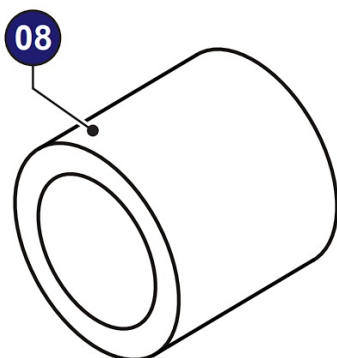
Principal Components

Principal components of the accessory board UNO-DM-COM KIT and UNO-DM-PLUS Ethernet COM KIT are shown in the figures and described in the following table:



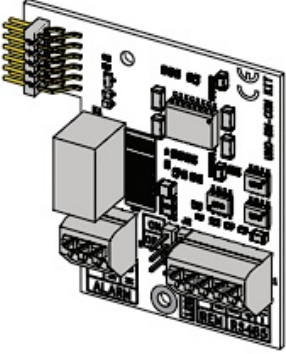
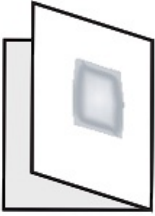
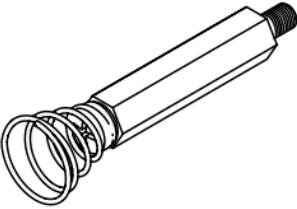
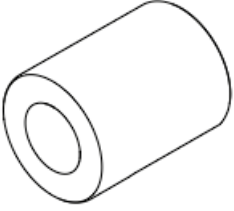
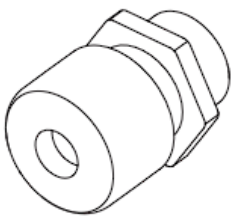



- 01 Inverter connector
- 02 RS485 Line Termination Jumper
- 03 DRM0 Activation Jumper
- 04 Alarm Connector
- 05 Fixing hole
- 06 RS485 and REM connector
- 07 Ethernet communication port (RJ45)
- 08 EMI ferrite



Supplied component list

Inside the package, the following items are supplied

Components	supplied with the kit	Q.ty
	Accessory Board UNO-DM-COM KIT or UNO-DM-PLUS Ethernet COM KIT	1
	Quick installation guide	1
	Tower with spring	1
	EMI ferrite (08)	2
	Cable gland M25	1
	Gasket with two/ three* holes for the service cable gland M25 + cap TGM613	1+1 or 2

* Gasket with three holes and two pieces of cap TGM613 only on UNO-DM-PLUS Ethernet COM KIT

Functional diagram

UNO-DM-COM KIT and UNO-DM-PLUS

Ethernet COM KIT are the optional accessory boards that can be integrated in the inverters of the UNO-DM-PLUS family offering the following additional functions:

- Ethernet communication port (RJ45) (Only available on UNO-DM-PLUS Ethernet COM KIT board)
- RS485 communication port for connecting either an external monitoring / control system or a supported meter for implementing a Dynamic feed-in control.
- Remote ON/OFF Digital Input.
- Alarm Contact.
- Demand Response Mode 0 required by AS/NZS 4777.2:2015

The expansion board can be inserted directly into the dedicated connector inside the inverter and can also be easily added to a previously installed inverter.

The installation must be performed by an installer or by a trained technician after reading the instructions given in this guide.

The board is directly powered by the inverter and provides the required safety isolation from the primary side of the inverter.

(Only available on UNO-DM-PLUS Ethernet COM KIT board)

The Ethernet connectivity is based on ZeroConf IP protocol with DHCP client.

Ethernet port provides access to the integrated Web User Interface as well as already possible with the WiFi communication channel simultaneously.

Both RS-485 and Ethernet communication ports can be set for enabling communication over either Modbus (RTU and TCP respectively) protocol Sunspec compliant or proprietary communication protocol named Aurora Protocol.

Only one client at a time is allowed commissioning the inverter or reading and/or writing the inverter's registers. Available supported Sunspec modes and register map are published.

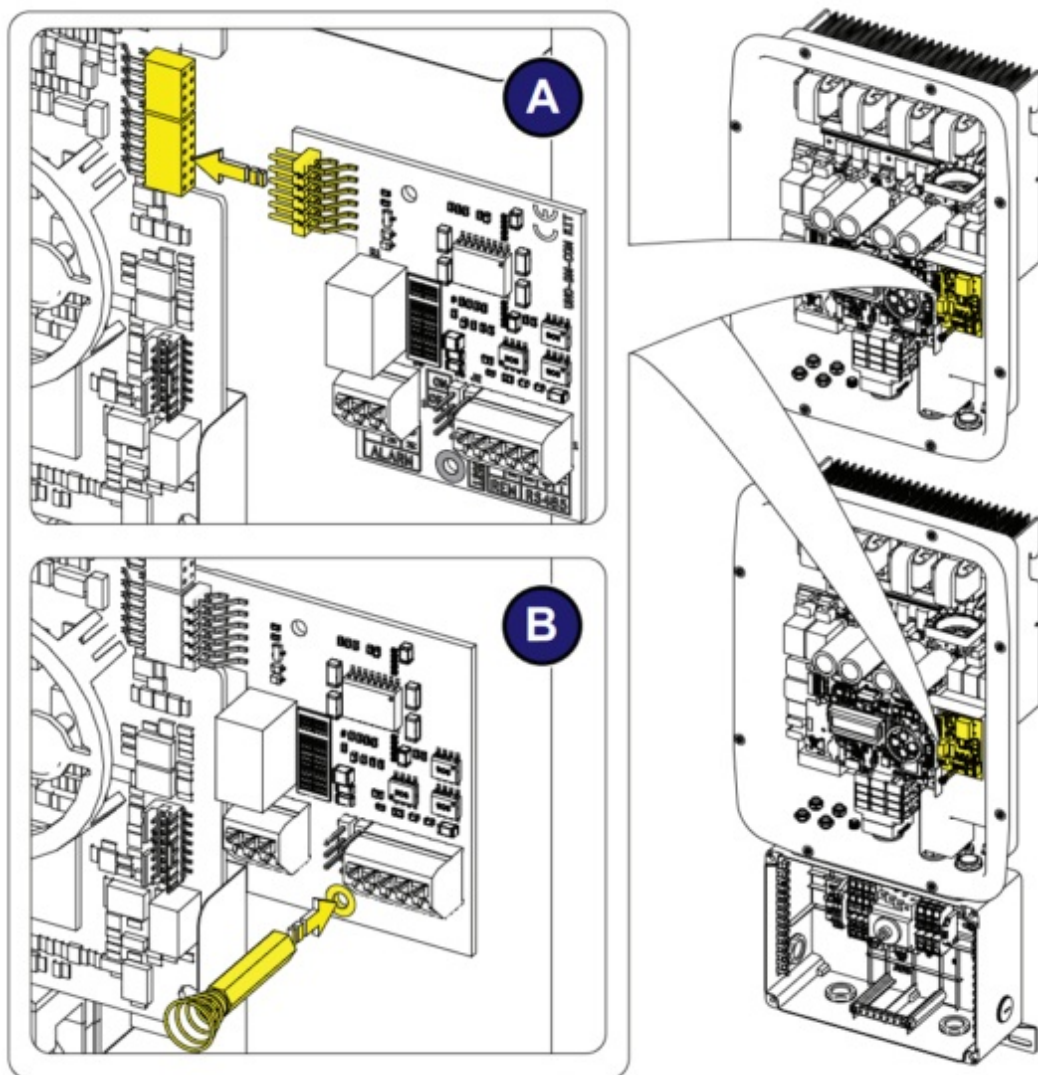
Assembly instructions




WARNING – Hazardous voltages may be present on accessory board. To avoid the risks for electric shock, the access to the internal zones of the inverter must be carried out after at least 5 minutes following the disconnection of the equipment from the network and from the photovoltaic generator.

To install the accessory board, perform the following steps:

- Remove the front cover of the UNO-DMPLUS inverter (Refer to the quick installation guide of UNO-DM-PLUS inverter for proper removal of the front cover)
- **(A):** Connect the connector **(01)** to the counterpart present on the inverter
- **(B):** Use the tower with the spring supplied to secure the board to the chassis of the inverter using the appropriate hole **(05)**



 **WARNING** – Before turning on the unit, it is mandatory to close the cover of the inverter.

**UNO-DM-COM KIT installed inside
the inverter, DRMO supported**

OR

**UNO-DM-PLUS Ethernet COM KIT
installed inside the inverter,
DRMO supported**

Instructions for connection

READ THE MANUAL – For more information about the configuration and use of the terminal for communication and control signals, refer to the inverter product manual.

Cable connection in inverter versions without wiring box

Each cable connected to the connectors of the accessory board must be passed through the M25 cable gland (supplied) to be installed on the bottom part of the inverter.

The M25 cable gland (that accepts a cable with a diameter ranging between 10 mm and 17 mm) and a gasket with two holes to be inserted inside the cable gland, which allows the passage of two (in case of UNO-DM-COM KIT) or three (in case of UNO-DM-PLUS Ethernet COM KIT) separate cables with a maximum diameter of 6 mm.

To install the M25 cable gland remove the M25 protection cap from the inverter and replace it with the cable gland, fastening it with the same M25 lock nut and the same O-ring of the protection cap.



ATTENTION – Caution! To ensure the degree of environmental protection IP65, it is necessary to fix the cable gland to the inverter chassis with a minimum torque of 7.5 Nm. When installing the cable gland M25 use the O-ring removed from the M25 protection cap (installed into the inverter) to maintain the IP65 protection level!

If only a single cable is being passed through the gasket, the TGM613 cap must be inserted into the spare hole to ensure degree of environmental protection (see figure below).



ATTENTION – The communication cable (ethernet and/or RS485) must be wrapped around the EMI ferrite (08) supplied in the package (1 winding); such a EMI ferrite should be appropriately placed on the inside bottom side of the inverter compartment (see side illustration and ethernet/RS485 connection paragraph in this guide).



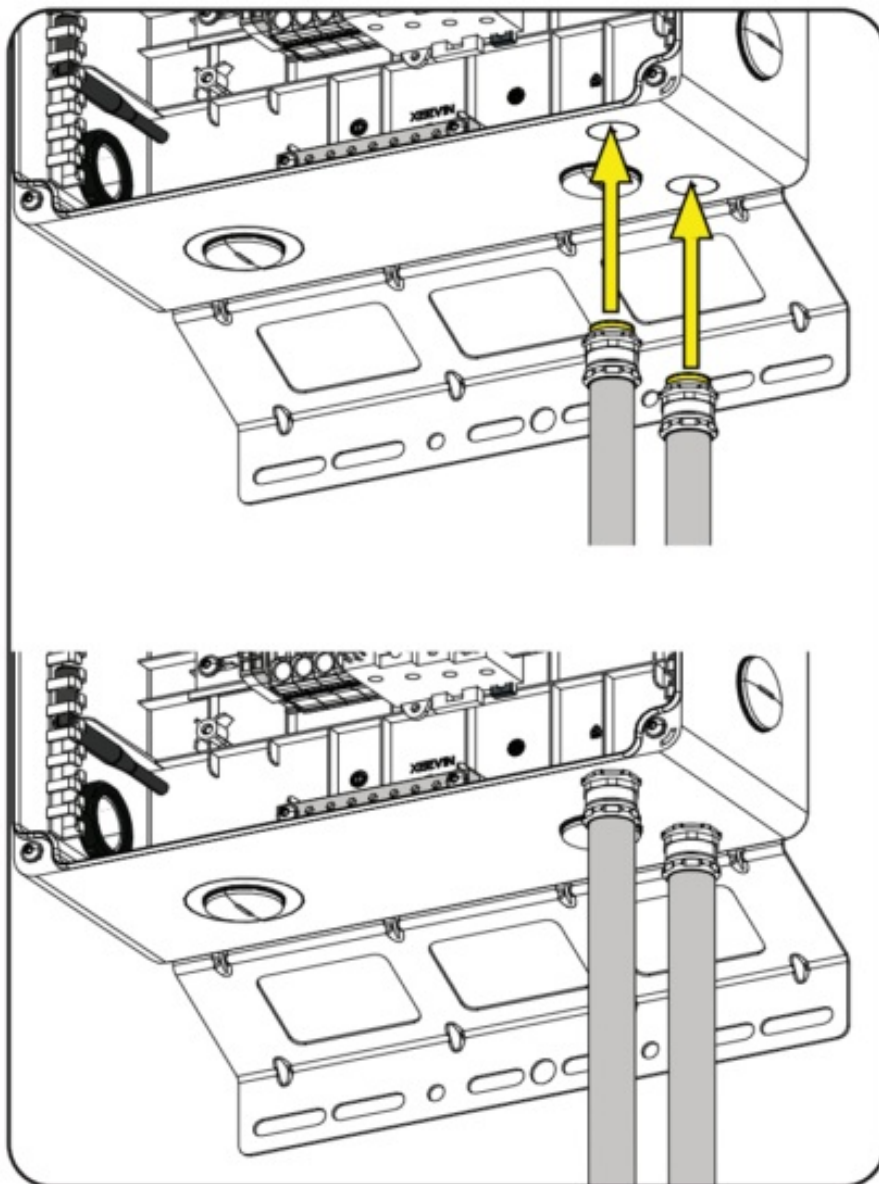
ATTENTION – The connection of the communication and control signal cables should be done with no over-length of the above mentioned cables (as in the illustration). i.e. the cables should be run over the internal protective sheet. Moreover the communication and control signal connection cables should not be in contact with AC cables.

Cable connection in inverter versions with wiring box

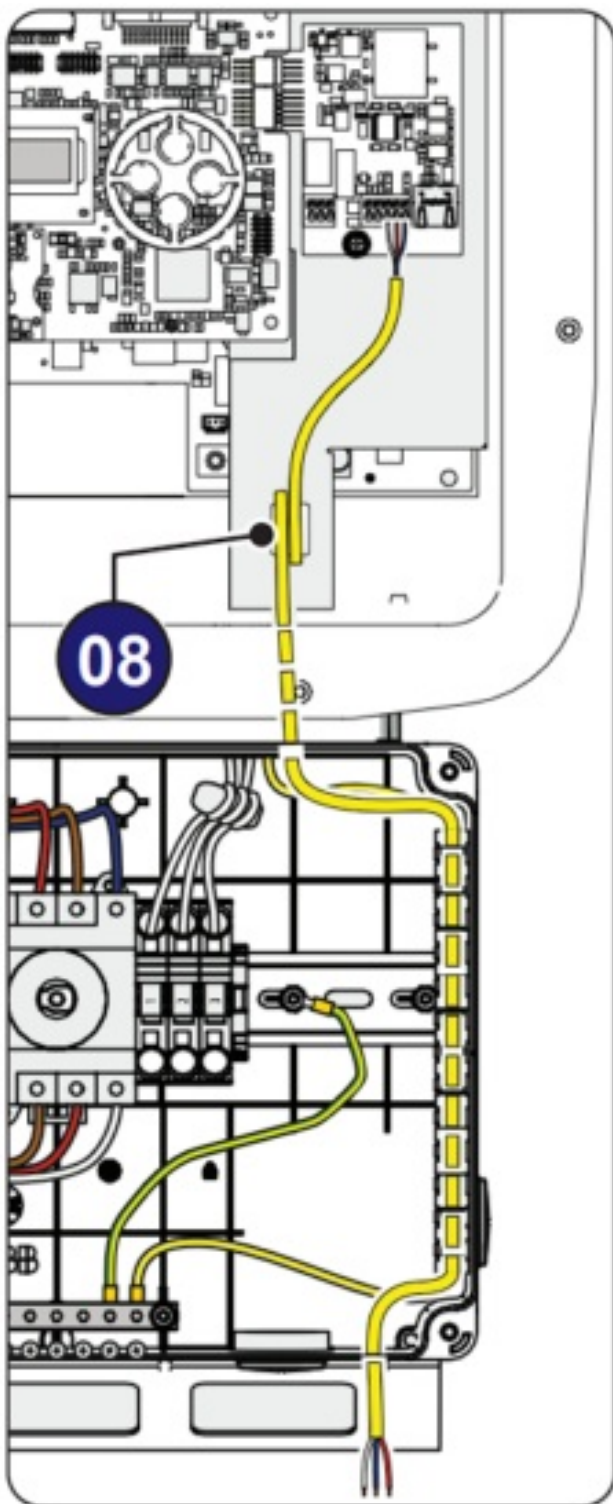
To connect the signal cables to the accessory board is necessary to:

- Remove both front covers (wiring box (05) and inverter compartment (04))
- Insert the appropriate water-tight conduit connector on signal conduit opening (15) and tighten to the chassis to maintain NEMA 4X compliance.

Conduit must be sealed using water-tight fittings to maintain NEMA Type 4X enclosure integrity.



- Run the cables through the signal cable conduit
- Run the cables through the plastic cable tray on the internal right side of the wiring box
- Run the cables inside the inverter through the hole and connect the cable to the accessory board.



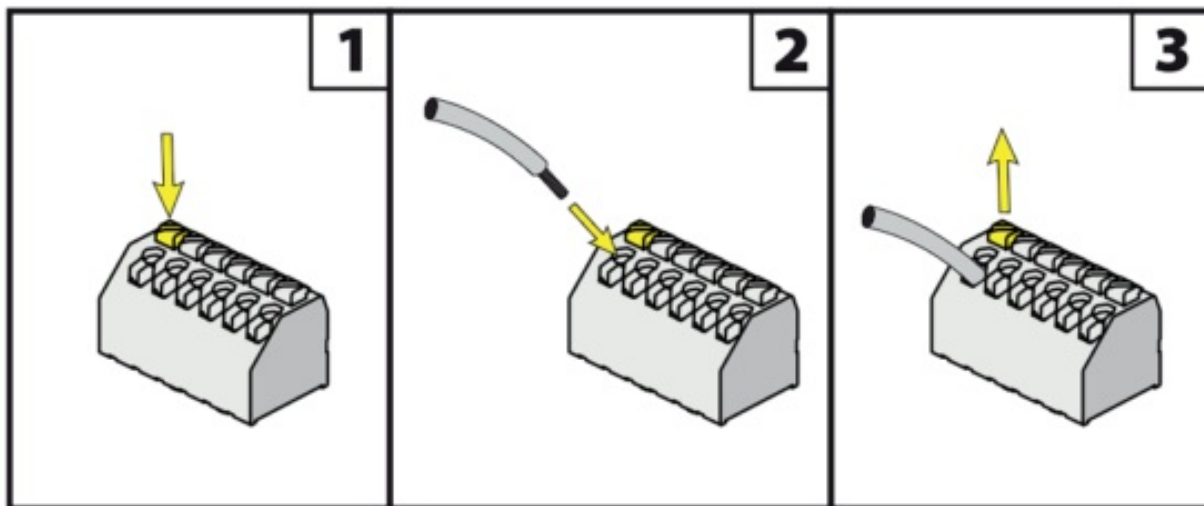
ATTENTION – The communication cable (ethernet and/or RS485) must be wrapped around the EMI ferrite (08) supplied in the package (1 winding); such a EMI ferrite should be appropriately placed on the inside bottom side of the inverter compartment (see side illustration and ethernet/RS485 connection paragraph in this guide).



ATTENTION – The connection of the communication and control signal cables should be done with no over-length of the above mentioned cables (as in the illustration). i.e. the cables should be run over the internal protective sheet. Moreover the communication and control signal connection cables should not be in contact with AC cables.

To connect the wires to the Alarm (04), RS485 and REM (06) connector terminals:

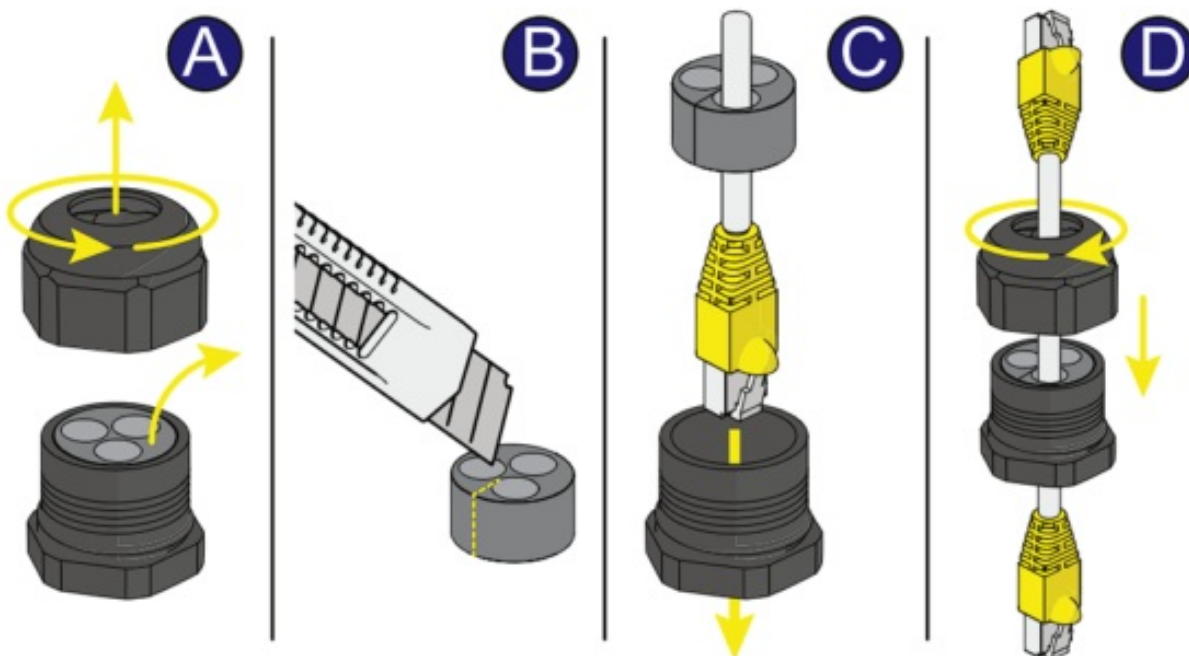
- 1) With a flathead screwdriver, hold the button corresponding to the contact to be wired.
- 2) Insert the cable.
- 3) Release the button and check the cable seal.



Ethernet connection and cable specification

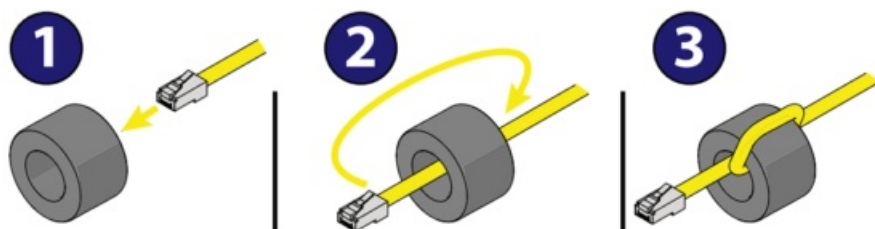
If it's required to use a pre-assembled ethernet cable to be connected to the UNO-DM-PLUS Ethernet COM KIT, it will be necessary to make the following operation:

- A) Remove the gasket with three holes from the M25 cable gland disassembling the thread-lock sealing nut.
- B) Cut the gasket from the edge to an hole with a cutter or a scissor as shown in the pictures.
- C) Insert the Ethernet cable in the hole previously cutted of the gasket with three holes and asseby the gasket with three holes on the M25 cable gland.
- D) Firmly screw the thread-lock sealing nut.



The characteristics required for the ethernet cable are listed in the table below:

Type	Cable diameter
CAT 5E or greater	6 mm max.
The ethernet cable must also be wrapped around the EMI ferrite supplied in the package (1 winding); such a EMI ferrite should be appropriately placed on the inside bottom side of the inverter compartment.	



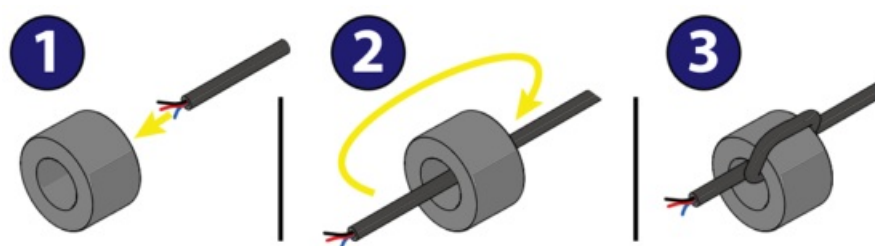
RS485 line connection

Characteristics and dimensioning of the communication cables

To connect the RS485 line, you must use a shielded cable with three conductors. The characteristics that the cable must possess are indicated in the following table:

Type	Shielded
AWG (mm ²)	24 – 16 (0.2 – 1.5)
Characteristic impedance	120 Ohm
Operational voltage	≥300 V
Operational temperature	-20...+60 °C

The wiring of the RS485 line must also be wrapped around the EMI ferrite supplied in the package (1 winding); such a EMI ferrite should be appropriately placed on the inside bottom side of the inverter compartment.



Connecting the alarm contact and the remote control

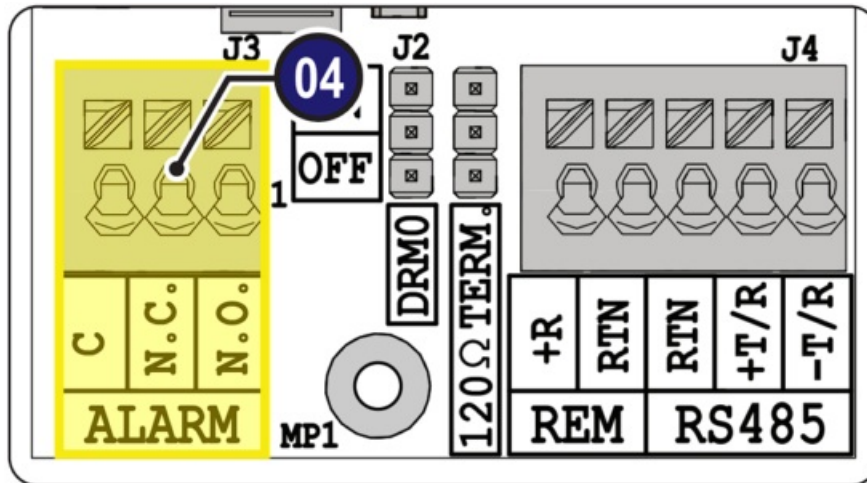
Characteristics and dimensioning of the cable for alarm and remote control contact:

The characteristics that the cable must possess are indicated in the following table:

AWG / mm ²	Operational voltage	Operational temperature
24 – 16 0.2 – 1.5	≥300 V	-20...+60 °C

Using the Alarm terminal

Connections to the configurable ALARM relay are through the terminals **(04)**. This allows connection to external devices to signal fault conditions or load control. The operation mode can be selected in the “INVERTER> SETTINGS> Alarm” menu.



The operation modes that can be selected:

Production, Alarm, Alarm Configurable, Crepuscular, Alarm Configurable Latch, Alarm Configurable ext, GoGo relè (Auto), GoGo relè (Remote). Refer to the product manual for further details on the operation modes of the Alarm terminal.

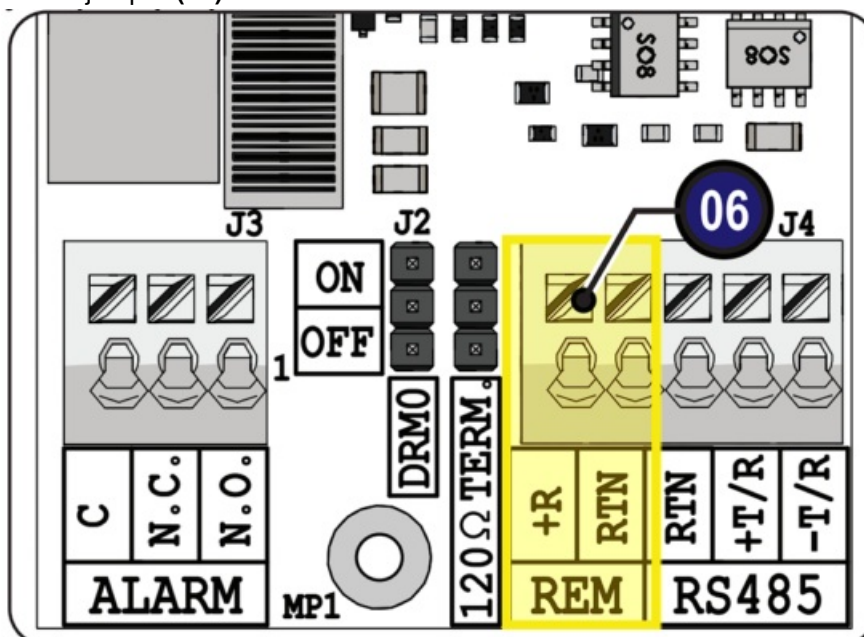


ATTENTION – The ALARM contact can only be used with systems that include additional safety insulation (supplementary insulation in relation to the DC input voltage).

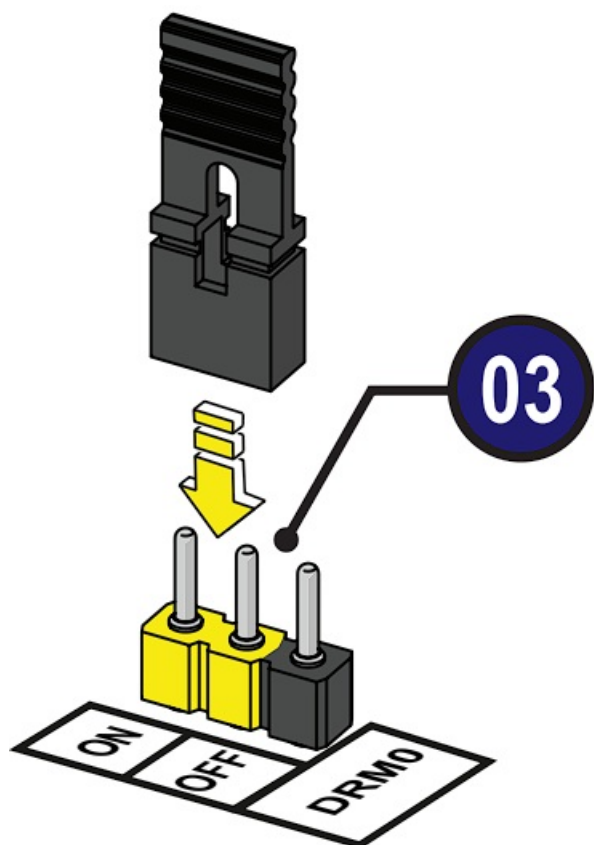
Using the REM terminal

The REM terminal **(06)**, when properly configured, allows the use of the “Remote ON / OFF” or the “DRM0” functions.

The inverter can be disconnected from the grid remotely using the REMOTE ON/OFF function. This function is enabled in the “**INVERTER > SETTINGS > Remote ON/OFF**” menu. To use purely as a REMOTE ON/OFF, the DRM0 jumper **(03)** must be set to “OFF”.



Where required, it is possible to activate the DRM0 function by configuring the Jumper for the activation of the DRM0 function (03) in the “ON” position.



ATTENTION – In case the DRM0 function is enabled if the proper connection of the REM terminal is not made, the inverter will remain disconnected. Refer to the product manual for further information on the DRM0 function.

Features and Technical Data

Connections	
Type of connectors	Connectors with spring (Cables accepted: 0.2-1.5 mm ² / 24-16 AWG) Ethernet 10/100Mbps base –T (only on UNO-DMPLUS Ethernet COM KIT)
Alarm relay rating	Floating contact (230V, 1A max.)
Remote On/Off	Digital input
Serial communication protocol	ModBus RTU Sunspec compliant or Aurora Protocol
Safety	
Brands	CE
Class of insulation	I
EMC and safety standards	N 60950-1; EN 55022 ; EN 55024

READ THE MANUAL – In case of inverter fault, remove and keep any accessory boards installed inside the inverter before shipping it to FIMER. Any accessory board will not be reinstalled in case of inverter replacement.

FIMER_UNO-DM-COM KIT & UNO-DM-PLUS Ethernet COM KIT_Quick Installation Guide_EN_RevC 26-04-2021

For more information, contact your local FIMER representative or visit: fimer.com

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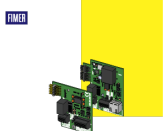
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Documents / Resources

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References

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