	Document code	Peimar_EN_Guide_PSI-X3P-40-50-60-TPM
///PEIMAR	Description	Parallel Connection of Multiple Inverters of the PSI-X3P-TPM-40-50-60 Series
PEIMAR SRL VIA CEFALONIA, 70 - 25124 BRESCIA (BS) P.IVA 03416340986 Phone +39 030 22 32 92 - Fax +39 030 777 2102 www.peimar.com	Date	21/11/2025
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Parallel Connection of Multiple Inverters of the PSI-X3P40000/50000/60000-TPM Series

The inverters of the PSI-X3P40000/50000/60000-TPM series also support the parallel connection function.

This feature allows you to manage **up to 10 inverters** in parallel within a single three-phase system, and also enables grid feed-in control by adding a meter on the main circuit.

In this system, one inverter will be set as the **Master**, and it will control the management and power delivery of all the other connected inverters. In this setup, **only one three-phase meter** needs to be installed, and it will communicate with the Master inverter. The Slave inverters will be daisy-chained to the Master via communication cables (see diagram below).

! NOTE

For installations with a nominal power greater than 11.08 kW, an external interface protection system must be installed, as required by regulations. Before proceeding, verify that:

1. The inverters belong to the same series and power ratings: PSI-X3P40000/50000/60000-TPM.
2. Ensure that all inverters have the same firmware version; otherwise, the parallel function cannot be used.

Electrical connections, communication, and display setup

Step 1:

onnect the three phases, neutral, and earth of the inverters to the same three-phase line. Follow the connection procedures described in the AC Connection section of this manual.
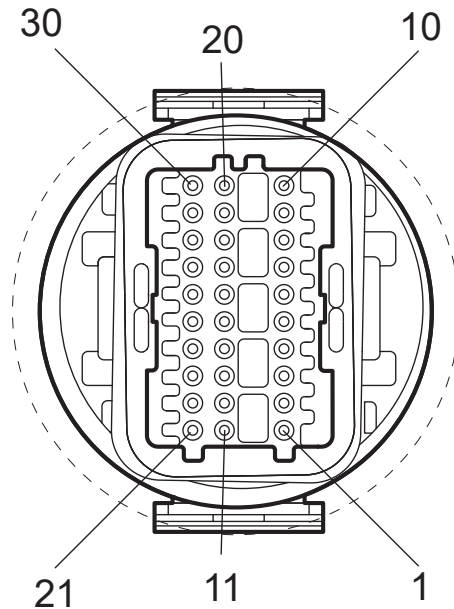
! NOTE

For the safety of the system, grounding each inverter is mandatory.

Step 2:

The inverters communicate with each other using data cables. The installer must independently obtain an RS485 data cable.

Each inverter is equipped with a COM port with pins numbered from 1 to 30, to which a connector will be attached (see the following picture).

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To enable the parallel connection, connect the data cable to pins 4 and 5 of the first inverter, which will become the **Master**, and to pins 1 and 2 of the second inverter, which will become the **Slave**. Repeat the same wiring procedure for all subsequent inverters.
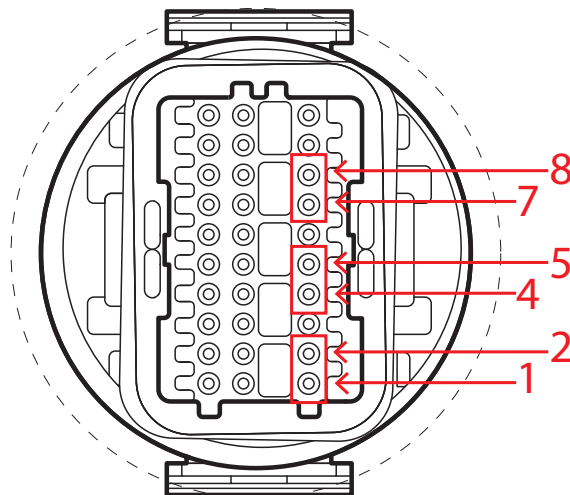
Pins 1, 2, 4, and 5 belong to the RS-485-1 port, while pins 7 and 8 belong to the RS-485-2 port.

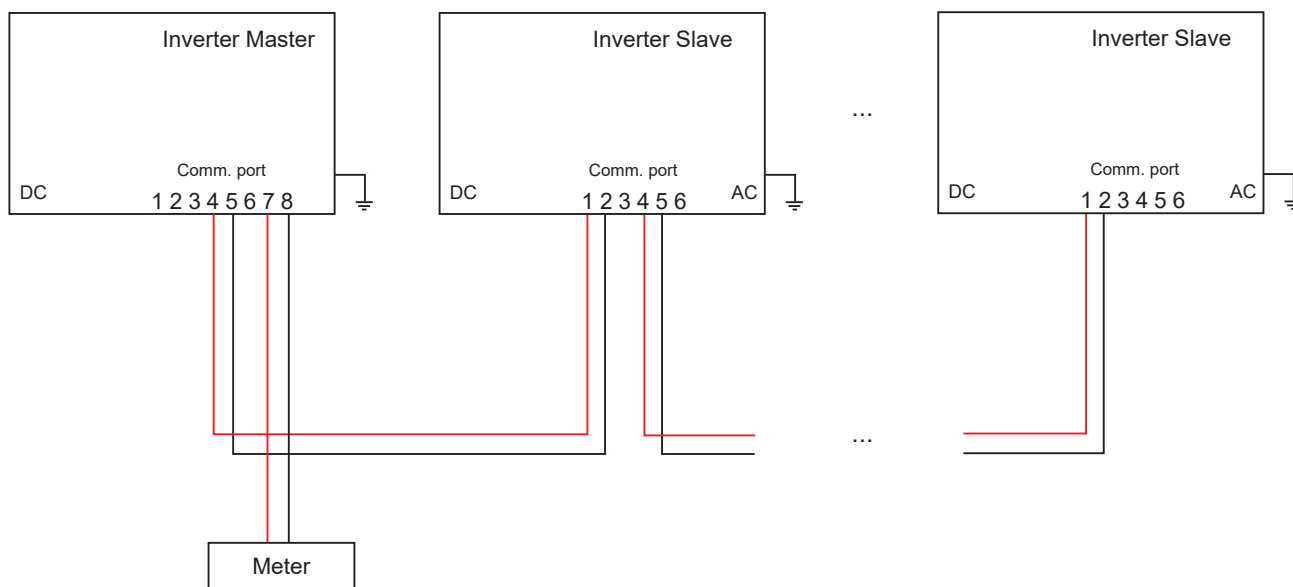|	Document code	Peimar_EN_Guide_PSI-X3P-40-50-60-TPM
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Port	Pin	Definition
RS-485-1	1	RS485A IN+
	2	RS485B IN-
	4	RS485A OUT+
	5	RS485B OUT-
RS-485-2	7	RS485A METER
	8	RS485B METER

To connect the meter to the Master inverter, connect a communication cable to pins 7 and 8 on the terminal block of the first inverter, which will operate as the Master. For more details, follow the instructions provided in the relevant chapter of this manual regarding the Meter connection.

Below are the possible wiring diagrams:

Diagram 1

Up to 10 inverters of the PSI-X3P40000/50000/60000-TPM series can be interconnected.

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Step 3:

Once the Meter has been connected to the Master inverter, the master mode must be activated from the display:

MENU > OPTIONS > ADVANCED (Password "2014") > PARALLEL OPTION > MASTER MODE.

Check that the default settings have not been changed. The Slave inverter must have the Modbus address and baud rate set respectively from 2 to 11 (up to 10 inverters) and 9600. Set the Meter Modbus address to 1 and the baud rate to 9600.

Next, set the "System Limit" value on the Master inverter. This value defines the operating power limit for the parallel system. The output power of each Slave inverter will be distributed according to its nominal output power. The value can be set as a percentage.

The "System Limit" function is activated when the inverter operates as Master and the parallel function is enabled. This function replaces the normal "User Value" setting, which is used to set the power limit on a single inverter. To set it:

MENU > OPTIONS > ADVANCED (Password "2014") > PARALLEL OPTION > System Limit > 100%.

❗ NOTE

Parallel connection between inverters of different power ratings belonging to the PSI-X3P40000/50000/60000-TPM and PSI-X3P100000/125000-TPM series is allowed; however, it requires the mandatory use of the DataHub (PSI-X-DH1000). For further details, refer to the DataHub user guide.