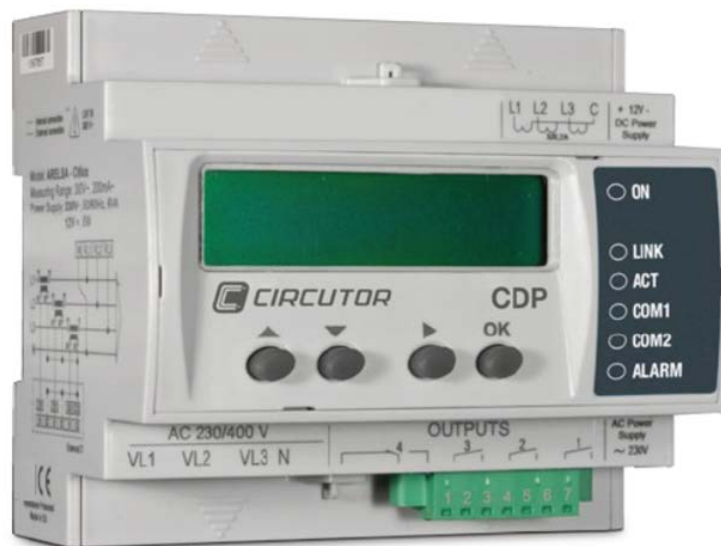




Operation of a CDP in SPLIT-PHASE installations





APPLICATION NOTES (M028E1001-03-15A)




SAFETY PRECAUTIONS


Follow the warnings described in this manual with the symbols shown below.

	<p>DANGER Warns of a risk, which could result in personal injury or material damage.</p>
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	<p>ATTENTION Indicates that special attention should be paid to a specific point.</p>
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If you must handle the unit for its installation, start-up or maintenance, the following should be taken into consideration:

	<p>Incorrect handling or installation of the unit may result in injury to personnel as well as damage to the unit. In particular, handling with voltage applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire. Carefully read the manual prior to connecting the unit. Follow all installation and maintenance instructions throughout the unit's working life. Pay special attention to the installation standards of the National Electrical Code.</p>
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	<p>Consult the instruction manual before using the unit In this manual, if the instructions marked with this symbol are not respected or followed correctly, it can result in injury or damage to the unit and /or installations.</p>
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CIRCUTOR, SA reserves the right to modify features or the product manual without prior notification.

DISCLAIMER

CIRCUTOR, SA reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

CIRCUTOR, SA, on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

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LOG OF REVISIONS

Table 1: Log of revisions.

Date	Revision	Description
08/15	M028E1001-03-15A	Original version

Note: The images of the units are solely for the purpose of illustration and may differ from the original unit.

1.- SPLIT-PHASE INSTALLATIONS

2P3W split-phase electrical installations have the feature of balancing the $V1^{\wedge}V2$ 180° voltages, unlike the 120° ones, which may have a three-phase installation.

These grids usually have voltages of 120V V_{P-N} and 240V V_{P-P} , as shown in **Figure 1**. In this case, the technical manuals of some photovoltaic inverter manufacturers indicate how the AC output must be connected. In the example shown in **Figure 1**, the inverter manufacturer indicates that its product must be connected between L1 and L2.

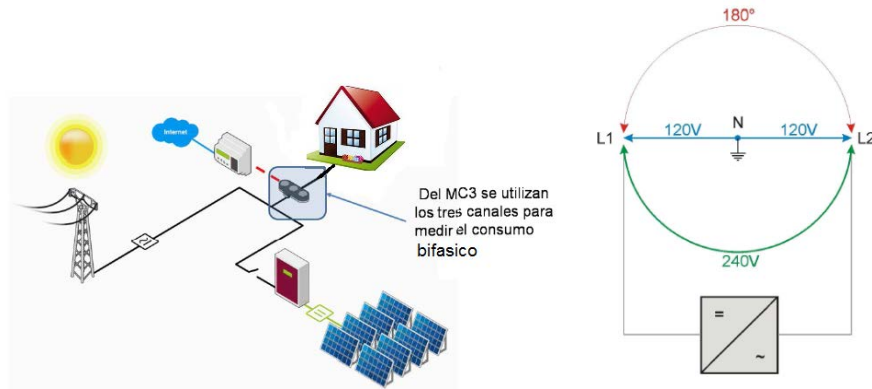


Figure 1: SPLIT-PHASE installation

To ensure the **CDP** is correctly regulating the photovoltaic production, the user must make sure it has been programmed as indicated in **Table 2**.

Table 2: CDP Configuration.

Programming with the web server using Google Chrome	
<p>Control:</p> <p>Phase: <input type="text" value="Three single phase"/></p> <p>Allow compensation: <input type="text" value="Single phase"/></p> <p>Enable remote control: <input type="text" value="Three phases"/></p> <p>Injection margin: <input type="text" value="3"/> %</p> <p>Allowed injection: <input type="text" value="0"/> %</p>	<p>In the CDP configuration web site, it must be ensured that the selected Phase option is: Three phases.</p>

Note: Even if a three-phase network option is selected, the **CDP** device correctly carries out the power measurement in split-phase networks.

	<p>Refer to the manual for more information on the configuration of the CDP.</p>
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1.1.- INSTALLATION EXAMPLE

Figure 2 shows the connection diagram for a CDP with a two-phase inverter.

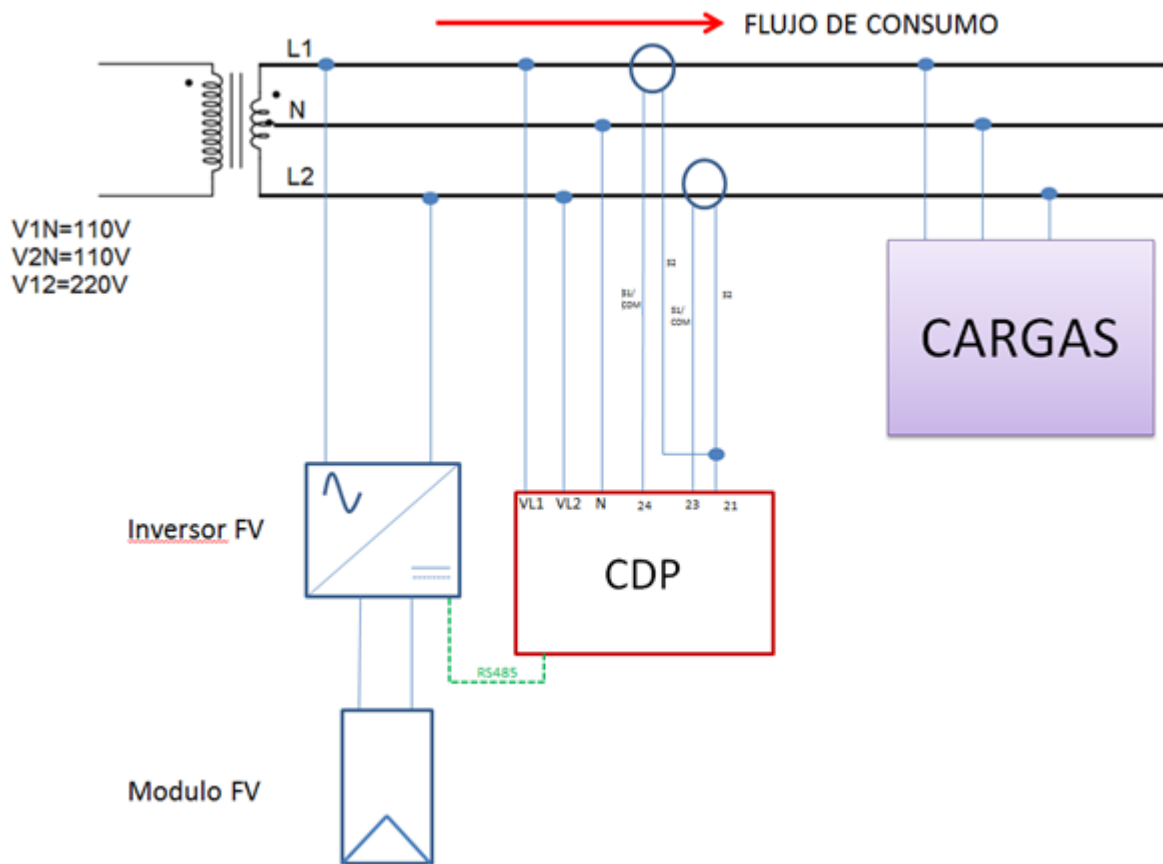


Figure 2: Connection diagram for a CDP with a two-phase inverter.

Note: This example was carried out with MC1 type transformers (the measurement could also be taken with MC3 type transformers. In this case, check the connections).

The following refers to the installation data:

V1N : 110V , **V2N** : 110V , **V12** : 220V
I1 : 5.9 A, **I2** : 4.8 A
Phase shift V1^V2 : 180°

The **CDP** shows the following values:

Power L1 : 650.0 W (Correct)
Power L2 : 525.0 W (Correct)
Power L3 : 0
Three-phase power: 1175.0 W (Correct)

Three-phase V : 73V (Incorrect)

The unit shows $V1+V2+V3/3$ and it should be $V1+V2/2 = 110V$

Three-phase V I: 3,6A (Incorrect)

The unit shows $I1+I2+I3/3$ and it should be $I1+I2/2 = 5.35A$.

Note: *Despite the fact that these parameters are displayed in three-phase format, they are parameters that the **CDP** does not use because the regulation process is carried out depending on the power.*

2.- MAINTENANCE AND TECHNICAL SERVICE

In the case of any query in relation to unit operation or malfunction, please contact the **CIRCUTOR, SA** Technical Assistance Service.

Technical Assistance Service

Vial Sant Jordi, s/n 08232 - Viladecavalls (Barcelona)


Tel.: 902 449 459 (Spain) / +34 937 452 900 (outside of Spain)

email: sat@circutor.es

3.- GUARANTEE

CIRCUTOR guarantees its products against any manufacturing defect for two years after the delivery of the unit.

CIRCUTOR will repair or replace any defective factory product returned during the guarantee period.

	<ul style="list-style-type: none"> • No returns will be accepted and no unit will be repaired or replaced if it is not accompanied by a report indicating the defect detected or the reason for the return. • The guarantee will be void if the unit has been improperly used or the storage, installation and maintenance instructions listed in this manual have not been followed. "Improper usage" is defined as any operating or storage condition contrary to the National Electrical Code or that surpassing the limits indicated in the technical and environmental features of this manual. • CIRCUTOR accepts no liability due to the possible damage to the unit or other parts of the installation, nor will it cover any possible sanctions derived from a possible failure, improper installation or "improper usage" of the unit. Consequently, this guarantee does not apply to failures occurring in the following cases: <ul style="list-style-type: none"> - Overvoltages and/or electrical disturbances in the supply; - Water, if the product does not have the appropriate IP classification; - Poor ventilation and/or excessive temperatures; - Improper installation and/or lack of maintenance; - Buyer repairs or modifications without the manufacturer's authorisation.
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