

# ENPHASE EQUIPMENT



Envoy S



Envoy S



Envoy S Metered



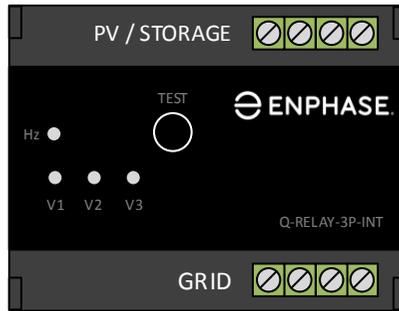
CT



1 & 3 Phase Branch terminator



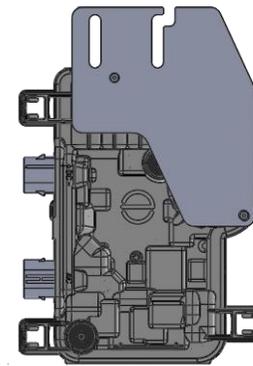
1PH Q-Relay



3PH Q-Relay + Phase Coupler



ACB 1.5



IQ7 / IQ7+ / IQ7X



1PH Field Wireable connectors



Ferrite  
TDK/EPCOSB64290L0022X830



Q-Cable Landscape/Portrait



Bialon FF-01

NOTES:  
1. CAUTION: Before installing any PV equipment, check the phase-to-neutral voltage at the delivery point. The operating voltage must be within a range acceptable by the 230V micro-inverters.

2. The design and installation of the photovoltaic power plant must be carried out in compliance with the electrical standards in force in the country of installation and must be carried out by trained and authorized personnel.

3. The lengths and sections of AC cable (between the end of the Q-CABLE and the electrical panel) must be determined in accordance with the electrical standards in force in the country of installation. It is recommended that the voltage drop on this type of cable does not exceed 1%.

4. A single phase Q-CABLE is usually protected at the top by a 20A curve B circuit breaker.

5. The microinverters integrate an HF transformer ensuring the function of galvanic separation. An AC type circuit breaker may be required in accordance with the electrical codes in force in the country of installation.

6. The implementation of an equipotential bond between the module frames and between the metal carcasses of PV field inverters may be required in accordance with the electrical standards in force in the country of installation.

7. These schematics are samples to show how to build an Enphase PV System. These are all recommendations to help the installer.

**DRAWING No:**  
EN-EQP-IQ-SERIES

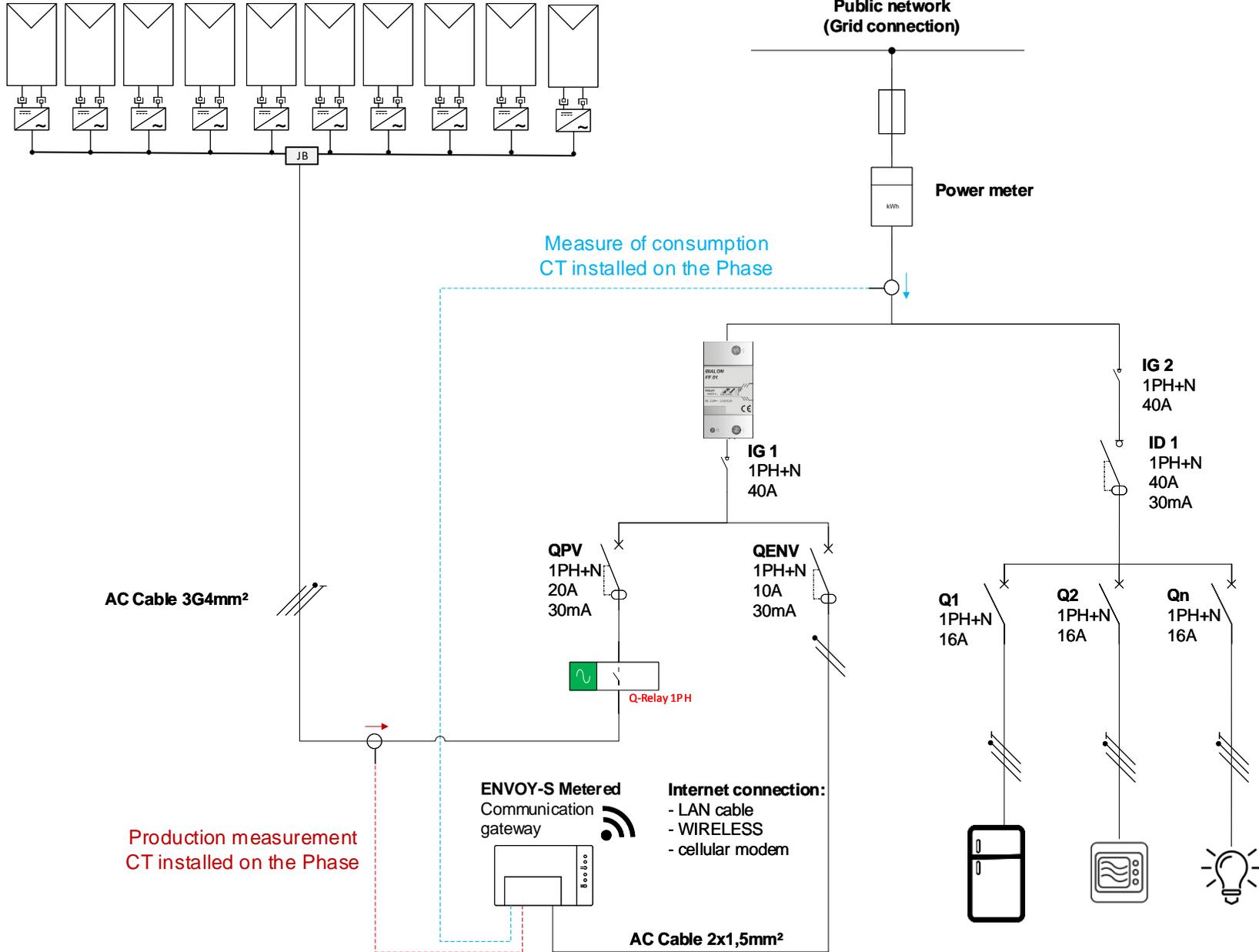
**DRAWING Name:**  
Electrical diagram example: Enphase Equipment

**DWN BY:** WS  
**CHK BY:** DG  
**DATE :** 11/07/2019

**REV:** -  
**SHEET:** 1 of 1  
**SCALE:** NTS@A4

# SELF-CONSUMPTION

1Phase Q-Cable®: 15 x IQ7 max or 12 x IQ7+ max or 11 IQ7X max



- NOTES:
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DWN BY: WS    CHK BY: DG    DATE : 11/07/2019

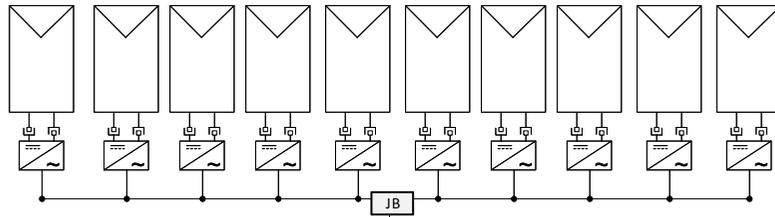
REV: -    SHEET: 1 of 1    SCALE: NTS@A4

**DRAWING No:**  
EN-1AC-1PH

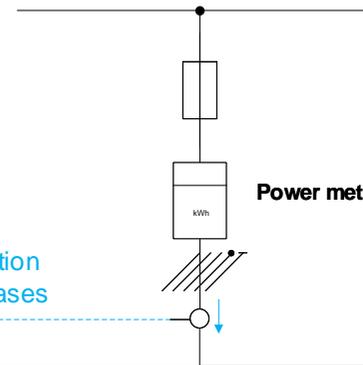
**DRAWING Name:**  
Electrical diagram example: 1 single-phase branch production (IQ7 or IQ7 + OR IQ7X)

# SELF-CONSUMPTION

1Phase Q-Cable®: 15 x IQ7 max or 12 x IQ7+ max or 11 IQ7X max



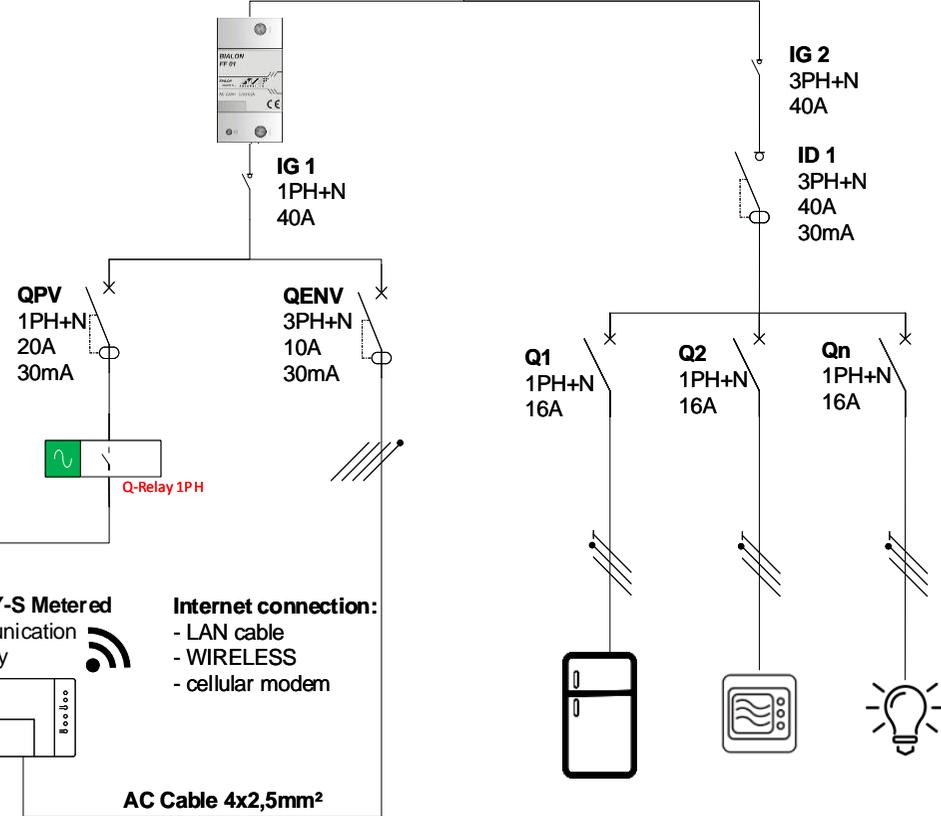
Public network  
(Grid connection)



Measure of consumption  
CT installed on all Phases

AC Cable 3G4mm<sup>2</sup>

Production measurement  
CT installed on Phase 1



ENVOY-S Metered  
Communication gateway

Internet connection:  
- LAN cable  
- WIRELESS  
- cellular modem

AC Cable 4x2,5mm<sup>2</sup>

- NOTES:
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DRAWING No:  
EN-3AC-1PH

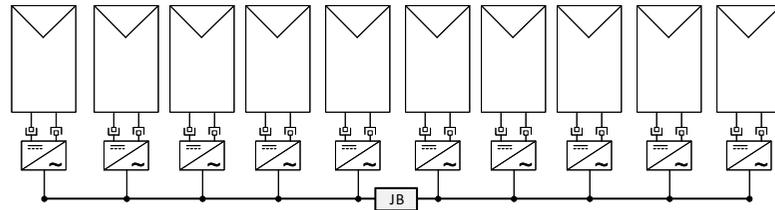
DRAWING Name:  
Electrical diagram example: 1 Phase branch production & 3 Phase consumption (IQ7 or IQ7 + OR IQ7X)

DWN BY: WS  
CHK BY: DG  
DATE: 11/07/2019

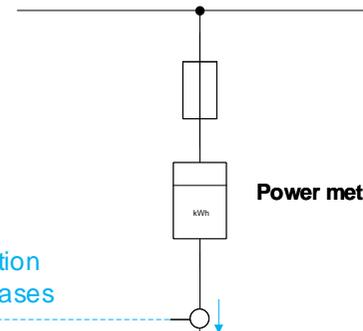
REV: -  
SHEET: 1 of 1  
SCALE: NTS@A4

# SELF-CONSUMPTION AND STORAGE

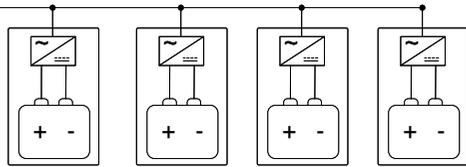
1Phase Q-Cable®: 15 x IQ7 max or 12 x IQ7+ max or 11 IQ7X max



Public network  
(Grid connection)



Measure of consumption  
CT installed on the Phases



AC Battery @ 1 Phase: 13 max Per Phase

AC Battery® And IQ-Series® should be installed on the same phase in 1 Phase production and 3 Phase consumption environment

AC Cable 3G4mm<sup>2</sup>

AC Cable 3G4mm<sup>2</sup>

PLC Filter installed on all 3 phases



IG 1  
3PH+N  
40A

IG 2  
3PH+N  
40A

ID 1  
3PH+N  
40A  
30mA

QBAT  
1PH+N  
20A  
30mA

QPV  
1PH+N  
20A  
30mA

QENV  
3PH+N  
10A  
30mA

Q-Relay 1PH

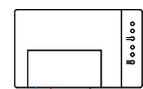
Q1  
1PH+N  
16A

Q2  
1PH+N  
16A

Qn  
1PH+N  
16A

Production measurement  
CT installed on Phase 1

ENVOY-S Metered  
Communication  
gateway



Internet connection:  
- LAN cable  
- WIRELESS  
- cellular modem

AC Cable 4x2,5mm<sup>2</sup>



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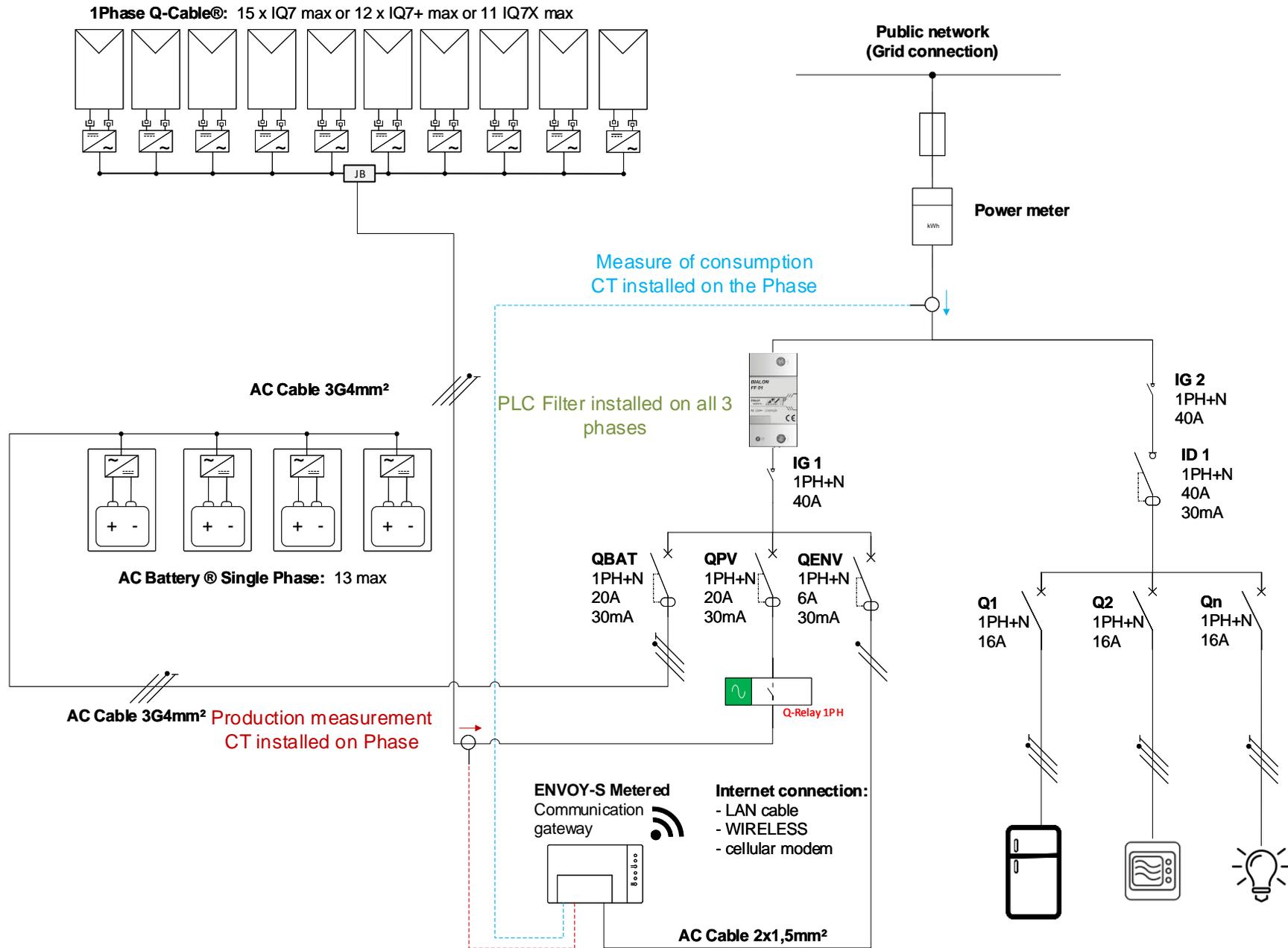
DRAWING No:  
EN-3AC-3PH-ACB

DRAWING Name:  
Electrical diagram example: 1 single-phase branch in self-consumption + storage (IQ7 or IQ7 + OR IQ7X)

DWN BY: WS  
CHK BY: DG  
DATE: 11/07/2019

REV: -  
SHEET: 1 of 1  
SCALE: NTS@A4

# SELF-CONSUMPTION AND STORAGE



- NOTES:**
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**DRAWING No:**  
EN-1AC-1PH-ACB

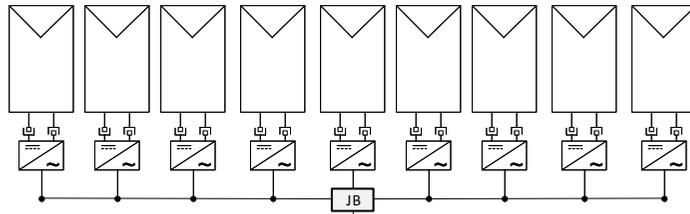
**DRAWING Name:**  
Electrical diagram example: 1 single-phase branch in self-consumption + storage (IQ7 or IQ7 + OR IQ7X)

**DWN BY:** WS  
**CHK BY:** DG  
**DATE :** 11/07/2019

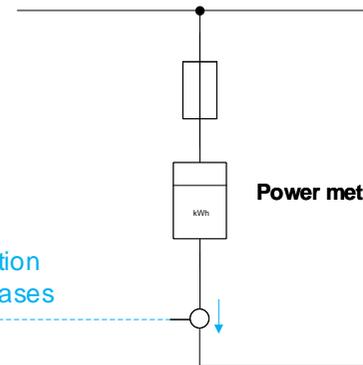
**REV:** -  
**SHEET:** 1 of 1  
**SCALE:** NTS@A4

# SELF-CONSUMPTION

3Phase Q-Cable®: 45 x IQ7 max or 36 x IQ7+ max or 33 IQ7X max



Public network  
(Grid connection)



Measure of consumption  
CT installed on the Phases

PLC Filter installed on all 3  
phases



IG 1  
3PH+N  
40A

IG 2  
3PH+N  
40A

ID 1  
3PH+N  
40A  
30mA

AC Cable 5G4mm<sup>2</sup>

QPV  
3PH+N  
20A  
30mA

QENV  
3PH+N  
6A  
30mA

Q-Relay 3PH

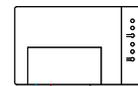
Q1  
1PH+N  
16A

Q2  
1PH+N  
16A

Qn  
1PH+N  
16A

Production measurement  
CT installed on the Phases

ENVOY-S Metered  
Communication  
gateway



Internet connection:  
- LAN cable  
- WIRELESS  
- cellular modem

AC Cable 4x2,5mm<sup>2</sup>



NOTES:  
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DWN BY: WS    CHK BY: DG    DATE : 11/07/2019

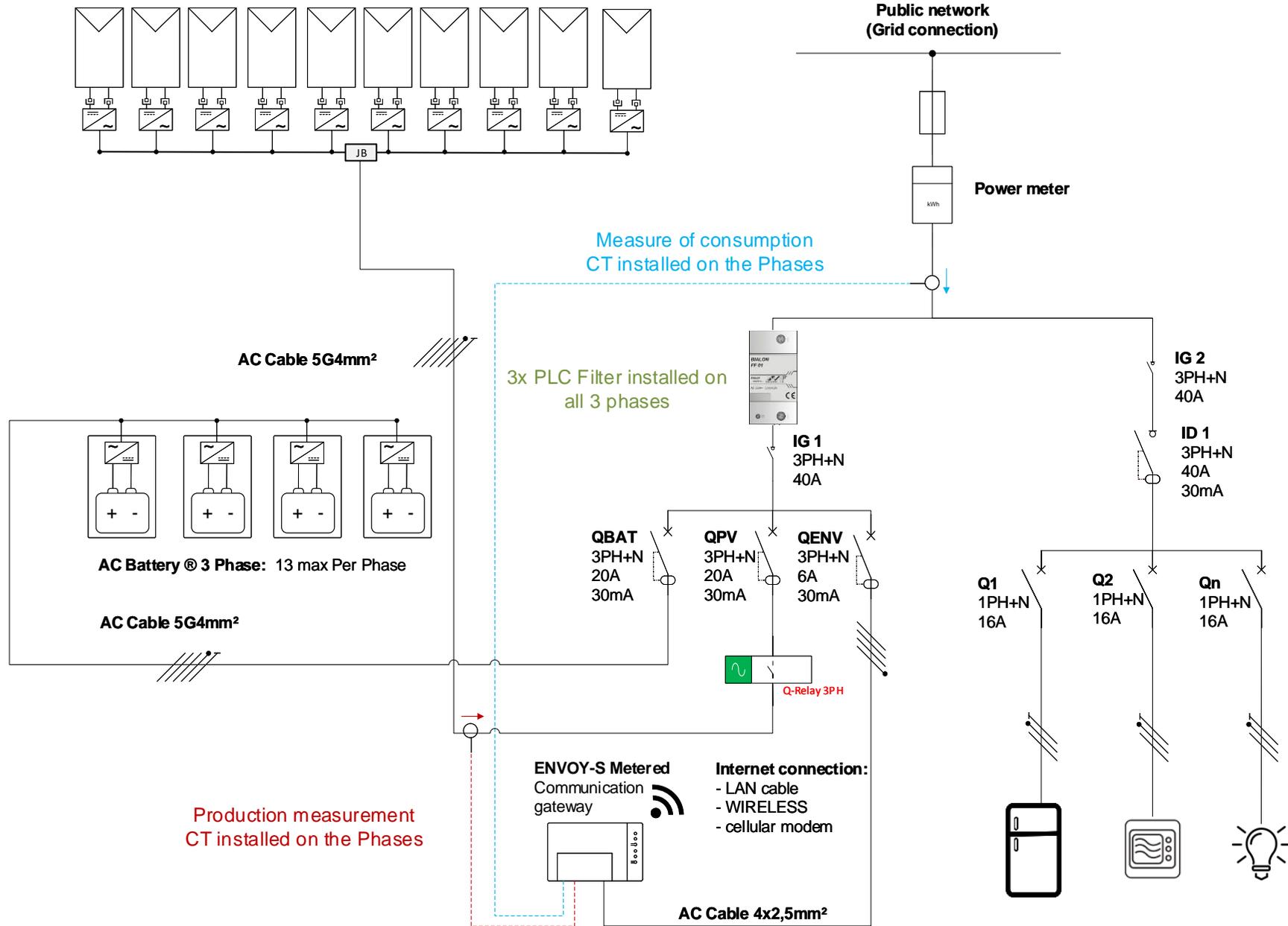
REV: -    SHEET: 1 of 1    SCALE: NTS@A4

DRAWING No:  
EN-3AC-3PH

DRAWING Name:  
Electrical diagram example: 3 single-phase branch (IQ7 or IQ7 + OR IQ7X)

# SELF-CONSUMPTION AND STORAGE

3Phase Q-Cable®: 45 x IQ7 max or 36 x IQ7+ max or 33 IQ7X max



- NOTES:
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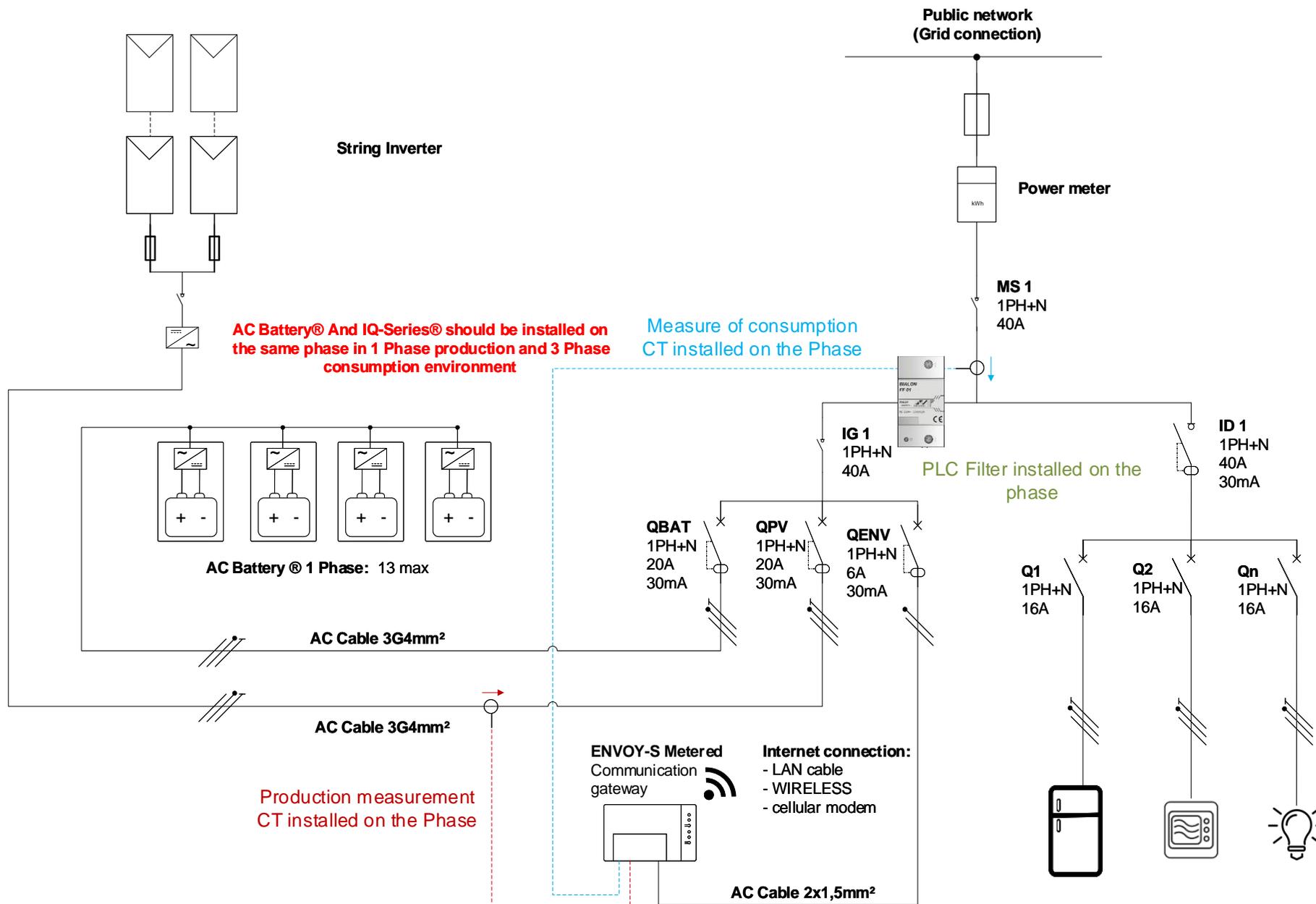
**DRAWING No:**  
EN-3AC-3PH-ACB

**DRAWING Name:**  
Electrical diagram example: 3 single-phase branch in self-consumption + storage (IQ7 or IQ7 + OR IQ7X)

**DWN BY:** WS  
**CHK BY:** DG  
**DATE :** 11/07/2019

**REV:** -  
**SHEET:** 1 of 1  
**SCALE:** NTS@A4

# SELF-CONSUMPTION AND STORAGE with a String-Inverter



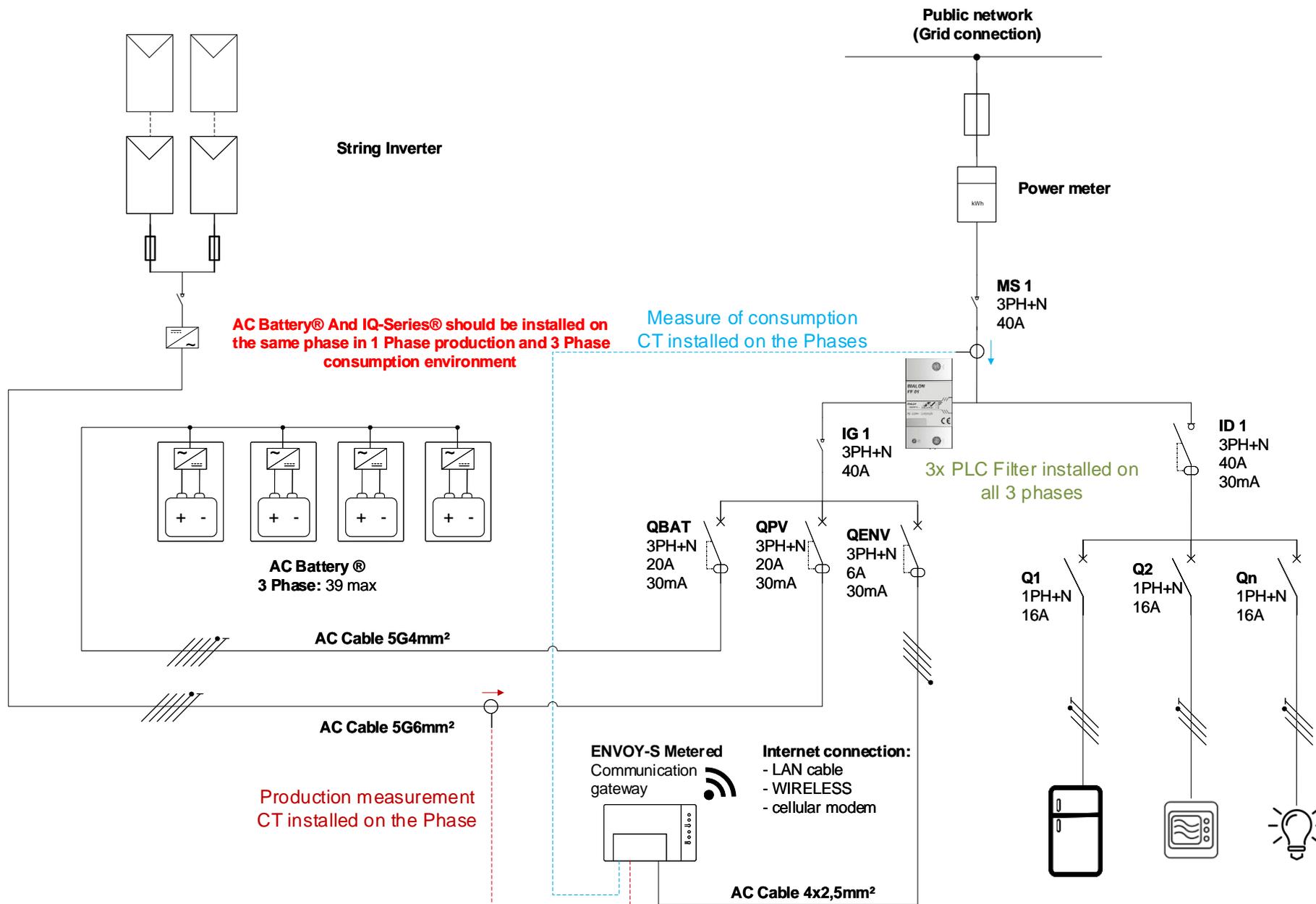
- NOTES:
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**DRAWING No:**  
EN-1AC-STR-1PH-ACB

**DRAWING Name:**  
Electrical diagram example: string inverter in self-consumption + storage

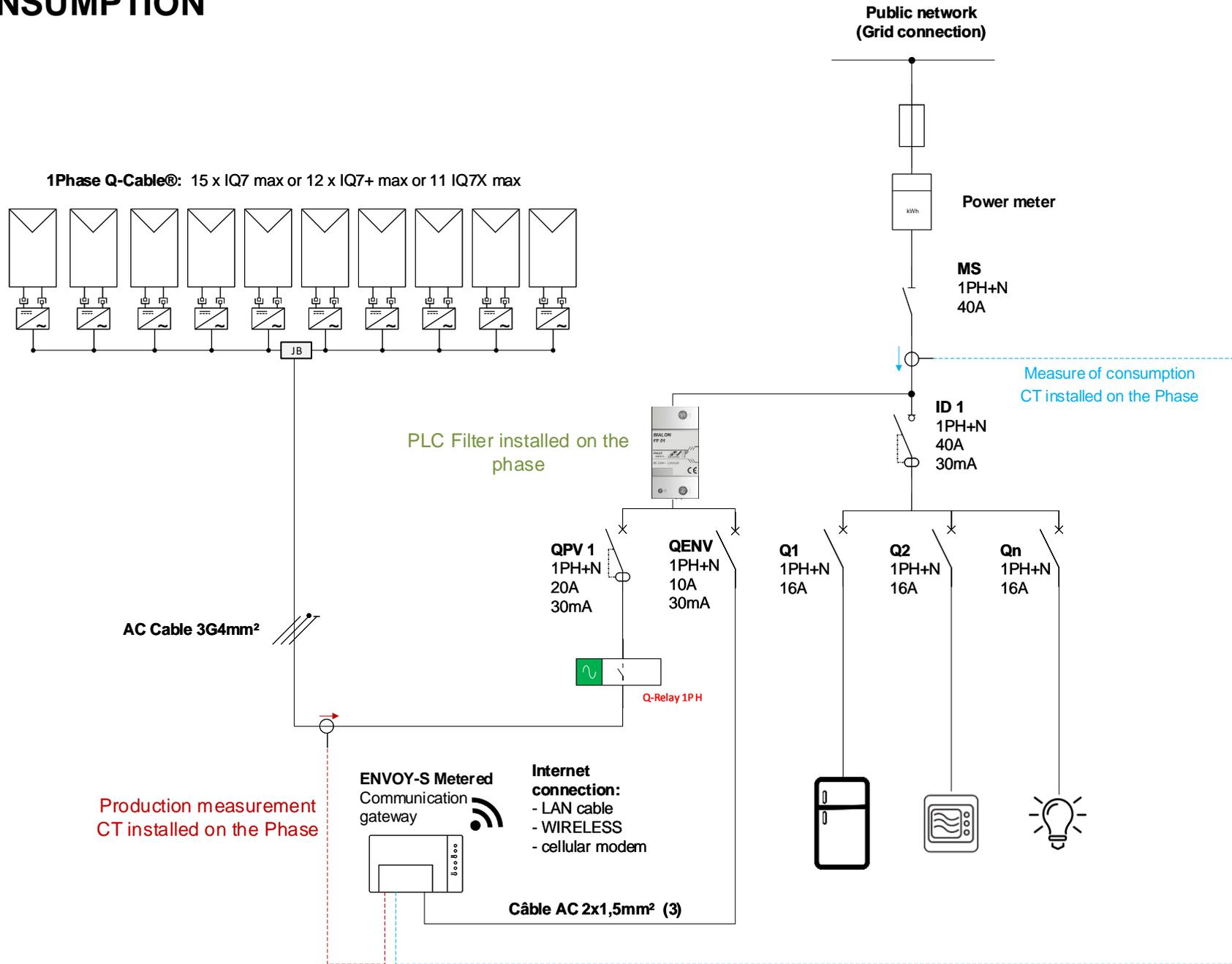
<b>DWN BY:</b> WS	<b>CHK BY:</b> DG	<b>DATE :</b> 11/07/2019
<b>REV:</b> -	<b>SHEET:</b> 1 of 1	<b>SCALE:</b> NTS@A4

# SELF-CONSUMPTION AND STORAGE with a String-Inverter



- NOTES:**
1. CAUTION: Before installing any PV equipment, check the phase-to-neutral voltage at the delivery point. The operating voltage must be within a range acceptable by the 230V micro-inverters.
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# CONSUMPTION



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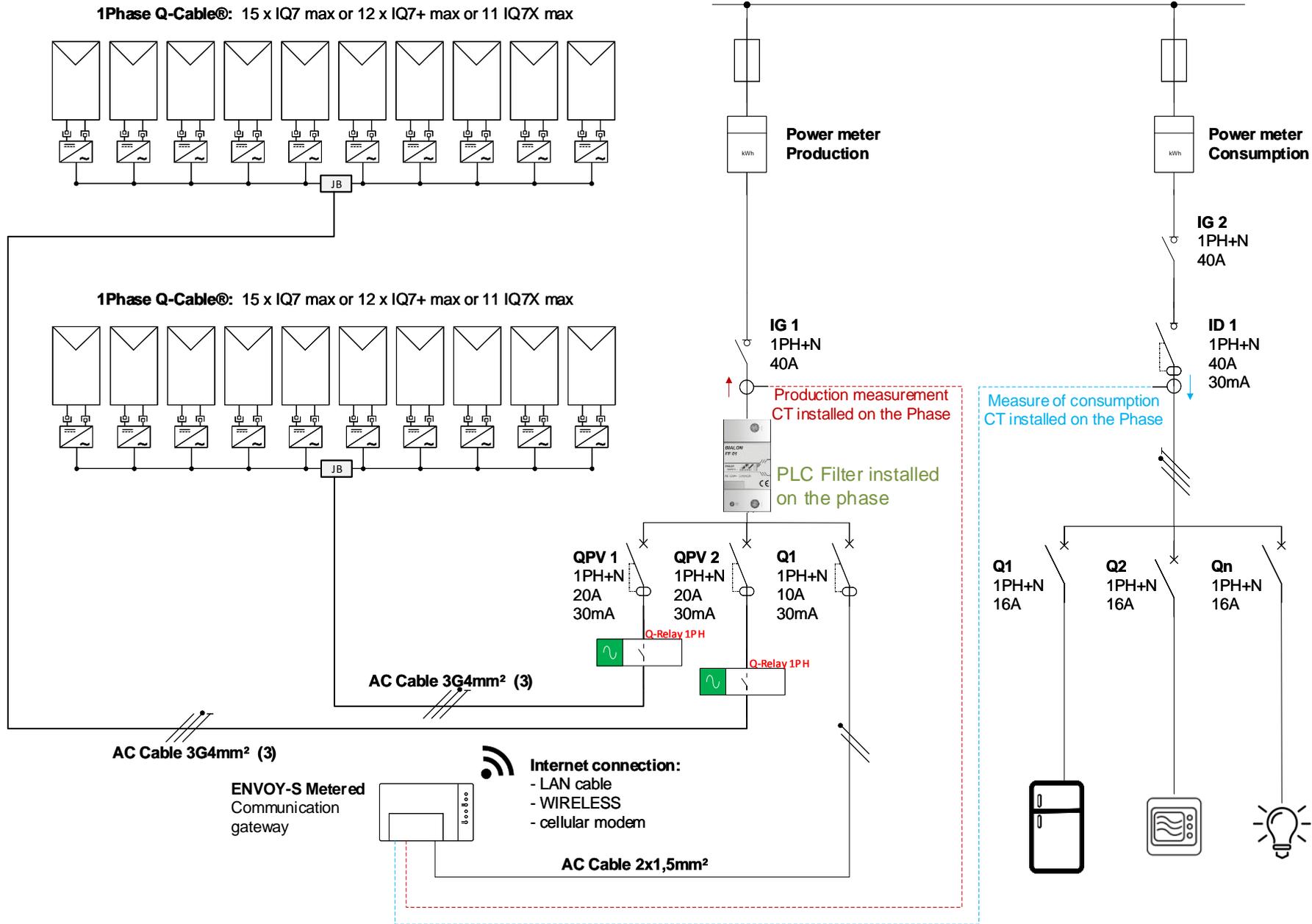
**DRAWING No:**  
EN-1AC-1PH-SelfC

**DRAWING Name:**  
Example of electrical diagram: 1 single-phase branch in self-consumption

<b>DWN BY:</b> WS	<b>CHK BY:</b> DG	<b>DATE :</b> 11/07/2019
<b>REV:</b> -	<b>SHEET:</b> 1 of 1	<b>SCALE:</b> NTS@A4

# 1 PHASE DIRECT INJECTION

Public network  
(Grid connection)



- NOTES:
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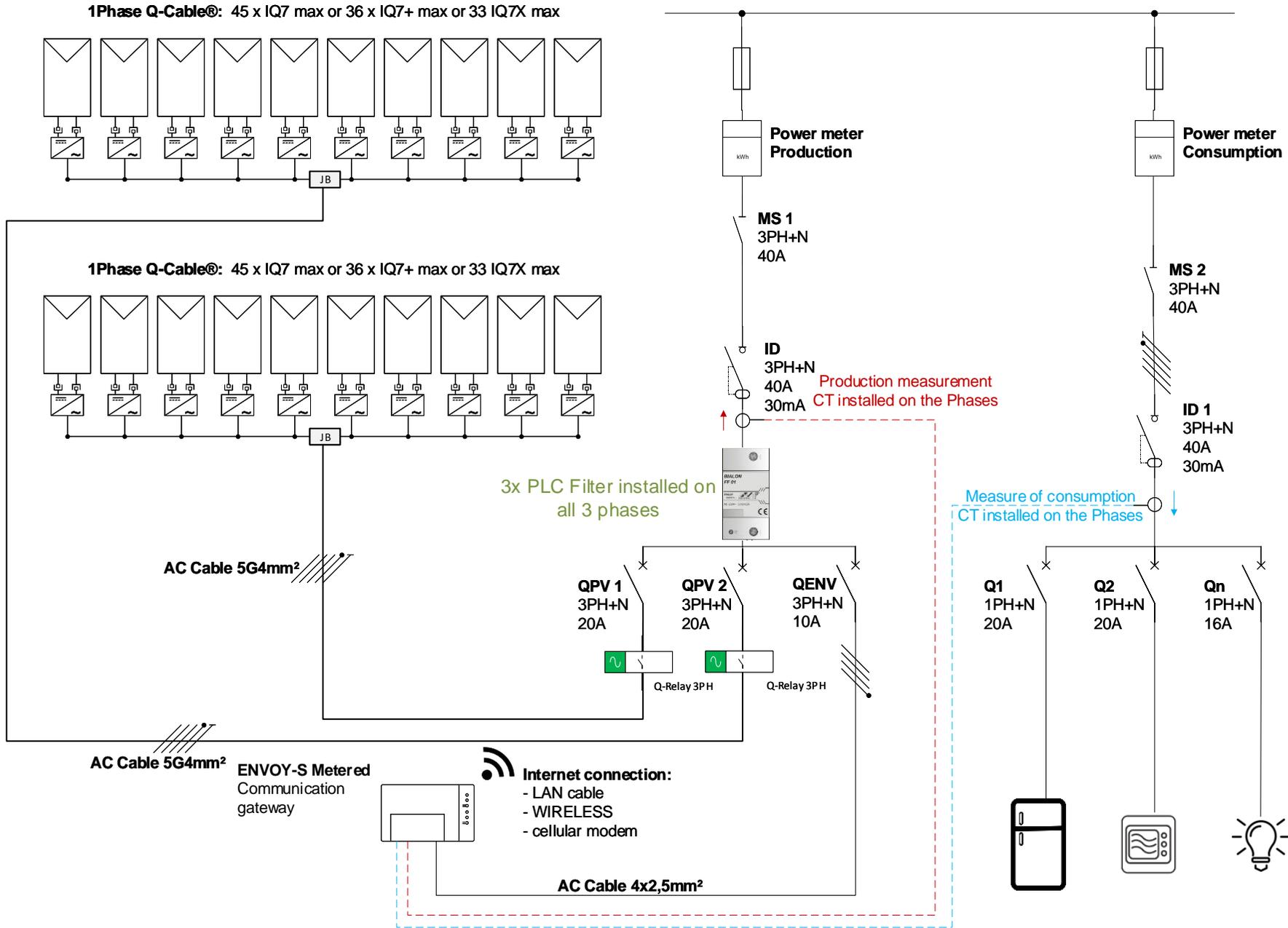
**DRAWING No:**  
EN-2AC-1PH-Dir

**DRAWING Name:**  
Example of electrical diagram: 2 single-phase branches in direct injection

<b>DWN BY:</b> WS	<b>CHK BY:</b> DG	<b>DATE :</b> 11/07/2019
<b>REV:</b> -	<b>SHEET:</b> 1 of 1	<b>SCALE:</b> NTS@A4

# 3 PHASE DIRECT INJECTION (Residential)

Public network  
(Grid connection)



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**DRAWING No:**  
EN-2AC-3PH-Dir

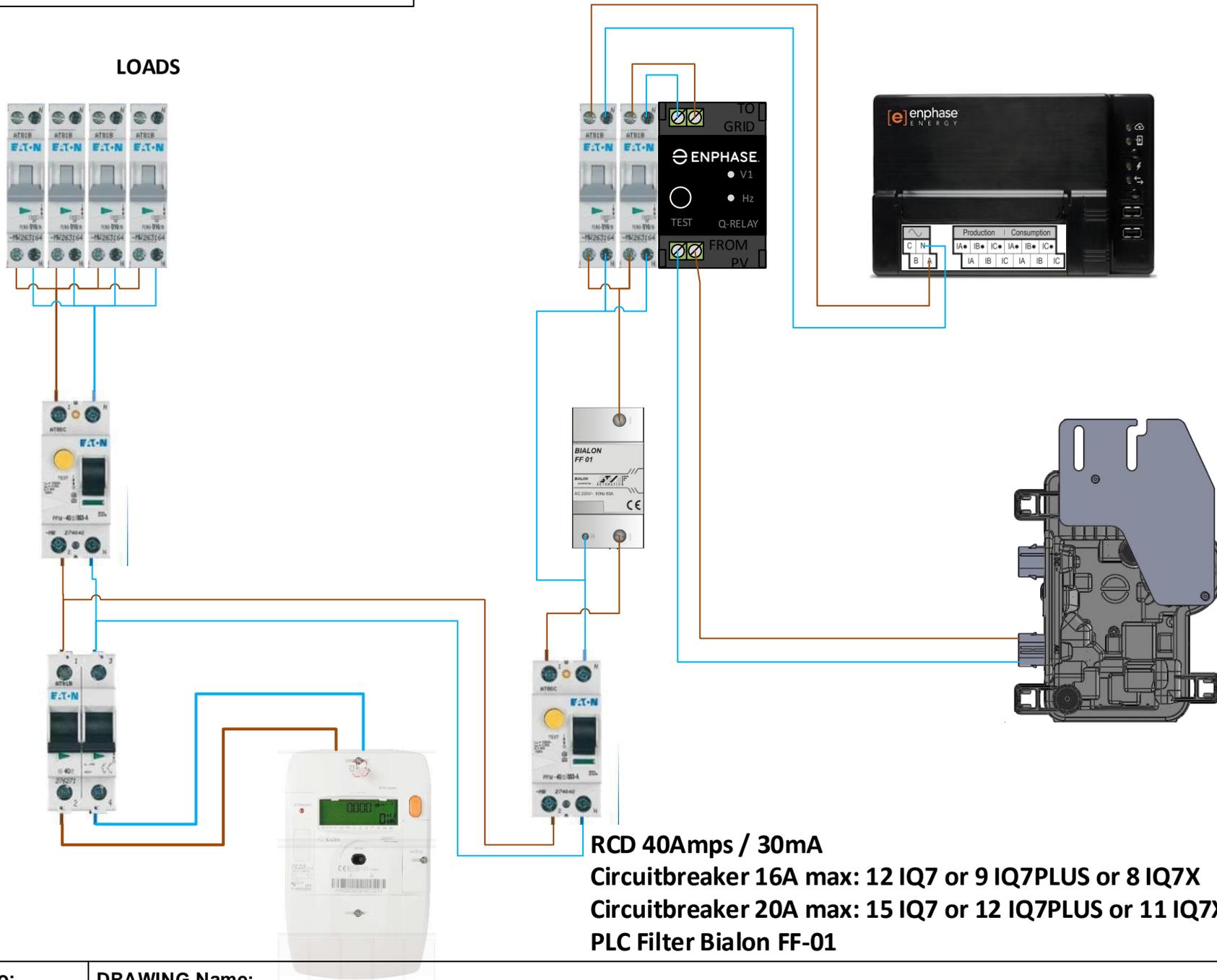
**DRAWING Name:**  
Example of electrical diagram: 2 x 3 Phase branches in direct injection

<b>DWN BY:</b> WS	<b>CHK BY:</b> DG	<b>DATE :</b> 11/07/2019
<b>REV:</b> -	<b>SHEET:</b> 1 of 1	<b>SCALE:</b> NTS@A4

# ENVOY-S / Single Phase System



## LOADS



**RCD 40Amps / 30mA**  
**Circuitbreaker 16A max: 12 IQ7 or 9 IQ7PLUS or 8 IQ7X**  
**Circuitbreaker 20A max: 15 IQ7 or 12 IQ7PLUS or 11 IQ7X**  
**PLC Filter Bialon FF-01**

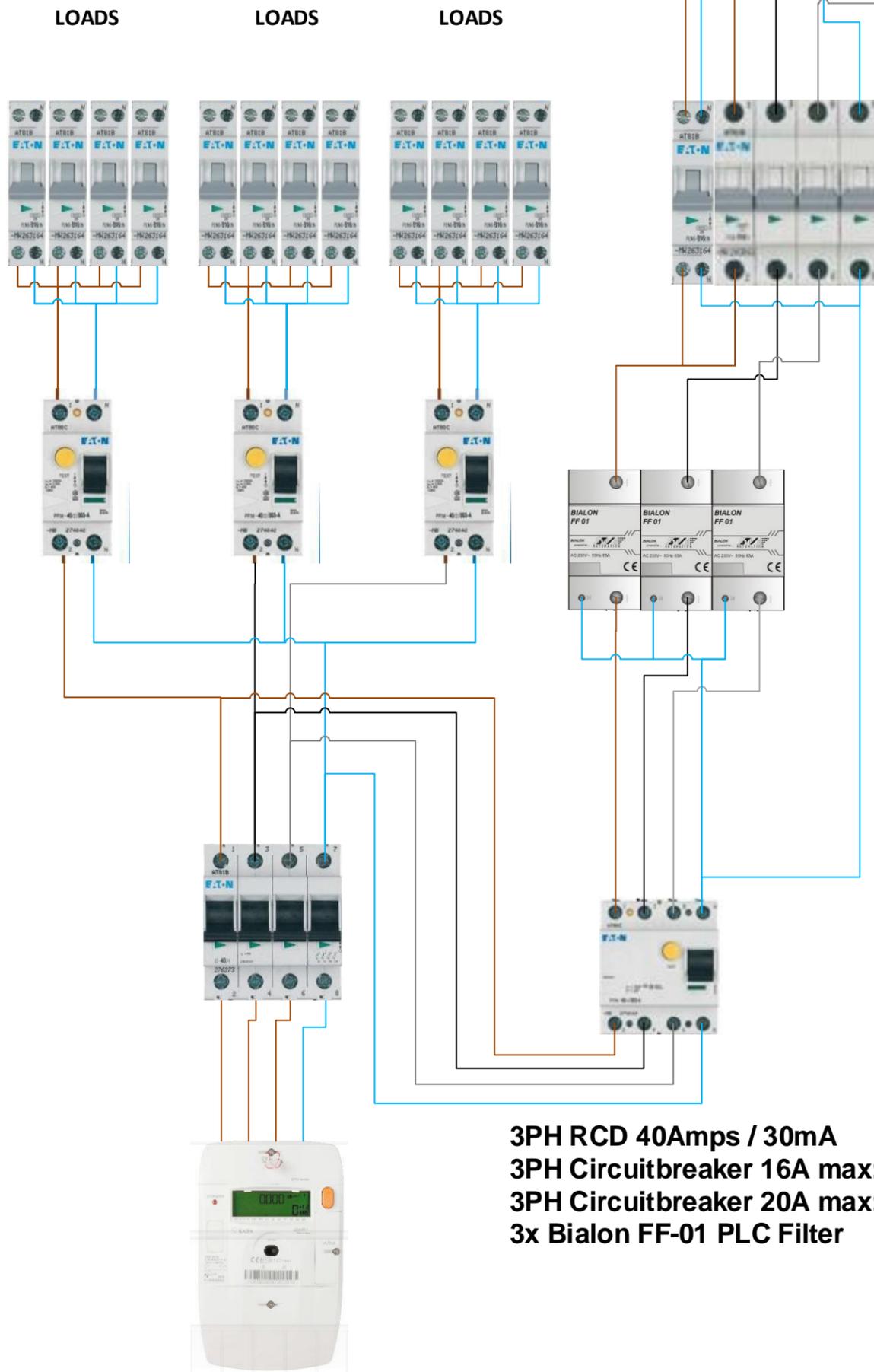
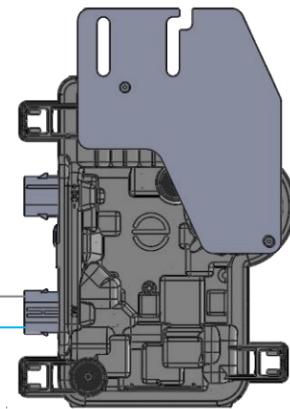
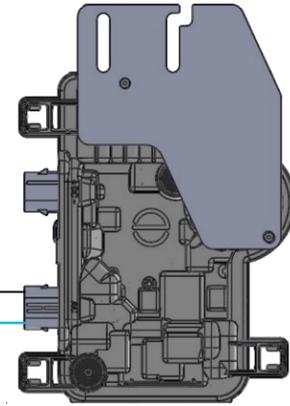
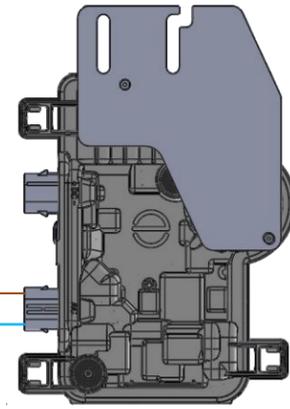
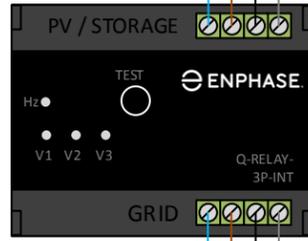
- NOTES:
1. CAUTION: Before installing any PV equipment, check the phase-to-neutral voltage at the delivery point. The operating voltage must be within a range acceptable by the 230V micro-inverters.
  2. The design and installation of the photovoltaic power plant must be carried out in compliance with the electrical standards in force in the country of installation and must be carried out by trained and authorized personnel.
  3. The lengths and sections of AC cable (between the end of the Q-CABLE and the electrical panel) must be determined in accordance with the electrical standards in force in the country of installation. It is recommended that the voltage drop on this type of cable does not exceed 1%.
  4. A single phase Q\_CABLE is usually protected at the top by a 20A curve B circuit breaker.
  5. The microinverters integrate an HF transformer ensuring the function of galvanic separation. An AC type circuit breaker may be required in accordance with the electrical codes in force in the country of installation.
  6. The implementation of an equipotential bond between the module frames and between the metal carcasses of PV field inverters may be required in accordance with the electrical standards in force in the country of installation.
  7. These schematics are samples to show how to build an Enphase PV System. These are all recommendations to help the installer.

DWN BY: WS	CHK BY: DG	DATE : 11/07/2019
REV: -	SHEET: 1 of 1	SCALE: NTS@A4

**DRAWING No:**  
EN-1AC-1PH-Dir

**DRAWING Name:**  
Example of electrical diagram

ENVOY-S / 3 Phase System



**3PH RCD 40Amps / 30mA**  
**3PH Circuitbreaker 16A max: 36 IQ7 or 27 IQ7PLUS or 24 IQ7X**  
**3PH Circuitbreaker 20A max: 45 IQ7 or 36 IQ7PLUS or 33 IQ7X**  
**3x Bialon FF-01 PLC Filter**

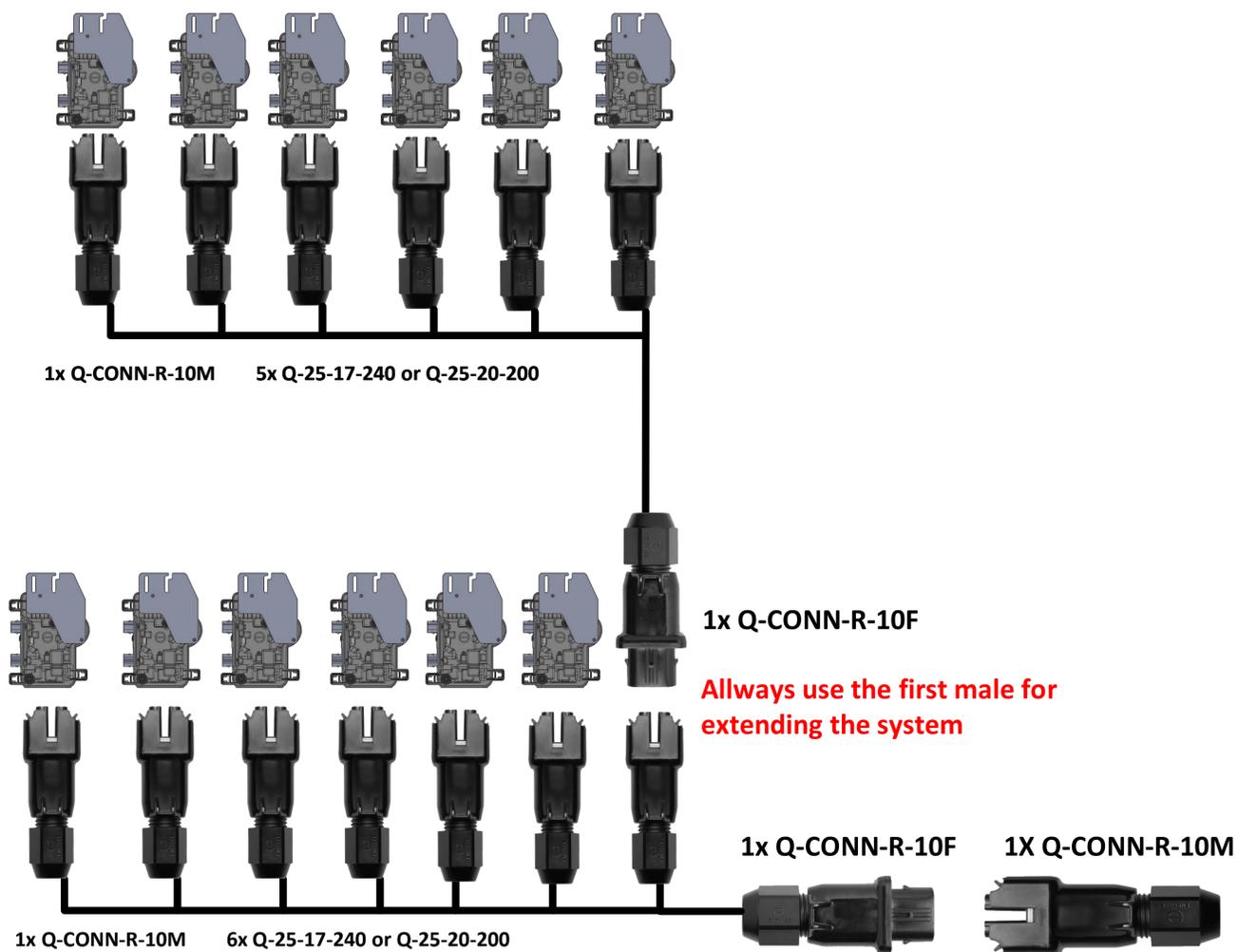
- NOTES:
1. CAUTION: Before installing any PV equipment, check the phase-to-neutral voltage at the delivery point. The operating voltage must be within a range acceptable by the 230V micro-inverters.
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  6. The implementation of an equipotential bond between the module frames and between the metal carcasses of PV field inverters may be required in accordance with the electrical standards in force in the country of installation.
  7. These schematics are samples to show how to build an Enphase PV System. These are all recommendations to help the installer.

DRAWING No:  
EN-3AC-3PH

DRAWING Name:  
Example of electrical diagram

DWN BY: WS    CHK BY: DG    DATE: 11/07/2019

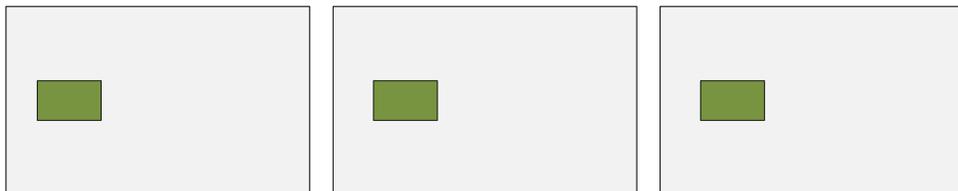
REV: -    SHEET: 1 of 1    SCALE: NTS@A4



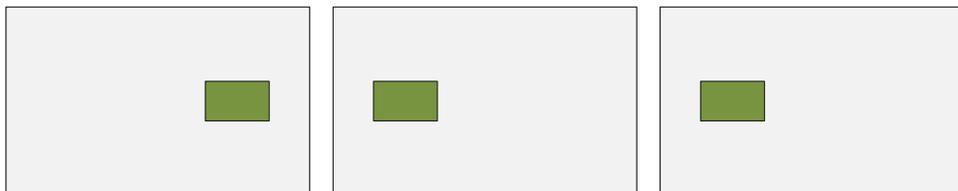
Allways use the first male for extending the system

1x Q-CONN-R-10F 1x Q-CONN-R-10M

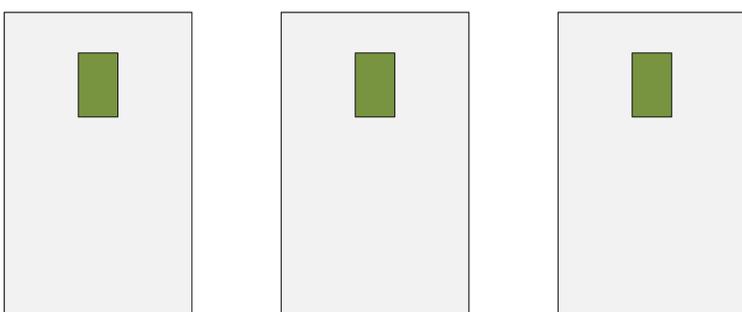
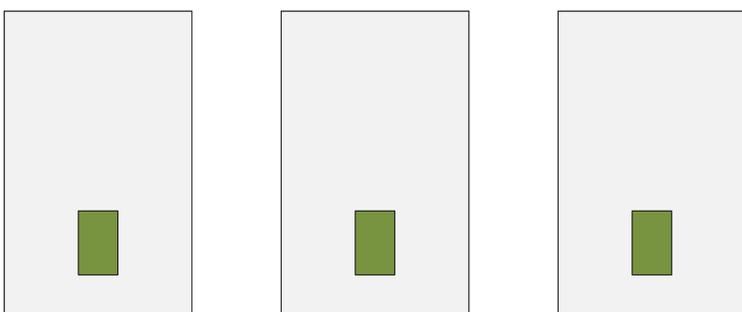
Meterboard with Q-RAW Cable or other cable with at least 4mm<sup>2</sup> conductor size



Normal installation facing with junctionboxes pv modules in the same direction with normal drops q-cable



Installation facing the last pv module with junctionbox to the for last pv module with normal drops q-cable and the last with the Fieldwireable connector



Install top row modules with junction boxes near the bottor row modules to gain more cable length