cinergia

ePLUS Family units

INSTALLATION and WIRING recommendations

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CONTENT

1. GENERAL

Dear Client:

CINERGIA is committed with the continuous improvement of the Service and Technical Support offered to you. For this reason, we are glad to provide you this guide of recommendations to install and start up the unit where you will find advices and recommendations for the installation of the equipment that you have just acquired.

We advise you to follow these instructions carefully and to contact us in case of any question or comment. If the commissioning of the unit has been agreed with CINERGIA or one of our distributors, please follow the recommendations in this document and once the installation is finished contact us to agree an appointment.

The purpose of this manual is to provide information to the final user to install and start up the unit.

Cinergia is in constant development to deliver always the best service to you, so it is possible to find some discrepancy between this manual and the real converter itself. Do not hesitate to contact us and ask for the latest version of the documentation.

This manual is valid for the ePLUS platform units.

Any change on wiring must be done with no power in the system (input/grid and output/EUT) and following the premises of the *Cinergia Unit Installation and Operation manual* provided with the units.

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Please, don't hesitate to contact on support@cinergia.coop our technical support team in case of any doubt or question.

2. REQUIREMENTS AND PROCESS TO LOCATE AND FIT IN THE EQUIPMENT

Dear customer, please, take the follow advices into account when a place for the Cinergia (CNG) unit is required:

- The room where the equipment will be placed must be clean and aired, leaving a space around the equipment of 60 cm.
- Pay special attention on CNG200 units, as the air flow goes from bottom to the top, additional space is required at the top of the unit.
- Unpack and place the equipment in its final location. Check that input and output connections are the same as the ones stated in the installation diagram. Terminal layout can differ from diagram sent, please pay attention to the equipment labelling when doing the connection.
- Keep all the original packaging of the equipment for any future transportation.
- Proceed to make and connect the installation according to the diagram and table present on the Quick Install document provided with the unit. It is advisable to install all protection circuit breakers in a dedicated cabinet.
- Cables from electrical installation must have the suitable terminals to be connected on the terminals used in the equipment. Cable used in the installation has to be flexible and its length should be enough to allow moving the equipment without needing to disconnect it.

In case of discrepancies, between labelling and this manual, the label information will always prevail.

3. INSTALLATION FEATURES

- Cross cable section is **recommended and based in the Spanish regulations**. It is compulsory to respect the Local and/or National Low Voltage Regulations so please **check the recommended values with respect to your local regulations**.
- Recommended cross section with XLPW cable (cross linked polyethylene) is for a maximum total installed cable length of 30 meters.
- If the Equipment Under Test (EUT/DUT) is a power electronics device, we recommend sizing the neutral wire to **200**% of phase section. If the CNG works in one channel, please take into account for the sizing of each wire for the specific setup.
- Cables trunks should be done over perforated shelves.
- The environmental conditions considered to calculate the recommended cross cable sections, in accordance with the Spanish regulations, are:
    - Ambient temperature: +40ºC.
    - Correction factor to install all input(s)/output cables of each single equipment in the same cable conduit.
    - Correction factor to install the input(s)/output cables of the system (equipments in parallel) in separate cable conduits.
- In case of installing fuses instead of moulded case circuit breakers, the fuses must be DIN gG/gL type.
- Recommended protection sizes do not provide selectivity with those in the equipment. If needed, choose a higher size than the recommended and size accordingly the cables.

4. INSTALLATION DIAGRAM

There are two different recommended installation diagrams to take into account.

- **Option A:** that NO external isolation transformer is provided or required. All units with internal isolation transformer must follow this recommendation installation diagram.
- **Option B**: that an external isolation transformer is provided or needed. All units with EXTERNAL isolation transformer required or installed must follow this recommendation diagram.

CINERGIA recommends installing safety protection elements at the input side of the unit. CINERGIA also recommends installing safety protection elements at the output side of the unit, between the CNG unit and EUT device. For an additional protection, in Option B where an external isolation transformer must be required, we recommend installing safety protection elements at the output of the transformer as well.

To know the recommended wiring and protective elements, please go to **CHAPTER 7**.

Both recommended installation diagrams are shown below:

CINERGIA standard units are not galvanically isolated from the grid. Therefore, the output terminals (including the negative rail in case of DC units and the neutral in case of AC units) are referenced electrically to the input grid neutral.

For more information about the terminal connection, please read the document provided with the unit *Quick Install*.

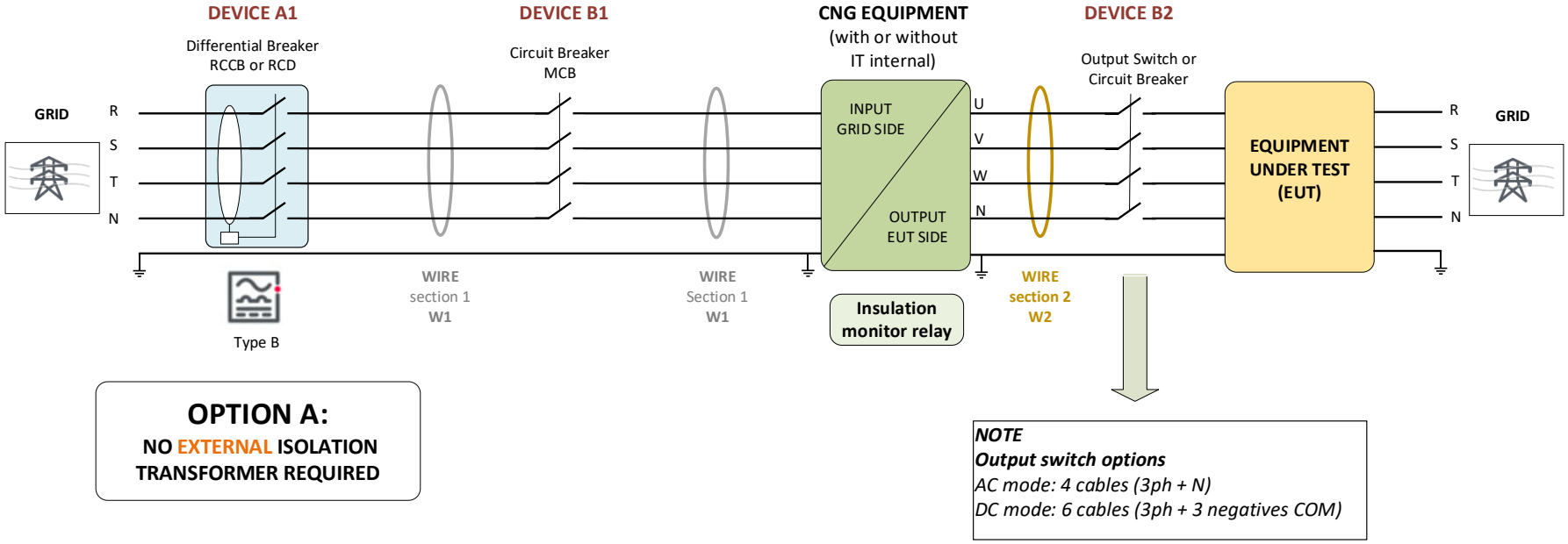
If the external transformer is not provided by CINERGIA, please ask the transformer's manufacturer for the correct safety protection elements to install.

CINERGIA suggests installing an Inrush Current Limitation Circuit on the primary side of the external isolation transformer just to avoid the high leakage currents due to the magnetizing of the transformer.

4.1. OPTION A: WITHOUT EXTERNAL ISOLATION TRANSFORMER

This diagram must be used in all units provided WIHTOUT EXTERNAL transformer. To know about the DEVICES **A1**, **B1**, **B2** and **W1, W2**, go to **CHAPTER 7**.

If the installation requires an external transformer, even if the transformer is not provided by Cinergia, please look at **OPTION B** (CHAPTER 4.2) for the installation diagram.



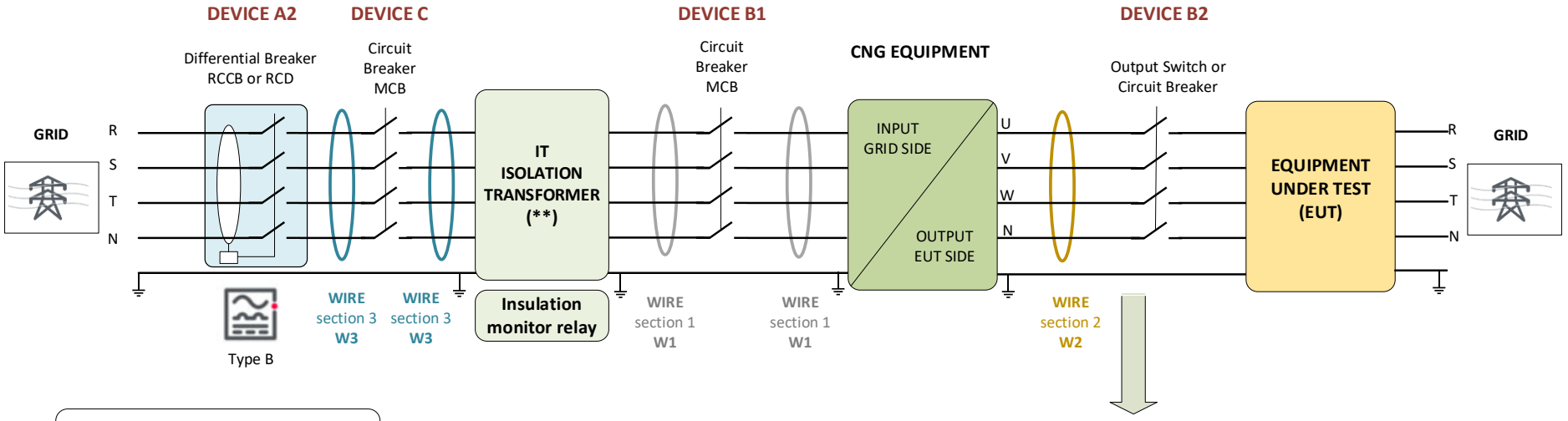
For more information about the terminal connection, please read the document provided with the unit *Quick Install*.

Take into account that the CINERGIA (CNG) unit can be provided with or without internal isolation transformer. In case of Internal Isolation Transformer, an Inrush current Limitation Circuit is always installed internally. In case of internal Isolation Transformer, the OPTION A must be followed.

4.2. OPTION B: WITH EXTERNAL ISOLATION TRANSFORMER

This diagram must be used in all units provided WITH EXTERNAL transformer. To know about the DEVICES **A2**,**B1**,**B2**,**C** and **W1**, **W2, W3**, go to **CHAPTER 7**.

If the transformer is not provided by CINERGIA, please ask the transformer's manufacturer for the correct safety protection elements to install (**A**, **C** and **W3**).



OPTION B:
EXTERNAL ISOLATION TRANSFORMER REQUIRED

NOTE
Output switch options
AC mode: 4 cables (3ph + N)
DC mode: 6 cables (3ph + 3 negatives COM)

(**) If CINERGIA doesn't provide the transformer, please ask the transformer's manufacturer for the correct safety protection elements required.

CINERGIA recommend installing an Inrush Current Limitation Circuit on the primary side of the external isolation transformer just to avoid the high inrush currents due to the magnetizing of the transformer.

5. WITHOUT ISOLATION TRANSFORMER (OPTION A)

CINERGIA standard units are not galvanically isolated from the grid. Therefore, the output terminals (including the negative rail and the neutral) are referenced electrically to the input grid neutral.

CINERGIA offers Isolation Transformer as an OPTIONAL for those test setups that require galvanic isolation. The necessity of an Isolation Transformer depends on the Equipment Under Test and the electrical installation of the laboratory (TT, TN or IT system).

It is mandatory to install an Isolation Transformer on units that will work in DC.

In CNG units up to 60kVA, the Isolation Transformer can be installed internally. All units with internal transformer installed, an Inrush Current Limitation Circuit is also added internally.

Please, go to the **CHAPTER 6** if your setup requires our unit with an Isolation transformer.

In case of DC models (B2C, EL-DC, DCPS, BE, or any AC&DC model working in DC) the customer MUST install an isolation transformer in case of DC equipment if the EUT (Equipment Under Test) is NOT isolated from the GRID. If not, there is risk of damage to the CINERGIA unit or the EUT.

In case of any DC models, it is MANDATORY installing an isolation transformer even if the EUT is galvanically isolated from the GRID.

Please, ask to CINERGIA if your equipment has DC mode and does not integrate an isolation transformer.

Note that the internal or external transformer is an OPTIONAL. In units up to 60kVA the transformer can be internally installed.

When an Insulation Transformer is used the output terminals of the unit form an IT system. Please follow the local electrical safety regulations concerning IT systems and install an Insulation Monitor Relay when required.

The equipments with internal transformer provided by Cinergia (power range ≤60kVA) have the inrush current limitation box installed internally.

The values on all the tables in this document are valid for voltages of 230V

In case that CINERGIA deliver the unit without any Isolation transformer internally or externally installed, the recommended installation diagram to follow is the NO EXTERNAL TRANSFORMER connected (**OPTION A**).

Please, check that the recommendations provided fulfil with your country or local regulations. The recommendation we provide are based on Spanish regulations.

Following Spanish regulations and the diagram from chapter **4.1**, the recommended element protections, and wires to install are:

ELEMENT	WHERE TO INSTALL	CHARACTERISTICS
DEVICE A1 - RCD	GRID SIDE	300mA, type **B**, > Irated
DEVICE B1 – MCB	GRID SIDE	Rated current Type **C**
DEVICE B2 – MCB or SWITCH DISCONNECTOR	EUT SIDE	Rated current Type **C**
WIRE W1	GRID SIDE	3 phases + N + PE* on GRID SIDE
WIRE W2	EUT SIDE	3 phases + N + PE* on EUT SIDE in AC 3 phases + 3 DC- + PE* on EUT SIDE in DC

**The size of PE cable will depend on local regulations and electrical system (TN, TT, IT, etc…).*

To know the sizing of the recommended wiring and protective elements, please go to CHAPTER 7.

6. ISOLATION TRANSFORMER (IT) (OPTON A or B)

CINERGIA standard units are not galvanically isolated from the grid. Therefore, the output terminals (including the negative rail and the neutral) are referenced electrically to the input grid neutral.

CINERGIA offers Isolation Transformer (IT) as an OPTIONAL for those test setups that require galvanic isolation. The necessity of an Isolation Transformer depends on the Equipment Under Test and the electrical installation of the laboratory (TT, TN or IT system).

It is mandatory to install an Isolation Transformer (IT) on units that will work in DC.

In CNG units up to 60kVA, the Isolation Transformer (IT) can be installed internally. All units with internal transformer installed, an Inrush Current Limitation Circuit is also added internally.

In case of DC models (B2C, EL-DC, DCPS, BE, or any AC&DC model working in DC) the customer MUST install an isolation transformer in case of DC equipment if the EUT (Equipment Under Test) is NOT isolated from the GRID. If not, there is risk of damage to the CINERGIA unit or the EUT.

In case of any DC models, it is MANDATORY installing an isolation transformer even if the EUT is galvanically isolated from the GRID.

Please, ask to CINERGIA if your equipment has DC mode and does not integrate an isolation transformer.

Note that the internal or external transformer is an OPTIONAL. In units up to 60kVA the transformer can be internally installed.

When an Insulation Transformer is used the output terminals of the unit form an IT system. Please follow the local electrical safety regulations concerning IT systems and install an Insulation Monitor Relay when required.

The equipments with internal transformer provided by Cinergia (power range ≤60kVA) have the inrush current limitation box installed internally.

The values on all the tables in this document are valid for voltages of 230V

6.1. CASE INTERNAL ISOLATION TRANSFORMER (OPTION A)

In case that CINERGIA deliver the unit with an Internal Isolation transformer installed, the recommendation installation diagram to follow is the **OPTION A**, as NO EXTERNAL TRANSFORMER connected.

CINERGIA provides all the units with Internal Isolation Transformer installed the Inrush Current Limitation Circuit installed internally too.

In case to install an isolation transformer, it is recommended to install an **insulation monitor relay,** to detect and recognize insulation faults in an IT system.

The equipments with internal transformer provided by Cinergia (power range ≤60kVA) have the inrush current limitation circuit installed internally.

Please, check that the recommendations provided fulfil with your country or local regulations. The recommendation we provide are based on Spanish regulations.

Following Spanish regulations and the diagram from chapter **4.1**, the recommended element protections, and wires to install are:

ELEMENT	WHERE TO INSTALL	CHARACTERISTICS
DEVICE A1 - RCD	GRID SIDE	300mA, type **B**, > Irated
DEVICE B1 – MCB	GRID SIDE	Rated current Type **C**
DEVICE B2 – MCB or SWITCH DISCONNECTOR	EUT SIDE	Rated current Type **C**
WIRE W1	GRID SIDE	3 phases + N + PE* on GRID SIDE
WIRE W2	EUT SIDE	3 phases + N + PE* on EUT SIDE in AC 3 phases + 3 DC- + PE* on EUT SIDE in DC

**The size of PE cable will depend on local regulations and electrical system (TN, TT, IT, etc…).*

To know the sizing of the recommended wiring and protective elements, please go to CHAPTER 7.

6.2. CASE EXTERNAL ISOLATION TRANSFORMER (OPTION B)

If the setup requires an External Isolation Transformer to be installed, the recommendation installation diagram to follow is the **OPTION B**, with EXTERNAL TRANSFORMER connected.

Following the recommendations from the transformer manufacturer of transformers provided by Cinergia, the recommended protection for the primary (grid) side of the transformer are two different alternatives to be installed[1]:

- ALTERNATIVE 1: a moulded circuit breaker type **D**[2] of **Irated** of the transformer (*),
- ALTERNATIVE 2: a moulded circuit breaker type **C** of **2xIrated** of the transformer (*).

(*) To obtain the **rated current** (*Irated*) of the transformer take into account the ***performance of the transformer (90%)*** and a ***reduction of the 7% on the voltage range*** that the Spanish regulation permits.

Please note that the isolation transformer presents a high inrush current due to the magnetizing of the transformer core. If this inrush current trips an upstream circuit breaker we recommend installing an inrush current limitation circuit.

In case to install an isolation transformer, it is recommended to install an **insulation monitor relay,** to detect and recognize insulation faults in an IT system.

The equipments with internal transformer provided by Cinergia (power range ≤60kVA) have the inrush current limitation circuit box installed internally.

Please, check that the recommendations provided fulfil with your country or local regulations. The recommendation we provide are based on Spanish regulations.

Leave a minimum free space to cool the unit and according to power of:

Isolation transformer (kVA)	7.5 to 15	20 to 60	80 to 120	160 to 200
Sides (cm)	25	25	30	40
Rear (cm)	25	50	50	50
Top (cm)	50	50	70	100
Front (cm)	50	100	100	100

It is recommended to leave an additional **75 cm** at both sides, for possible interventions.

[1] In case to add an Inrush current limitation circuit, please check the correct protection to install.
[2] *The type **D** circuit breaker permits a current peak of 15 x Irated.*

If the setup or the installation is not provided with any inrush current limitation circuit, this means that the installation diagram protective element and wirings must be increased or adapted to the high inrush current due to the magnetizing of the transformer.

Following **Spanish regulations** and the diagram from chapter **4.2**, the recommended element protections, and wires to install are:

ELEMENT	WHERE TO INSTALL	CHARACTERISTICS
DEVICE A2 - RCD	GRID SIDE - PRIMARY SIDE of the transformer	300mA, type **B**, Alternative 1: > Irated of transformer Alternative 2: > 2xIrated of transformer
DEVICE C - MCB	GRID SIDE - PRIMARY SIDE of the transformer	Alternative 1: Type **D** Irated of transformer Alternative 2: Type **C** 2xIrated of transformer
DEVICE B1 – MCB	INPUT SIDE of the unit SECONDARY SIDE of the transformer	Rated current Type **C**
DEVICE B2 – MCB or SWITCH DISCONNECTOR	EUT SIDE	Rated current Type **C**
WIRE W3	GRID SIDE - PRIMARY SIDE of the transformer	3 phases + N + PE* on GRID SIDE
WIRE W1	INPUT SIDE of the unit or SECONDARY SIDE of the transformer	3 phases + N + PE* on INPUT SIDE
WIRE W2	EUT SIDE	3 phases + N + PE* on EUT SIDE in AC 3 phases + 3 DC- + PE* on EUT SIDE in DC

**The size of PE cable will depend on local regulations and electrical system (TN, TT, IT, etc…).*

To know the sizing of the recommended wiring and protective elements, please go to CHAPTER 7.

The above **recommended protections** are useful in case that CINERGIA provides the transformer. In case that a third party supplies the transformer, please follow the recommendations from the transformer manufacturer.

Please, check that the recommendations provided fulfil with your country or local regulations. The recommendation we provide are based on Spanish regulations.

7. RECOMMEDATION SIZES OF PROTECTION DEVICES AND WIRING

Please, take into account that sizing of the wiring and protection elements must be calculated and depends on the country or local regulations:

All figures are calculated for a maximum total cable length of 30 m.

All figures are calculated for a **maximum total cable length of 10 m** between the equipment and the EUT.

Please, check that the recommendations provided fulfil with your country or local regulations. The recommendation we provide are based on Spanish regulations

The **sizing of the wires and protection elements** on grid side have been calculated considering rated grid voltage (230Vrms phase-neutral) and rated power. Please check the required sizing of wiring and protection elements in case that:

- The unit will be supplied permanently with an input voltage lower than 230 Vrms,phase-neutral (maximum drop of 20%)
- The unit will be overloaded within 125% (for 10 minutes), 150% (for 1 minute) or 200% for 2 seconds)
- The unit will be working in 3 independent channels or 1 channel mode in AC and DC mode (depend on the unit)

The values on all the tables in this document are valid for grid voltages of 230V.

The **sizing of wiring and protection elements** on the primary side of the transformer have been calculated considering a rated current of the transformer:

- Taking into account the performance of the transformer of 90%
- A reduction of the 7% in the grid voltage
- An inrush current due to the core magnetization

7.1. OPTION A: WITHOUT EXTERNAL ISOLATION TRANSFORMER (IT)

ELEMENT	WHERE TO INSTALL	CHARACTERISTICS
DEVICE A1 - RCD	GRID SIDE	300mA, type **B**, > Irated
DEVICE B1 – MCB	GRID SIDE	Rated current Type **C**
DEVICE B2 – MCB or SWITCH DISCONNECTOR	EUT SIDE	Rated current Type **C**
WIRE W1 (*)	GRID SIDE	3 phases + N + PE* on GRID SIDE RZ1-K
WIRE W2 (*)	EUT SIDE	3 phases + N + PE* on EUT SIDE in AC 3 phases + 3 DC- + PE* on EUT SIDE in DC RZ1-K

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

All wiring sizes has been taken into account that in AC mode the current on output side are balanced between phases. If this is not your case, please review your setup and re size the wiring accordingly.

In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

POWER UNIT (kVA)	CNG7.5	CNG10	CNG15	CNG20	CNG30	CNG40	CNG50
DEVICE A1 - RCD	16A	16A	25A	32A	50 A	63 A	80 A
DEVICE B1 – MCB	16A	16A	25A	32A	50 A	63 A	80 A
DEVICE B2 – MCB or SWITCH DISCONNECTOR	16A	16A	25A	32A	50 A	63 A	80 A
WIRE W1 (*)	4 mm^2	4 mm^2	6 mm^2	10 mm^2	10 mm^2	16 mm^2	25 mm^2
WIRE W2 (*)(**)	4 mm^2	4 mm^2	6 mm^2	10 mm^2	10 mm^2	16 mm^2	25 mm^2

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

(**) In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

POWER UNIT (kVA)	CNG60	CNG80	CNG100	CNG120	CNG160	CNG200
DEVICE A1 - RCD	100 A	125 A	160 A	200 A	250 A	315 A
DEVICE B1 – MCB	100 A	125 A	160 A	200 A	250 A	315 A
DEVICE B2 – MCB or SWITCH DISCONNECTOR	100 A	125 A	160 A	200 A	250 A	250 A
WIRE W1 (*)	35 mm^2	50 mm^2	70 mm^2	95 mm^2	120 mm^2	185 mm^2
WIRE W2 (*)(**)	35 mm^2	50 mm^2	70 mm^2	95 mm^2	120 mm^2	150 mm^2

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

(**) In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

7.2. OPTION B: WITH EXTERNAL ISOLATION TRANFORMER

ELEMENT	WHERE TO INSTALL	CHARACTERISTICS
DEVICE A2 - RCD	GRID SIDE - PRIMARY SIDE of the transformer	300mA, type **B**, Alternative 1: > Irated of transformer Alternative 2: > 2xIrated of transformer
DEVICE C - MCB	GRID SIDE - PRIMARY SIDE of the transformer	Alternative 1: Type **D,** Irated of transformer Alternative 2: Type **C,** 2xIrated of transformer
WIRE W3 (*)	GRID SIDE - PRIMARY SIDE of the transformer	3 phases + N + PE* on GRID SIDE RZ1-K
DEVICE B1 – MCB	INPUT SIDE of the unit SECONDARY SIDE of the transformer	Rated current Type **C**
DEVICE B2 – MCB or SWITCH DISCONNECTOR	EUT SIDE	Rated current Type **C**
WIRE W1 (*)	INPUT SIDE of the unit or SECONDARY SIDE of the transformer	3 phases + N + PE* on INPUT SIDE RZ1-K
WIRE W2 (*)	EUT SIDE	3 phases + N + PE* on EUT SIDE in AC - RZ1-K 3 phases + 3 DC- + PE* on EUT SIDE in DC - RZ1-K

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

The table below only the ALTERNATIVE 1 is shown.

All wiring sizes has been taken into account that in AC mode the current on output side are balanced between phases. If this is not your case, please review your setup and re size the wiring accordingly.

In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

POWER UNIT (kVA)	CNG7.5	CNG10	CNG15	CNG20	CNG30	CNG40	CNG50
DEVICE A2 – RCD (#)	16A	25A	32A	50 A	63 A	80 A	100 A
DEVICE C – MCB (#)	16A	25A	32A	50 A	63 A	80 A	100 A
WIRE W3 (*)	4 mm^2	6 mm^2	10 mm^2	10 mm^2	16 mm^2	25 mm^2	35 mm^2
DEVICE B1 – MCB	16A	16A	25A	32A	50 A	63 A	80 A
DEVICE B2 – MCB or SWITCH DISCONNECTOR	16A	16A	25A	32A	50 A	63 A	80 A
WIRE W1 (*)	4 mm^2	4 mm^2	6 mm^2	10 mm^2	10 mm^2	16 mm^2	25 mm^2
WIRE W2 (*)(**)	4 mm^2	4 mm^2	6 mm^2	10 mm^2	10 mm^2	16 mm^2	25 mm^2

(#) The table below only the ALTERNATIVE 1 is shown.

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

(**) In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

POWER UNIT (kVA)	CNG60	CNG80	CNG100	CNG120	CNG160	CNG200
DEVICE A2 – RCD (#)	125 A	160 A	200 A	250 A	315 A	400 A
DEVICE C – MCB (#)	125 A	160 A	200 A	250 A	315 A	400 A
WIRE W3 (*)	50 mm^2	70 mm^2	95 mm^2	120 mm^2	185 mm^2	2x150 mm^2
DEVICE B1 – MCB	100 A	125 A	160 A	200 A	250 A	315 A
DEVICE B2 – MCB or SWITCH DISCONNECTOR	100 A	125 A	160 A	200 A	250 A	250 A
WIRE W1 (*)	35 mm^2	50 mm^2	70 mm^2	95 mm^2	120 mm^2	185 mm^2
WIRE W2 (*)	35 mm^2	50 mm^2	70 mm^2	95 mm^2	120 mm^2	150 mm^2

(#) The table below only the ALTERNATIVE 1 is shown.

(*) Cables must fulfill the local regulation. Cinergia recommends RZ1-K. Individual cable line section is indicated.

(**) In DC mode, for the DC COMMON cables the user must use three independent wires of the section indicated.

8. CONFIGURATION SIZES OF THE SUITABLE TERMINAL METRIC (STANDARD UNITS)

Cables from electrical installation must have the suitable terminal metric size according to each CNG unit to connect and work properly.

Please take into account the table below:

TERMINALS	UNIT POWER RANGE	CNG7.5	CNG10	CNG15	CNG20	CNG30	CNG40	CNG50	CNG60	CNG80	CNG100	CNG120	CNG160	CNG200
INPUT GRID SIDE	Terminal Metric Value	M6	M6	M6	M6	M6	M8	M8	M8	M10	M10	M10	M10	M10
OUTPUT ETU SIDE	Terminal Metric Value	M6	M6	M6	M6	M6	M8	M8	M8	M10	M10	M10	M10	M10
COMM DC NEGATIVE	Terminal Metric Value	M6	M6	M6	M6	M6	M8	M8	M8	M10	M10	M10	M10	M10
PE CONNECTION	Terminal Metric Value	M6	M6	M6	M6	M6	M6	M6	M6	M8	M8	M8	M8	M8

**The size of PE cable will depend on local regulations and electrical system (TN, TT, IT, etc…).*

The values on the table above are valid for STANDARD units. If your unit has any CUSTOMIZATION take into account that these values can be differ. Ask CINERGIA for the specific information.