BARCO

EVENTS

RENTAL POWER BOX

OWNERS MANUAL

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1. SAFETY

1.1 Important Safety Instructions

Instructions:

- Read this instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use the power box in wet conditions.
- Make sure that the power box is properly grounded.
- For protection against electrocution, a disconnect device must be provided in the beginning of the main power line to the power box.
- Make sure the 'AC MAINS SUPPLY VOLTAGE' selector is standing in the corresponding position to the supplied voltage before engaging the power box.
- Measure the outgoing voltage on the power output connectors before connecting any devices with the power box.
- Protect the power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they enter or exit the power box.
- Refer all servicing to qualified service technicians/personnel only.
- Do not use this power box with an IT power distribution network. A neutral conductor must be provided.
- The centre point of the power generator must be grounded when using a local power generator.

1.2 Important Warnings

Important warnings:

- Risk of electrical shock:

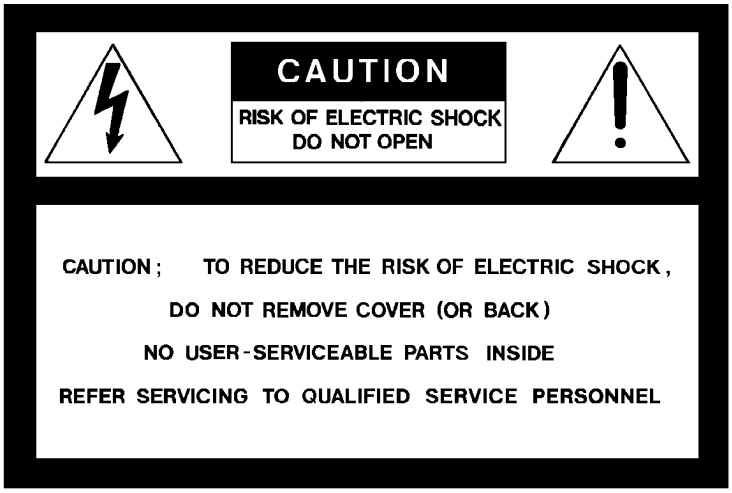

Image 1-1

Risk of electric shock. Do not open. To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.
The lightning flash with an arrowhead within a triangle is intended to tell the user that parts inside this product may cause a risk of electrical shock to persons.
The exclamation point within a triangle is intended to tell the user that important operating and/or servicing instructions are included in the technical documentation for this equipment.

- Wrong selection of the 'AC MAINS SUPPLY VOLTAGE' can cause damage to the power box and the equipment connected to it.

2. INTRODUCTION

2.1 General functionality

Overview:

The rental power box provides power (230VAC) to run the full range of Barco LED Display systems (i.e. DLite, ILite and SLite). It is dual voltage (230V/400V 3 phase) and is equipped with a digital power meter for easy voltage and current measurement. The rental power box has three multi-pole power output connectors which provide in total 18 protected power output circuits. Furthermore the rental power box includes three multi-purpose power outlets for energizing peripherals around the Barco LED-wall.

2.2 Order info rental power box

Order info:

Article No.	Description
R9850990	Rental power box

2.3 Technical summary

Summary:

Type	Value
Mains Input connector	CEE-form 63 A / 3 phase plus neutral (N) and protective earth (PE).
Main circuit breaker	63 A maximum, 3 phase plus neutral (N) Short circuit rating: 10 kA 400 V or 20 kA 230 V (Norm IEC 60947–2) Provided with a ground fault current interrupter of 300 mA.
Output connectors	Three 19 pins circular multi-pole connectors with each 6 circuits. Each circuit is protected with a 16 A switch fuse (20 kA short circuit rating). Three 2 phase, plus protective earth, auxiliary connectors (CEE-form) each protected with a 16 A switch fuse (20 kA short circuit rating).
AC MAINS 230 / 400 V switch	Padlockable phase selector switch. Changeover with centre off. Select voltage between any two phases, or between any phase and neutral.
Measure unit	Power meter PM500. Measure functions: I, U, F, PGQ, PF/THD, Imax, Pmax, H, E Protected with a 6 A switch fuse.
Input voltage	230 V – 3 phase 400 V – 3 phase plus neutral
Maximum input current	63 A
Suitable power nets	TT and TN. Can be used with a local power generator but the centre point of the power generator must be grounded.
Output voltage	230 V on the multi-pole connectors and on the auxiliary connectors.
Maximum output current	6 circuits of 16 A per multi-pole connector. 16 A on the auxiliary connectors.
Ruggedness	IP30
Weight (flightcase included)	93 kg.

Type	**Value**
Dimensions flightcase.	685 x 656 x 670 (W x D x H)
Regulation compliance	CE. IEC 60947–2.
Output voltage	230V on each output circuit (multi-pole and auxiliary)
Maximum output current	16A maximum for each output circuit (multi-pole and auxiliary)

3. CABLES USED WITH THE RENTAL POWER BOX

Cables

This chapter only enumerates and describes power cables used between the rental power box and the Barco LED-wall. Power cables used between tiles are listed in the installation manual of the concerned tile.

Some power cables can be used as well indoor as outdoor. Other may only be used indoor. The use of indoor or outdoor cables depend on the type of LED display.

3.1 Order info power cables

Order info:

Article No.	Description	Image
R9851260	Multi power cable of 10 meter. For indoor and outdoor use. Used to distribute power between **rental power box** and **spider** connector.	
R9851261	Multi power cable of 20 meter. For indoor and outdoor use. Used to distribute power between **rental power box** and **spider** connector.	
R9851262	Multi power cable of 30 meter. For indoor and outdoor use. Used to distribute power between **rental power box** and **spider** connector.	
R9851263	Multi power cable of 50 meter. For indoor and outdoor use. Used to distribute power between **rental power box** and **spider** connector.	
R9851264	Multi power cable with custom length. For indoor and outdoor use. Used to distribute power between **rental power box** and **spider** connector.	image 3-1 image 3-2
R9851660	Waterproof spider connector, for outdoor use, with 6 power outputs (C19) with **different length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	image 3-3 image 3-6
R9851661	Waterproof spider connector, for outdoor use, with 6 power outputs (C19) with **same length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	image 3-4
R9851662	Waterproof spider connector, for outdoor use, with 6 power outputs (C19) with **custom length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	
R9851670	Spider connector, for indoor use, with 6 power outputs (C19) with **different length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	
R9851671	Spider connector, for indoor use, with 6 power outputs (C19) with **same length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	image 3-5
R9851672	Spider connector, for indoor use, with 6 power outputs (C19) with **custom length**. Spider support bracket included. Used to subdivide power from a **multi power cable** to a **group of tiles**.	

Image 3-1
Multi power cable.

Image 3-2
Detail of a multi-pole connector plug.

Image 3-3
Waterproof spider connector (output cables with different length).

Image 3-4
Waterproof spider connector (output cables with same length).

Image 3-5
Spider connector for indoor use (output cables with same length).

Image 3-6
Spider support bracket.

4. PHYSICAL INSTALLATION

4.1 Components of the rental power box

Rear side

On the rear side of the rental power box are the connectors for power input and output, as well the padlockable phase selector switch. The number and the color of the output connectors correspond with the number and color of the switch fuses at the front side.

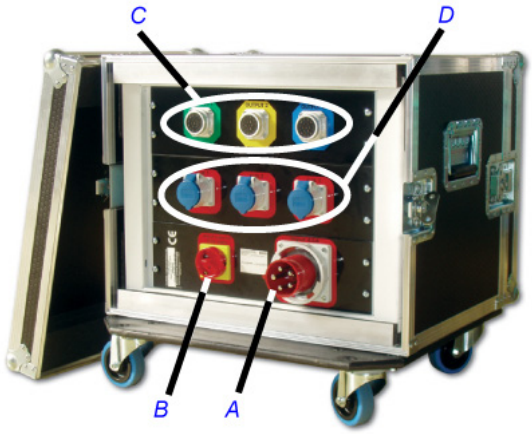

Image 4-1

A Mains Input connector.
B Padlockable phase selector switch.
C Multi-pole output connectors.
D Auxiliary output connectors.

Front side

At the front side are the main circuit breaker and the switch fuses of each output circuit accessible. The front side also contains the display of the power meter. The number and the color of the switch fuses correspond with the number and color of the output connectors at the rear side.

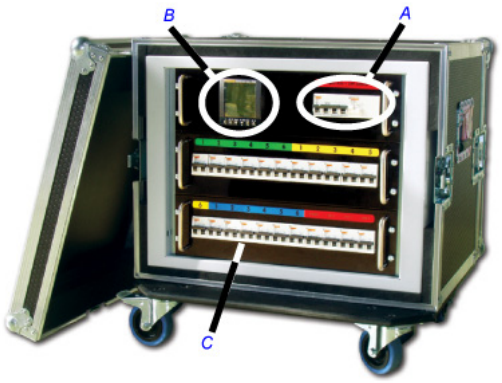

Image 4-2

A Main circuit breaker.
B Power meter.
C Switch fuses for output circuits.

4.2 Set up of the rental power box

This rental power box can only be used on a TT or TN power distribution network. Do not use this power box with an IT power distribution network. A neutral conductor must be provided. In case of using this power box with a power generator make sure that the centre point of the power generator is connected to the earth.

How to set up the rental power box ?

1. Place the rental power box in a safe and dry location, which is only accessible by authorized persons.
2. Lock the wheels of the flight-case and remove the front and rear cover.
3. Place all the switch fuses in the OFF position.
4. Place the padlockable phase selector switch on the matching phase to phase voltage of the local power network.
   Warning: *Make sure to select the correct mains voltage. Wrong selection can cause damage to the power box and the equipment connected to it.*

   Tip: *Measure the voltage on the mains power cord before connecting to the rental power box.*
5. Place a padlock on the phase selector and connect the mains power cord to the rental power box.
6. Switch on the main circuit breaker and the switch fuse named “LOGIC”. This action will start up the power meter.
7. Read out the phase to phase supplied voltages on the power meter. See “User manual” of the power meter for instructions about reading out the phase to phase supplied voltages.
8. Does the values of the phase to phase supplied voltages on the power meter correspond with the position of the padlocked phase selector ?
   If yes, connect the equipment to the power box.
   If no, repeat this procedure starting from step 3.
9. Now it is safe to switch on all other switch fuses of the rental power box.

4.3 Connections between rental power box and LED-wall

General

The rental power box is provided with multi-pole power output connectors. One multi-pole connector contains six (6) power circuits, each protected with a 16 ampere rated circuit breaker.

A multi power cable is used to transport the power from the multi-pole connector to a spider connector. This spider connector subdivide the power circuits into individual power source cables. Each power source cable of the spider connector leads to a group of tiles. See installation manual of the involved tiles to know the maximum amount of tiles connected in parallel with the same power source cable.

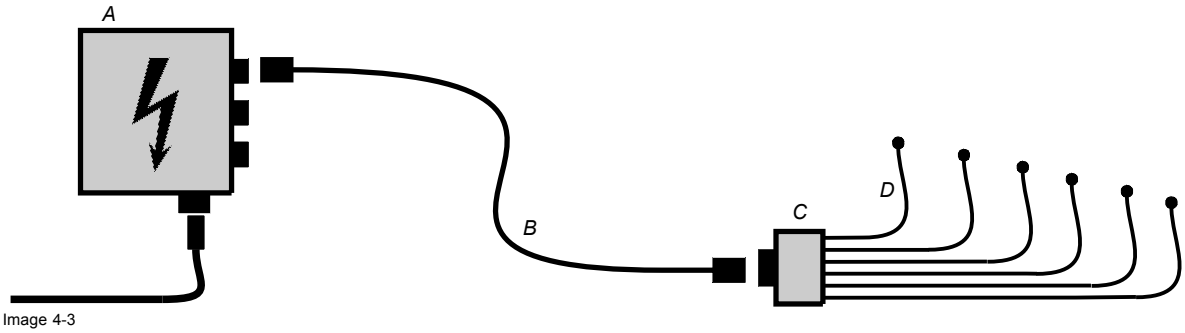

Image 4-3

A Power box.
B Multi power cable.
C Spider connector.
D Power source cable (spider output cable).

To protect against risk of fire by overloading of power cables, the amount of tiles per power source cable is limited. Never connect more tiles than allowed. See installation manual of the involved tiles to know the maximum amount of tiles connected in parallel with the same power source cable.

Necessary parts

- Multi power cables
- Spider connectors
- Spider support brackets
- Power source cables

How to realize the connections between the rental power box and the LED-wall ?

1. Install a spider support bracket at the rear side of the LED-wall. Choose a place where all output cables of the spider connector will easily connect to the start point of a power branch.
2. Fasten the multi-pole plug of a spider connector inside the spider support bracket.
   Warning: *Always use waterproof spider connectors in case of an outdoor LED-wall application.*
3. Connect a single power source cable of the spider connector with the start point of a power branch of tiles in the LED-wall.
4. Repeat step 3 until all six power source cables of the spider connector are connected with the LED-wall.
5. Connect a multi power cable with the spider connector. Ensure to fasten the locking cap of the spider connector.
6. Connect the other side of the multi power cable with one of the multi-pole sockets on the rental power box. Ensure to fasten the locking cap of the multi-pole plug.
   Warning: *Ensure the rental power box is switched off.*
7. Repeat from step 1 until all multi-pole sockets of the rental power box are used.

A. ADDENDUM

A.1 Identification system of a power distribution network according IEC[1] 364

TT, IT, TN-C and TN-S

The first character indicates the position of the neutral conductor:

- T : Directly connected with the protective earth.
- I : Isolated from the protective earth or connected through an impedance.

The second character indicates the grounding manner of electrical equipment:

- T : Directly connected with the protective earth.
- N : Connected with the neutral conductor of the power source.

The third character indicates the situation of the neutral (N) conductor and the protective earth (PE) conductor:

- C : Common conductor for neutral and protective earth.
- S : Separated conductors for neutral and protective earth.

A.2 Diagrams

Internal wiring diagrams:

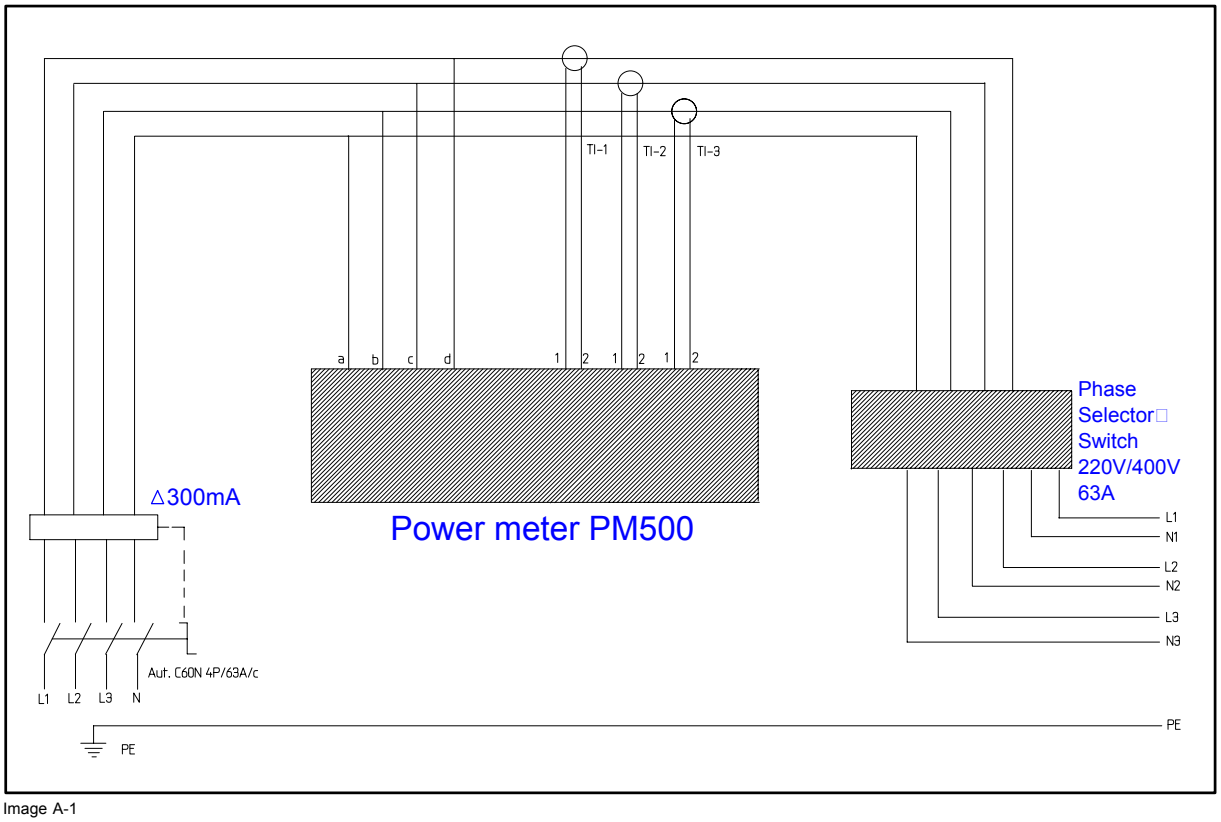

Image A-1

1. International Electro-technical Commission

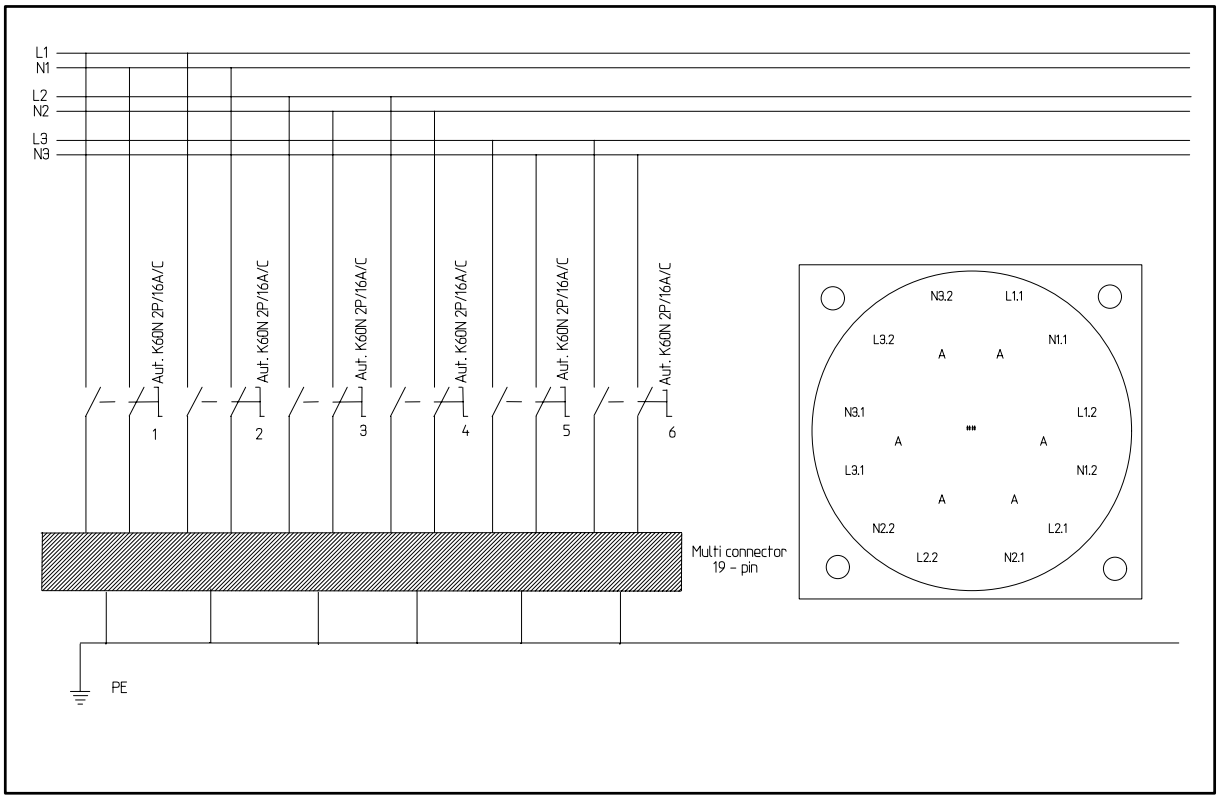

Image A-2

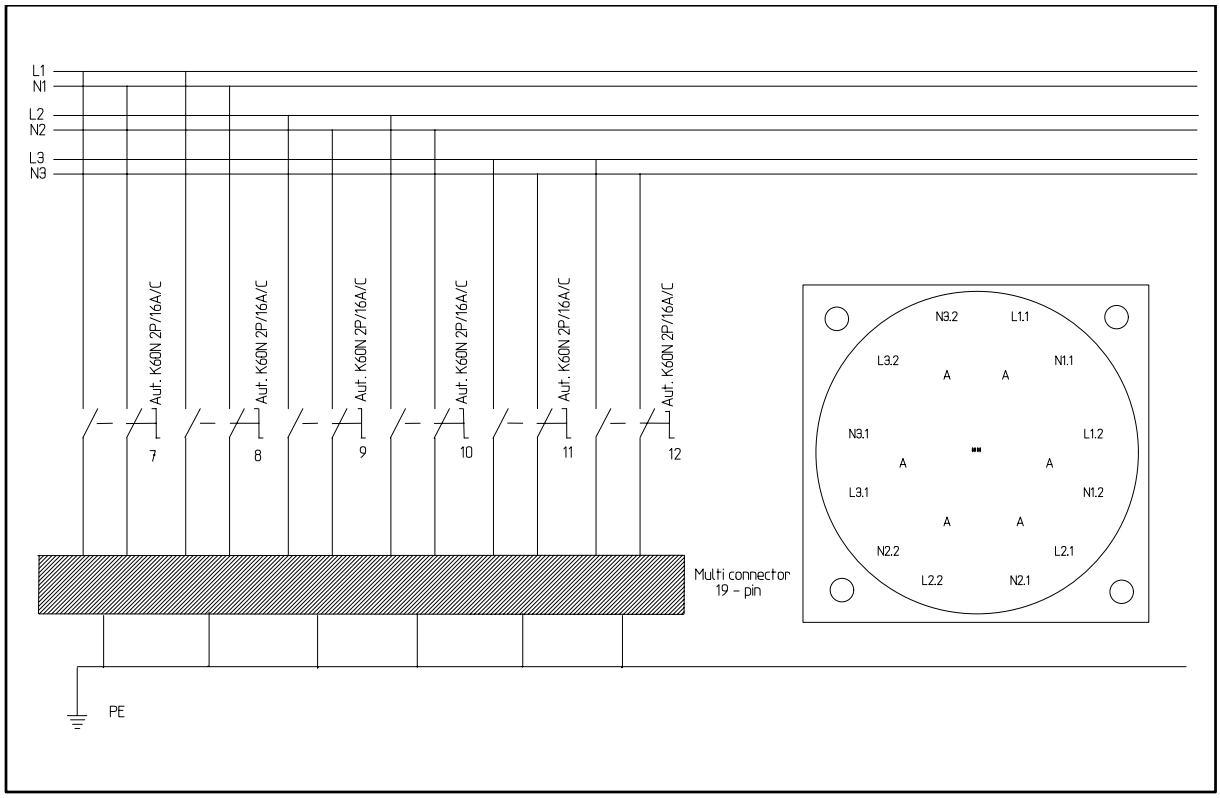

Image A-3

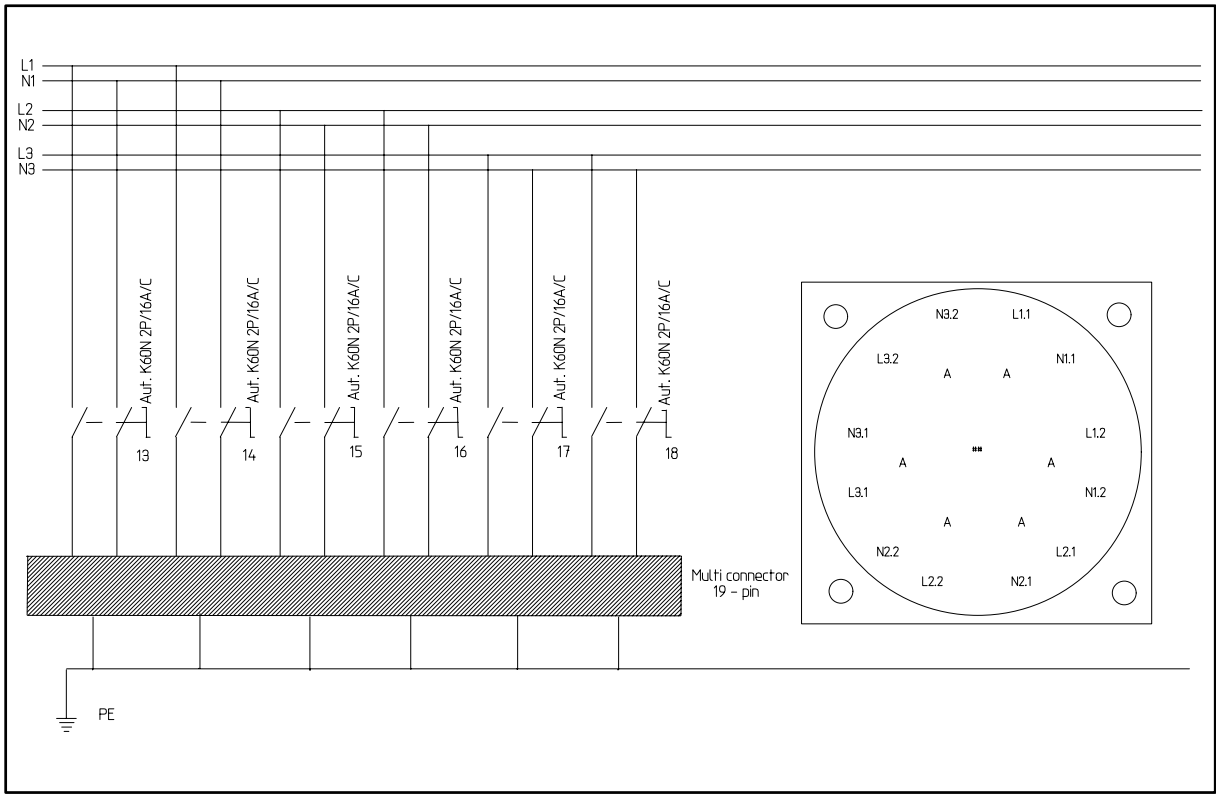

Image A-4

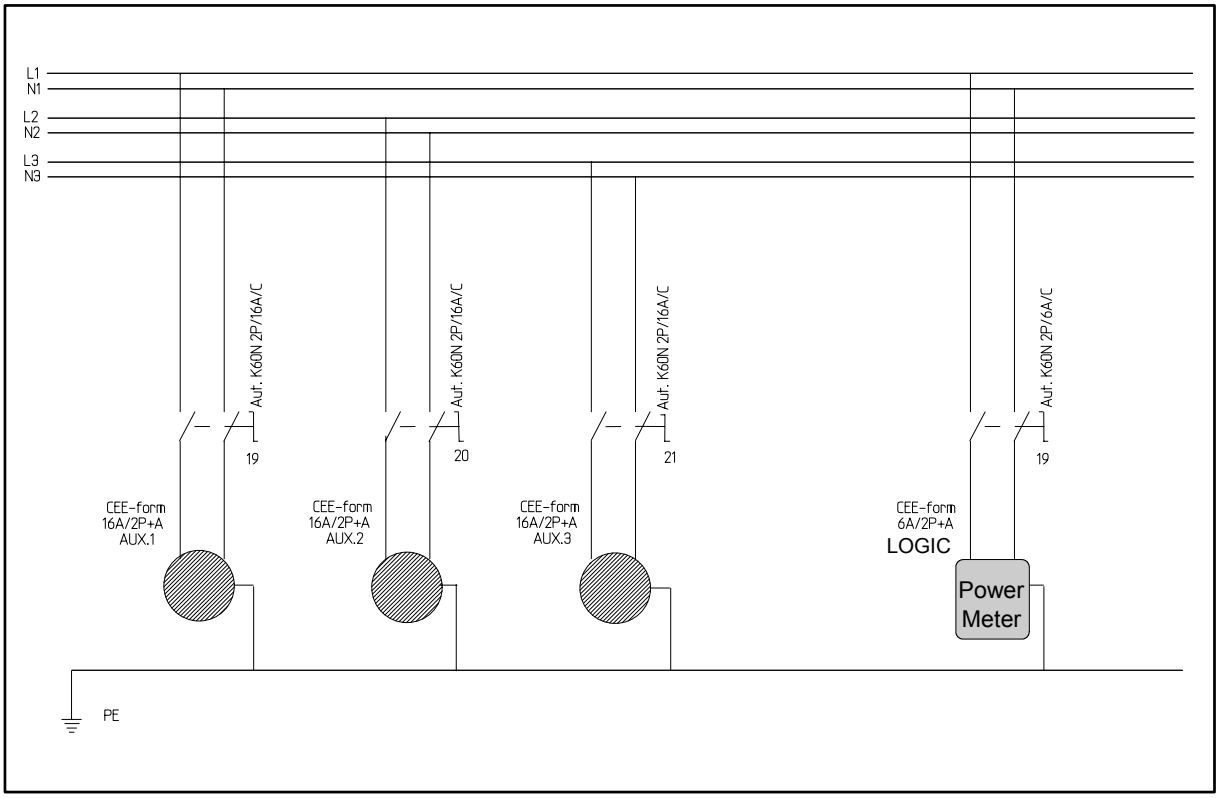

Image A-5

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