Product Description

The Quasar Series is a modern iMCC (Intelligent Motor Control Center) switchboard line for low voltage and currents up to 3150 A, and in compliance with IEC 60439-1 - TTA compliant (Type Tested Assembly compliant). These panels are used to control and operate motors up to 150 kW, through withdrawable units. Among these main features of this series are robustness, connectivity with field buses, modularity and interchangeability of withdrawable units, low downtime for maintenance and multiple status of operation of these units.

This connectivity with field buses enables monitoring a wide range of information, thus obtaining data on consumption, number of operations, failures, and diagnostics. Through these diagnostics, the Quasar series brings innovation to the market with the iMCC-m concept, which is an iMCC with asset management, that connects the field network to the maintenance management system independently, hence enabling predictive maintenance and reliability to the system. The products that constitute this series are classified as: iMCC columns and withdrawable units.



The photograph on the left shows the assembled product with three iMCC columns, and withdrawable units.

Main features:

- Modularity and interchangeability of withdrawable units
- Integration with supervisory and control networks without disruption in the extraction of the extracting units
- High connectivity
- Fixed and withdrawable units
- Low average time to repair, which reduces downtime
- Easy configuration
- Compliant with NBR/IEC 60439-1
- Reduction of installation and maintenance costs
- Easy drawer extraction without cable disconnection and interruption of networks
- Drawers' test and maintenance position
- Column structures and robust drawers (withdrawable units)

Ordering Information

iMCC Switchboard Acquisition

To purchase an iMCC switchboard, please contact our proposal area via e-mail: propostas@altus.com.br or through our telephone available on the website www.altus.com.br, stating the following data:

Electrical Specifications of Loads

- Rated voltage
- Short-circuit class
- Fixed or withdrawable unit

Load Specifications

- Number of loads
- Current
- Power
- Motor type
 - Centrifugal pumps
 - Fans
 - Compressors
 - Submerged pumps

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- General-purpose motor
- Resistance
- Capacitors bank

Information about the Standard

- Impulse withstand voltage
- Voltage applied to industrial frequency
- Short-circuit current (Icw)
- Degree of protection (IPxx)

Communication Protocol

- PROFIBUS-DP/DPV1
- ETHERNET
- MODBUS-RTU
- DEVICENET

iMCC Parts Acquisition

To purchase parts of an iMCC, as columns, withdrawable and dummy units, it's possible to use code generation pattern shown below and contact proposals department through the e-mail: <u>propostas@altus.com.br</u> or through our telephone number available at www.altus.com.br, informing the desired codes.

Code Generation to Purchase iMCC

To purchase columns of the iMCC, you should inform the general code, followed by the general bus current, as the structure below:

| Code | | Current |
|--------|---|---------|
| QS2000 | - | 2500A |

Code:

QS2000: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to use unit.

QS2010: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used as intermediate columns, it means, not on the side.

QS2020: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used at the right side of the iMCC.

QS2030: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used at the left side of the iMCC.

Current:

1500A: General bus for 1500 A and vertical bus of 1000 A

2500A: General bus for 2500 A and vertical bus of 1000 A

3150A: General bus for 3150 A and vertical bus of 1000 A

Code Generation to Purchase Single Drawer

To purchase drawers of the iMCC, you should inform the general code, followed by the Power and type of drawer, as the structure below:

| Code | | Power | | Drawer Type |
|--------|---|-------|---|-------------|
| QS3015 | - | 15KW | / | INT |

Code:

QS3015: Withdrawable unit height of 150 mm to 15 kW of Power and 460 Vac. QS3030: Withdrawable unit height of 300 mm to 37.5 kW of Power and 460 Vac. QS3045: Withdrawable unit height of 450 mm to 55 kW of Power and 460 Vac. QS3060: Withdrawable unit height of 600 mm to150 kW of Power and 460 Vac. QS3915, QS3930, QS3945, QS3960: Dummy units for filling of empty slots.

Power:

0.18KW up to 150KW

Type:

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INT: Smart Drawer, composed of motor circuit breaker, contactor and thermal relay with communication

ALI: Source Drawer, composed only by motor circuit breaker

AIN: Smart Source Drawer, composed of motor circuit breaker and thermal relay with communication

BSC: Drawer BSC, composed of molded case circuit breaker, contactor and protection relay

Features

| | QS2000 QS2010 QS2020 QS2030 | QS3015 | QS3030 | QS3045 | QS3060 |
|--|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Rated operation voltage | Up to 690 Vac | Up to 690 Vac | Up to 690 Vac | Up to 690 Vac | Up to 690 Vac |
| Rated insulation voltage | 1000 Vac | 1000 Vac | 1000 Vac | 1000 Vac | 1000 Vac |
| Frequency | 60 Hz | 60 Hz | 60 Hz | 60 Hz | 60 Hz |
| Rated impulse withstand voltage | 12 kV | 12 kV | 12 kV | 12 kV | 12 kV |
| Voltage applied to the industrial frequency | 2.5 kV per 1 min | 2.5 kV per 1 min | 2.5 kV per 1 min | 2.5 kV per 1 min | 2.5 kV per 1 min |
| Horizontal bus rated current | 1500 A 2500 A 3150 A | - | - | - | - |
| Vertical bus rated current | 1000 A | - | - | - | - |
| Rated current of the output devices | - | 400 A | 400 A | 400 A | 400 A |
| Rated short-time current (Icw) | 55 kAef / 1 s | 55 kAef / 1 s | 55 kAef / 1 s | 55 kAef / 1 s | 55 kAef / 1 s |
| Rated peak withstand current (Ipk) | 121 kA | 121 kA | 121 kA | 121 kA | 121 kA |
| Degree of protection ¹ | IP42 | - | - | - | - |
| Temperature range | -5 to 40 °C | -5 to 40 °C | -5 to 40 °C | -5 to 40 °C | -5 to 40 °C |
| Communication channel | PROFIBUS-DPV1 | PROFIBUS-DPV1 | PROFIBUS-DPV1 | PROFIBUS-DPV1 | PROFIBUS-DPV1 |
| Constructive shape ¹ | 3B or 4B | - | - | - | - |
| Dimensions (W x H x D) | 720 x 2400 x 630 mm | 458 x 158 x 518 mm | 458 x 310 x 518 mm | 458 x 460 x 518 mm | 458 x 610 x 518 mm |
| Weight | 300 kg | 16 kg | 17 kg | 18 kg | 19 kg |
| Standard colors ¹ | Munsell Gray N6.5 | Munsell Gray N6.5 | Munsell Gray N6.5 | Munsell Gray N6.5 | Munsell Gray N6.5 |

Notes:

Degree of protection, Constructive shape e Standard colors: Another degree of protection, constructive shape or standard colors on request.

QS2000: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to use unit.

QS2010: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used as intermediate columns, it means, not on the side.

QS2020: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used at the right side of the iMCC.

QS2030: Column of iMCC capable to receiving fixed units and/or withdrawable for actuation and control of loads or motors, to be used at the left side of the iMCC.

QS3015: 150 mm high withdrawable unit for power ratings up to 15 kW at 460Vac.

QS3030: 300 mm high withdrawable unit for power ratings up to 37.5 kW at 460Vac.

QS3045: 450 mm high withdrawable unit for power ratings up to 55 kW at 460Vac.

QS3060: 600 mm high withdrawable unit for power ratings up to 150 kW at 460Vac.

QS3915, QS3930, QS3945, QS3960: Dummy units for filling of empty slots.

Rated impulse withstand voltage: consisting of atmospheric impulses with normalized waveform (1.2 / 50 μ s) in both reversed polarities.

Degree of protection: the degree of protection can only be reached if all withdrawable units are inserted and in the operation position.

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Constructive shape: according to NBR/IEC 60439-1 the 4B constructive shape means that external terminals for conductors must not be in the same compartment of the associated functional unit, but in protected spaces or individual compartments, which must be separated and closed.

Installation



ELECTRIC SHOCK HAZARD

DANGER:

This module can work with voltages up to 690 Vac. Special care must be taken during the setup which should only be done by enabled technicians. Do not touch the field wiring linked to the base when in operation.

Electrical Installation

The figure below illustrates the connection points for electrical installation of an iMCC column.



In an iMCC column, the electrical installation can be carried out by using the access for the cables passage. These passages may be removed or even adapted to enable cabling; however, this conformation should not allow for free spaces later. Therefore, the installer must seal free spaces completely so that the protection features are achieved.



Mechanical Assembly

Switchboard Installation

For mechanical installation, it is recommended that the switchboard be set on the floor. The following figure displays six points of attachment, where either M10 screws or UR38 anchor bolts may be set.



Drill Bits for Fixing on the Floor

Withdrawable Units Installation

Extractable Position

The installation of a withdrawable unit is performed by following these steps:

First, open the door of the unit in the column. The unit must be seated for telescope type rail so that it can be easily moved. At this moment the shock protection system is locked, and does not allow access to the bus bars.



Insertion Position or Test Position

Subsequently, the unit must be completely inserted by unlocking firstly the electrical shock protection system; next, the pull lever must be locked into its PIN tab. Now the lever is ready for handling, and the insertion of the drawer completed. This same position can also be used for the test position. This position is valid only when the drawer is being removed; at this point the pull lever should be moved in such a way that it will only extract the unit from the position entered, therefore enabling the power connectors to be disconnected from the buses whereas the data connector remains in place. This



procedure enables the implementation of measurement as well as analyses of the unit.

Inserted Position

The lever shall be moved in the direction specified, causing the withdrawable unit to make contact with the buses and connectors, and then fully inserted.



Operation Position

After the insertion, the front switchboard, and then the unit door must be closed, as shown in the following figure, thus allowing the unit operation.



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Maintenance Position

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Through its extraction system, the withdrawable units in this series also enable a maintenance position in which the drawer can remain raised for local maintenance. The following figure illustrates this position.



Physical Dimensions

QS2000

Dimensions in mm.



QS3015

Dimensions in mm.



QS3030

Dimensions in mm.



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QS3045

Dimensions in mm.



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QS3060



Maintenance

Preventive

- The mounting screws on the power cables should be tightened every 6 months
- Every year the interconnection cables must be checked for suitable firm connection
- Devices, mainly protection devices and insulators, must be verified for dust deposits
- Equipment in environments subjected to excessive contamination must be periodically cleaned out to remove waste, dust, etc

Frontal Panel Diagnostics

The iMCC drawer informs the user, through light indication, of the current status of the load/motor. Besides that, it allows the drawer operation through buttons. The following figure points out these indications:



Indication Lights

- Green: indicates that the load/motor is switched off, and the drawer may be handled by the user
- Red: indicates that the load/motor is turned on, and the drawer cannot be handled

Operation Buttons

- Red: switches off the load
- Green: switches on the load

Temperature Measurement Points – Thermometry

The iMCC column enables access to various temperature measurement points. The available measurement points are shown as follows.



Manuals

For more technical details and installation products of Quasar Series, the following documents should be consulted:

| ſ | Document code | Description |
|---|---------------|-----------------------------------|
| | MU221000 | Manual de Instalação Série Quasar |