

mitsubishi electric **HYDRONICS & IT COOLING SYSTEMS S.p.A.**

Specifications
SEQUENCER_202003_EN

Series: SEQUENCER
Version:
Function: Plant Room System Manager

SEQUENCER - Plant Room System Manager

General description

The equipment manufacturer in accordance with the specifications contained herein shall supply a dedicated Plant Room System Manager (PRSM) for management and control of the plant room.

The PRSM ensures to control the plant room by managing and adjusting each component directly involved in the production and the distribution of the heating and the cooling energy, therefore involving units (chillers, heat pumps and reversible heat pumps) and pumping groups (internal the units or external but directly controlled by the units themselves).

The PRSM shall perform the following functions:

- Management of the plant load based on the direct control of the internal resources of each individual unit (compressors, valves and water pumps)
- Management of unit's staging at full load operation by limiting the number of active units thus maximizing the electrical energy consumption deriving from the use of the active pumps
- Management of unit's staging at part load operation by distributing the plant load within the available units thus maximizing the electrical energy consumption deriving from each unit
- Compressor run time balancing
- Reduction of the compressor starts and stops for limiting the thermal and mechanical stresses of units and preventing damage due to continuous and sudden activation
- Stabilization of the plant by limiting the over-production of thermal energy
- Management of domestic hot water production
- Notification of the presence of serious alarms by automatically sending e-mails to all user profiles (service to be configured)

The e-mail message must contain the following information:

- Unit (off-line and anomaly);
 - Temperature probes;
 - Control system
- Access to PRSM through the keyboard installed inside the electrical panel

System unit integration

The PRSM and unit shall be connected through the following protocol:

- ModBUS RTU over IEA RS-485.

System integration and network communication

The PRSM shall operate stand-alone or can be integrated into third-party building management and automation systems (BMS or BAS).

The PRSM shall support all following standard protocols and bus:

- ModBUS RTU over IEA RS-485,
- BacNET MS/TP,
- BacNET over IP,
- Echelon.

Electrical and control panel

The PRSM shall be composed of a pre-assembled and factory tested hardware equipment in a free-standing industrial enclosure for indoor installation. The PRSM shall be connected to each individual unit, primary and secondary chilled and hot water pump groups (when applicable), to source-side pumps group (when applicable), to temperature sensors and to differential pressure transmitters installed in the plant room.

The PRSM shall be connected to the units by means of IEA RS-485 communication network operating on ModBUS RTU protocol for the acquisition of the main operating variables from each individual unit.

Epoxy painted stainless steel enclosure built in compliance with EN60204-1 and EC204-1 standards, complete with:

- electric panel ventilation
- screw terminal blocks for control circuit lines
- Power supply 230Vac +/- 10% 50Hz 1P +N+PE
- Input current 0.65A
- Maximum power absorbed 150VA

System test and configuration

Tests carried out along the all productive process as imposed by the UNI EN ISO9001:2015 requirements.

The PRSM shall come in a pre-assembled hardware integrating the main control board and the devices related to the bearing of operating field devices.

The PRSM shall be pre-configured by associating any logic line to the correspondent physical device in order to avoid any mistake in the system configuration according to the “design once apply many” execution criteria.

Certification, reference standard

- CE - Declaration of conformity certificate for the European Community
- Low Voltage directive 2014/35/CE, EN60204-1:2006+A1:2009+as amended
- Electromagnetic compatibility directive 2014/30/CE, EN 61000-6-4:2007+A1:2011 // EN61000-6-2:2005 +as amended
- UNI EN ISO9001:2015 regulation - Company's Quality Management System Certification
- UNI EN ISO 14001:2015 regulation - Company's Environmental Management System Certification
- OHSAS18001:2007 regulation - Company's Health & Safety Management System certification
- IP66 international protection code, without any panel's modification (N 62208/02:2012; EN 60 529; EN 61439-1)
- IK10 mechanical protection code, without any panel's modification (EN 62208/02:2012; EN 62 262; EN 61439-1)
- Operating temperature 0..to 50°C
- Storage temperature -20..60°C
- Operating & storage relative humidity 30..90% (non condensing)