



Tender OCT-2016-111500001-001
Supply, Design and Installation of Rack Systems

Technical Proposal



Content

	Page
Overview	
Detailed Description according to Annex 5 – Technical Specifications	3
VARISTAR Racks	3
Rack measurements and internal layout	4
Standard rack and configuration for all rack types based on 'VARISTAR'	4
EMC rack and configuration for all racks types A (PSS) based on 'VARISTAR'	5
Standard side panels 'VARISTAR'	6
Standard EMC side panels 'VARISTAR'	6
Perforated EMC side panels 'VARISTAR'	6
Standard plinth 'VARISTAR'	6
Power distribution, cable entry and grounding of the racks	7
Internal power distribution	7
Cable entries	8
Grounding	8
Control system interface	8
Monitoring and security: systematized surveillance	8
EMX888 - SHX30 monitoring	8
Operation, maintenance, lifetime	10
Water cooling loops	11
VARISTAR Containment System	14
Removal and Reinstallation of one VARISTAR rack or one VARISTAR SHX30	15
Individual water cooled rack	16
Documentation	16
Delivery and Installation Plan	17
Quality Management	17
Warranties on equipment, return policy, replacement of faulty items	17
List of Appendices	18



Overview

The document includes the technical proposal of Pentair Technical Solutions based on the Technical Specification "Supply, Design & Installation of Rack Systems" from ESS.

The proposal consists of:

- Description of the mechanical design of the aisle containments
- Cabinet design including CAD drawings
- Realization of the cabinet integration
- Description and calculation of the cooling system
- Installation plan
- Delivery plan
- Quality management
- Information regarding warranties on equipment, return policy, replacement of faulty/broken items

Detailed Description according to Annex 5 – Technical Specifications

VARISTAR Racks

VARISTAR racks are designed for use with heavy loads. The welded steel sheet metal profile frame offers a high level of stability with loads up to 1.500 kg. The unique 'meander' design of the profile also offers new, form-locking possibilities for fixing components with an additional series of 25 mm-spaced grid holes all round. This allows a very high variety of fixing options.





Rack measurements and internal layout

Standard rack and configuration for all rack types based on 'VARISTAR'

Dimensions: 2200H (47U) x 600W x 1000D (mm)

19" VARISTAR IP20 rack to accommodate components with high heat dissipation and appropriate accessories:

- The VARISTAR rack frame in welded steel sheet metal profile with all-round meandering in 25 mm grid increments for M6 taptite screws and/or M5 cage nuts has a static load-carrying capacity of max. 1.500 kg
- Front and rear doors have 180° hinges, 3-point locking rod and lever handles for DIN profile half-cylinder. Door stop is according to position of the rack inside the different aisles, can be changed at factory or during site installation at latest
- The front door is glazed with one pane of 6 mm single pane safety glass incl. rack label
- The rear door is in one-piece steel plate, fully perforated to optimize airflow, incl. rack label
- The side panels are in plain steel plate, bolted at the ends of rows only
- The top cover is in steel plate with 2 cut-out zones (microperforations) for cable entry front and rear, incl. brush strip sets, optional through cable glands, according to ESS specifications
- The bottom plate consists of multiple parts of steel plate, with brush strip at rear for cable entry
- 4 pcs 19" panel/slide mounts 47 U front and rear; front 200 mm recessed, rear profile spaced at 500 mm from front 19" plane, all profiles with height indicators 1-47U
- Gaskets vertical right and left, plus air baffles (sheet metal) above and below the front 19" plane, prevent recirculation of air

Fitted accessories

- 2 pcs EK333 DIN profile half cylinder locking for lever handle in front and rear door, according to type of rack
- 4 pcs C-rail, fitted right, distributed evenly over the height in the cabinet depth
- 2 pcs cable mounting profiles (cable route) fitted rear right- and left-hand to the rack frame
- 1 or 3 set cable ties, each 10 pcs, delivered loose, according to type of rack
- 1 set mounting clips (cage-nuts M6) each 10 pcs, delivered loose
- 1 pcs 19" swing frame 47/43U spaced at 120 mm from rear door, according to rack type
- 1 pcs 19" pull-out shelf, 4-point fixing, full depth, load-carrying capacity 30 kg, incl. telescopic slides and GND/earthing, supplied loose, according to rack type
- 1 pairs slide rails, full depth, load-carrying capacity 100 kg, supplied loose, according to rack type
- 4 pcs GND/earthing rail, copper, 2000 mm long, fitted to the rear right- and left-hand rack uprights
- 1 pcs GND/earthing rail, copper, 100 mm long, fitted to the rear bottom rack frame
- 6 pcs cable clamp 35 mm²
- 32 pcs cable clamp 4 - 16 mm²
- 5 pcs cable clamp 4 – 13,5 mm²
- GND/earthing: Conductive connection (25mm²) of all cabinet parts to central GND/earthing point in accordance with DIN EN 50178, VDE 0160
- Cabinet surface fully electrostatically powder-coated in RAL 7035 (light-grey)



EMC rack and configuration for all racks types A (PSS) based on 'VARISTAR'

Dimensions: 2200H (47U) x 600W x 1000D (mm)

19" VARISTAR IP20 EMC rack to accommodate components with high heat dissipation and appropriate accessories:

- The VARISTAR rack frame in welded steel sheet metal profile with all-round meandering in 25 mm grid increments for M6 taptite screws and/or M5 cage nuts has a static load-carrying capacity of max. 1.500 kg
- EMC shielding realized with all-round foam gaskets
- Front and rear doors connected to the rack frame by all-round EMC gaskets, they have 180° hinges, 3-point locking rod and lever handles for DIN profile half-cylinder. Door stop is according to position of the rack inside the different aisles, can be changed at factory or during site installation at latest
- The EMC front door is glazed with one pane of 6 mm single pane safety glass incl. rack label
- The EMC rear door is in one-piece steel plate, fully perforated to optimize airflow, incl. rack label
- The EMC side panels are in plain steel plate, bolted at the end of rows with rack type A (PSS) or between rack types A (PSS)
- The EMC top cover is in steel plate with 2 cut-out zones (microperforations) for cable entry front and rear, connected to the rack frame by all-round EMC gaskets, incl. EMC sponge strip sets, optional through EMC cable glands, according to ESS specifications
- The EMC bottom plate consists of multiple parts of steel plate, with EMC sponge strip at rear for cable entry, connected to the rack frame by all-round EMC gaskets
- 4 pcs 19" panel/slide mounts 47 U front and rear; front 200 mm recessed, rear profile spaced at 500 mm from front 19" plane, all profiles with height indicators 1-47U
- EMC gaskets vertical right and left, plus air baffles (sheet metal) above and below the front 19" plane, prevent recirculation of air

Fitted accessories

- 2 pcs EK333 DIN profile half cylinder locking for lever handle in front and rear door, according to type of rack
- 4 pcs C-rail, fitted right, distributed evenly over the height in the cabinet depth
- 2 pcs cable mounting profiles (trays) fitted rear right- and left-hand rack frame
- 1 set cable ties, each 10 pcs delivered loose, according to type of rack
- 1 set mounting clips (cage-nuts M6) each 10 pcs delivered loose
- 4 pcs GND/earthing rail, copper, 2000 mm long, fitted to the rear right- and left-hand rack uprights
- 1 pcs GND/earthing rail, copper, 100 mm long, fitted to the rear bottom rack frame
- 6 pcs cable clamp 35 mm²
- 32 pcs cable clamp 4 - 16 mm²
- 5 pcs cable clamp 4 – 13,5 mm²
- GND/earthing: Conductive connection (25mm²) of all cabinet parts to central GND/earthing point in accordance with DIN EN 50178, VDE 0160
- Cabinet surface fully electrostatically powder-coated in RAL 2000 (orange)



Standard side panels 'VARISTAR'

Dimensions: 2200H x 1000D (mm)

- The side panels are in plain steel plate, bolted at the ends of rows only, connected to the rack frame by all-round EMC gaskets
- Surface fully electrostatically powder-coated in RAL 7035 (light-grey)
- Pls. see also mounting instruction 60130-158

Standard EMC side panels 'VARISTAR'

Dimensions: 2200H x 1000D (mm)

- The EMC side panels are in plain steel plate, bolted at the ends of rows with rack types A (PSS) only, connected to the rack frame by all-round EMC gaskets
- Surface fully electrostatically powder-coated in RAL 2000 (orange)
- Pls. see also mounting instruction 60130-158

Perforated EMC side panels 'VARISTAR'

Dimensions: 2200H x 1000D (mm)

- The EMC side panels are in plain steel plate, bolted, with perforated cut-outs front and rear for air flow, mounted between rack types A (PSS), connected to the rack frame by all-round EMC gaskets
- Surface fully electrostatically powder-coated in RAL 2000 (orange)
- Pls. see also mounting instruction 60130-158

Standard plinth 'VARISTAR'

Dimensions: 100H x 600W x 1000D (mm)

- The VARISTAR plinth consists of 2 width members bolted to the VARISTAR rack frame
- Static load-carrying capacity 1.000 kg
- Removable solid trims allow cable entry from all sides
- 4 adjustable feet (112 – 132 mm height)
- Pls. see also mounting instruction 60130-187



Power distribution, cable entry and grounding of the racks

Internal power distribution

The racks are equipped with a 3U power distribution box for the installation of power distribution modules on DIN profile rails (DIN 43880).

Description:

- Dimension 3U/84HP
- Box made of sheet metal, surface AlZn
- Front panel with cut-out for power distribution module, St, 1 mm
- DIN profile rail, St, zinc-plated
- Cable support rail for clamps, zinc-plated
- Brush strip, plastic, black, for cable entry

Mechanical drawing of the 3U power distribution box - s. appendices

The power distribution boxes of the different racks are installed with components acc. to the annex 5.3 of the Technical Specification.

List of components for Power Distribution Units:

- | | |
|------------------------------------|--------------------------------------|
| • MCBs, Miniature Circuit Breakers | ABB S201M-C6 |
| • MCBs, Miniature Circuit Breakers | ABB S201M-C2 |
| • MCBs, Miniature Circuit Breakers | ABB S203M-C6 |
| • MCBs, Miniature Circuit Breakers | ABB S201M-C10 |
| • MCBs, Miniature Circuit Breakers | ABB S801N-C10 |
| • MCBs, Miniature Circuit Breakers | ABB S801N-C16 |
| • Load Breaker 3 pole 80A | ABB OT80F3 |
| • Terminals | Weidmueller PUSH IN TYPE |
| • Motor protection switch | ABB MS116-1.6 |
| • Power supply | MEANWELL WDR-120-24 |
| • Power supply | MEANWELL SDR-120-24 |
| • Power supply | MEANWELL WDR-240-24 |
| • Power supply | MEANWELL SDR-240-24 |
| • Power supply | MEANWELL WDR-480-24 |
| • Power supply | MEANWELL SDR-480-24 |
| • Redundancy modul | MEANWELL DR-RDN20 |
| • Electronic fuses | PHOENIX CONTACT CBM E8 24VDC/0,5-10A |

Wiring diagrams of the different power distribution boxes - s. appendices.

The schematics as dxf-files for use in eplan are available on USB-stick.



Cable entries

Standard rack:

The top cover is design with cable entries front and rear, incl. brush strip sets, optional through cable glands, according to ESS specifications

The bottom plate is realized with brush strip at rear for cable entry.

EMC rack:

The EMC top cover of the rack is prepared for cable entries front and rear, connected to the rack frame by all-round EMC gaskets, incl. EMC sponge strip sets, optional through EMC cable glands, according to ESS specifications

The EMC bottom plate is assembled with EMC sponge strip at rear for cable entry, connected to the rack frame by all-round EMC gaskets

Grounding

The grounding is realized according to the specification and is also shown in the schematics mentioned above.

Control system interface

Monitoring and security: systematized surveillance

Whether you need to measure and monitor operating parameters such as temperature or humidity, control fans or heat exchangers, detect smoke, respond to a power failure or manage the locking system, our products and solutions offer the best monitoring options for the persons responsible for the security and availability of your data center.

EMX888 - SHX30 monitoring

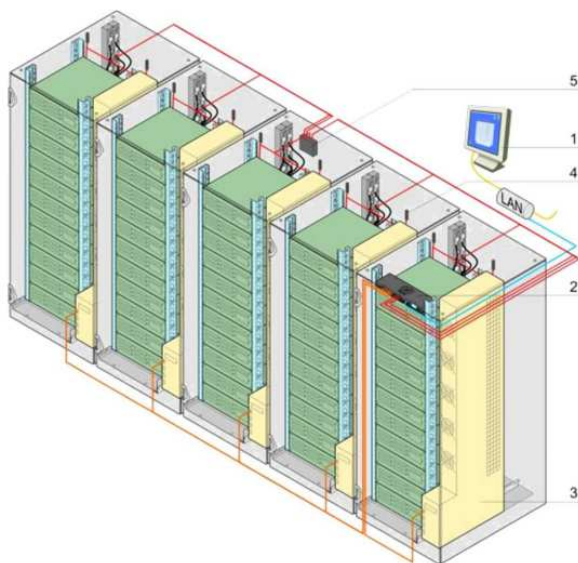
The EMX888 unit provides a rack management solution that combines asset management and environmental monitoring functions in every aisle and single row.

The asset management function enables you to remotely monitor IT device locations, once you have electronically tagged the IT devices.

Environmental sensors connected to the EMX unit monitor ambient conditions (e.g. temperature and humidity) in the racks and aisles by remote access.

In particular, the unit can issue e-mail messages, log events, syslog messages, SNMP traps and SMS messages when events you specify occur. For e-mail, user-defined messages can be configured.

The EMX888 is connected with the VARISTAR SHX30 cooling units. This integration provides a solution for remote monitoring and parametrization of the heat exchanger. Quantity of the EMX888 units is adapted to the number of cooling units in aisles and rows.



1. GUI
2. EMX-888
3. Heat-Exchanger
4. Environmental Sensors
5. Sensor Hub



Name	Reading	Status
Temperature Air Outlet (F1)	19.9 °C	normal
Temperature Air Outlet (F2)	20.0 °C	normal
Temperature Air Inlet (F3)	26.0 °C	above upper warning
Temperature Air Inlet (F4)	25.8 °C	normal
Temperature Water Inlet (F6)	12.2 °C	normal
Fan Speed (M1)	2874 rpm	normal
Fan Speed (M2)	2783 rpm	normal
Fan Speed (M3)	2916 rpm	normal
Fan Speed (M4)	2858 rpm	normal
Fan Speed (M5)	2803 rpm	normal
Fan Speed (M6)	2783 rpm	normal
Fan Speed (M7)	2895 rpm	normal

Setup Sensor 'Temperature Air Outlet (F2)' Thresholds

Lower Critical (°C): 0.0

Lower Warning (°C): 0.0

Upper Warning (°C): 16.0

Upper Critical (°C): 22.0

Hysteresis (°C):



The EMX888 unit offers the following general features:

- Remote tracking of the location of individual IT devices that have been tagged using Raritan asset tags
- LED color change on the asset sensor to distinguish between detected and undetected asset tags
- Support for a maximum of 10 meters (EMX-888) of cabling for each connected asset sensor
- Monitoring of environmental factors such as external temperature and humidity
- User-specified location attributes for environmental sensors
- Display of temperatures in Celsius or Fahrenheit, height in meters or feet, and pressure in Pascal or psi as specified by user credentials
- Support for a maximum of 130 (EMX-888) environmental sensors
- Support for cascading of AMS devices and/or PX2 devices connected to the EMX
- Support for SNMP v1, v2, and v3
- Sending of traps using the SNMP protocol
- Configuring and setting of values via SNMP
- Support for SSH and Telnet services
- For SSH, both password and public key authentications are supported
- Support for service announcement
- The configuration settings of an EMX unit can be saved and loaded into another identical EMX unit
- Support for the inclination sensor implemented in the Raritan asset sensors
- Wireless connection via a USB LAN adapter supplied by Raritan
- Visual monitoring of the data center environment with a Logitech® QuickCam® Pro 9000 webcam
- Support for webcam images sent via e-mail to designated recipients
- Support for Cinterion® MC52i GSM modems that allow you to send customized SMS messages to designated recipients for specific events
- Sending of e-mails and log details, and/or setting of SNMP traps for specific events
- Monitoring of a connected Schroff® LHX-20, LHX-30 or LHX-40 heat exchanger
- Network diagnosis functions such as pinging a host or listing TCP connections
- Possibility of monitoring sever accessibility
- Full disaster recovery option in case of a catastrophic failure during a firmware upgrade

Pls. see also Instruction Manual EMX888 (due to number of pages only available on USB-stick)

Operation, maintenance, lifetime

The operation of the system of 6000 hours per year in normal operation had been considered for the selection of components. The life time of the products are according to expectations of ESS.

The reliability of the cooling system is described in the Instruction_manual_SHX30-60130-716-EN as part of the appendices (due to number of pages only available on USB-stick).

The design of the racks rows and the containments allows an easy access and replacement of components from the front or from the rear side.



Water cooling loops

The water cooling loop described in the Technical Specification can be realized with the standard VARISTAR SHX 30 air/water heat exchanger.

The Pentair solution is based on calculations of the different rack rows according to the requirements of on the Technical Specification annex 5.2. In appendices folder 1 the presentation shows the capability of the Pentair design.

According to the heat dissipation a sufficient numbers of sidecooler VARISTAR SHX30 are placed in the rack rows.

Description:

Symmetrical configuration of the racks and the in-row-coolers in one row and in the aisle based on Schroff standard product range:

- Rack type VARISTAR
- In-row-cooler SHX 30
- This configuration provides a homogeneous air flow in front of the 19" area of all racks.
- It covers all the air flow needs due to the different heat loads and temperature stability.
- Redundancy mode is considered in case of failures of in-row-coolers.
- It allows a variation of fan speeds depending on the heat loads in the different sectors and provides options for energy savings.

VARISTAR SHX30 cooling units

The active SHX30 cooling unit described below places a number of demands on the building and room infrastructures. For this reason the VARISTAR SHX30 can be adjusted to many different operating conditions to suit the waste heat of the installed components and also the cold air temperature required for cooling. This has a decisive influence on the energy efficiency of the overall system.





Standard configuration for all SHX30 cooling units based on 'VARISTAR'

Dimensions: 2200H x 300W x 1000D (mm)

VARISTAR SHX30 cooling units with built-in air/water heat exchanger to cool down high heat dissipation loss in containments and single rows:

- The VARISTAR rack frame in welded steel sheet metal profile with all-round meandering in 25 mm grid increments for M6 taptite screws and/or M5 cage nuts
- Front and rear panel in one-piece design, front panel closed with control panel, rear panel fully perforated to optimize airflow
- The top cover is in steel plate with an entry cut out for water tubes, drain hose, power and data cable incl. brush strip
- The bottom plate is in steel plate with an entry cut incl. brush strip for optional access from below the unit
- Gaskets vertical right and left, plus air baffles (sheet metal) above and below the front 19" plane, prevent recirculation of air
- The maintenance-free air/water heat exchanger is designed to be used with cold water systems provided by ESS
- Within the heat exchanger, six axial fans distributed over the full height provide a uniform airflow throughout the full height. The fans can be swapped during operation (hot-swap), either individually or as a complete unit
- An integrated drop collector prevents moisture in the air exit of the SHX30
- Electronic control (2-way valve) provides optimal system matching, thus maximizing energy efficiency by regulating the cooling requirement
- The control panel on the front panel allows a quick visual check of all relevant operating data and any error messages that may have been issued
- All system-critical parameters are monitored and logged and will be read out and logged via Ethernet using the alarm and communications interfaces (RS 232, RS 485, RJ45) to the EMX888 monitoring unit
- GND/earthing: Conductive connection (25mm²) of all cabinet parts to central GND/earthing point in accordance with DIN EN 50178, VDE 0160
- Cabinet surface fully electrostatically powder-coated in RAL 7035 (light-grey)

Selected technical data for SHX30:

Cooling Capacity:	up to 50 kW
Water flow temperature:	6° C ... 18° C
Ambient temperature range:	5° C ... 70° C
Ambient air humidity:	5 % ... 95 % relative humidity
Air capacity:	up to 5000 m ³ /h
Air exit temperature:	18° C ... 50° C
Airflow direction:	horizontal
Noise level:	79 dB (A) at 80% output
Weight of complete unit:	approx. 110 kg



SHX30 performance chart



Note: If the commissioning of the SHX30 cooling unit is carried out by a non-Pentair employee our warranty period will be reduced to a year from delivery date. We are unable to advocate for failures caused by unsuitable or improper use; inaccurate installation or implementation; intervention in installed equipment by not authorized persons, the customer or third parties. In case of the above happening you will have to cover the repair costs according to our price list and additional travelling expenses may apply.

Pls. see also Instruction_manual_SHX30 (due to number of pages only available on USB-stick)



VARISTAR Containment System

By using cold and hot aisle containment you can further increase cooling and energy efficiency. Consistently separating cold supply air and warm exhaust air produces a high degree of efficiency. Schroff's containment elements are easy to install and can even be fitted at a later date. Top cover elements and doors prevent from recirculation of hot air. So cold air is used solely for cooling the servers. Energy consumption is thus reduced and you gain reserves for future processing capacity.



Standard configuration for all aisle containments based on 'VARISTAR'

Dimensions: 2400H x 3200W (mm), aisle width 1200 mm

VARISTAR containment systems with sliding doors and glazed aisle covers to prevent from recirculation of hot air and high heat dissipation loss:

- Mechanical sliding doors with automatically closure, secure glass
- Aisle end panel in painted steel plate
- Longitudinal profiles (aluminum) mounted on top of the racks
- Aisle covers in steel plate with inserts of laminated safety glass
- Aisle covers in steel plate with LED inserts for independent lighting, quantity depending on length of the aisles
- Sealing profiles between adjacent racks
- Smoke detectors mounted to the aisle covers, quantity depending on length of the aisles
- Surface completely electronically powder-coated RAL 7035 (light grey)
- Pls. see also mounting instructions 60130-061, 60130-062, 60130-549, 60130-550, 60130-571 and 60130-622



Removal and Reinstallation of one VARISTAR rack or one VARISTAR SHX30 cooling unit in the rack row

Instruction - Removal of one rack

- Remove all cabling in and out of the rack
- Remove all installed components
- Open front and rear door to get access to the side-by-side brackets
- Unscrew 4 brackets of the side-by-side kit (2 in front, 2 in rear, 8 screws Torx 30)
- Pls. see also mounting instruction 60130-199 and 22932-466 (appendices folder 1)
- Slide rack out of the row

Instruction - Reinstallation of one rack

- Slide rack into the row
- Open front and rear door to get access to the side-by-side brackets
- Mount 4 brackets of the side-by-side kit (2 in front, 2 in rear, 8 screws Torx 30)
- Pls. see also mounting instruction 60130-199 and 22932-466
- Close front and rear door or install components and cabling

Instruction - Removal of SHX30 cooling unit

- Shut off SHX30 cooling unit
- Close water inlet and outlet valves
- Remove flexible water tubes and drain hose
- Remove power and data cables
- Open front and rear panel to get access to the side-by-side brackets
- Unscrew 4 brackets of the side-by-side kit (2 in front, 2 in rear, 8 screws Torx 30)
- Pls. see also mounting instruction 60130-199 and 22932-466
- Slide SHX30 out of the row
- Follow instructions in instruction manual SHX30 60130-716 for setup

Instruction - Reinstallation of SHX30 cooling unit

- Slide SHX30 into the row
- Open front and rear panel to get access to the side-by-side brackets
- Mount 4 brackets of the side-by-side kit (2 in front, 2 in rear, 8 screws Torx 30)
- Pls. see also mounting instruction 60130-199 and 22932-466
- Connect flexible water tubes and drain hose
- Follow instructions in instruction manual SHX30 60130-716 for setup
- Open water inlet and outlet valves
- Connect power and data cables
- Close front and rear panel
- Switch on SHX30 cooling unit



Individual water cooled rack

The individual water cooled rack will be realized based on standard product Varistar LHX 3, cabinet water cooled to 3 kW.

Features:

- Dimension: H 2200 mm / W 600 mm / D 1000 mm
- Warm air is drawn from above downwards by a fan through the air/water heat exchanger; the air flows through a special air channel in the side panel
- Noise level of 45 dB(A)
- Cabinet in accordance with protection class IP 55, RAL 7021, with glass front door
- Static load-carrying capacity 1000 kg (Heavy-Duty frame)
- Cabinet IP 55, RAL 7021, with air/water heat exchanger (3 kW) in the base (telescopic)
- The rack will be equipped with PDU defined in standard rack type U.



Standard LHX3

Documentation

Further information regarding the products mentioned above are listed in the appendices, folder 1. CAD drawings are available on the USB-stick.



Delivery and Installation Plan

The delivery and installation plan is prepared according to the Technical Specification. A detailed description is presented in document "Delivery Installation_schedule_ESS", appendices folder 4.

Quality Management

The quality management system of Pentair Technical Solutions is controlling all activities in accordance to process descriptions mentioned in the quality manual.

A short overview is provided by document Management Process_Cartographie 1er niveau F-S-30.5 (appendices folder 4).

Regarding the language the documents are adapted to the local language of the factory.

The products produced and delivered by Pentair are running through different inspections starting with manufacturing process for single components up to end tests of final products.

The activities of the project management are arranged in the quality manual.

In the appendices folder 4 there is mentioned a process description as an example of for a customized project realized in the Pentair location in France (document PJM_Traitement des projets clients F-P-1066.4 - appendices folder 4).

The quality control of the products according to the ESS specification would be organized as follows:

1. Production, pre-assembly and integration of the racks in the Pentair factory at Betschdorf/France
 - Visual and mechanical tests during the production of components.
 - Visual, functional and safety tests 100% of the pre-assembled racks according to a specific test plan.
 - Quality gate before shipment to control the completeness of the delivery.
 2. Installation on-site at ESS location:
 - Quality gate before assembly to control the completeness of the delivery.
 - Assembly test
 - Installation and function test acc. to installation check list
 - Visual inspection
- Test procedures are shown in the appendices, folder.

Warranties on equipment, return policy, replacement of faulty items

The terms of delivery provides information regarding warranty, return policy and replacement of faulty items.

The warranty period is 2 years.

The claim process is described in document G-P-931 claim process Intalex, appendix folder 3.



List of Appendices

Appendices Folder 1

- Drawing standard-rack 2 pages
 - Drawing EMC-rack 2 pages
 - Drawing SHX cooling unit 1 page
 - Drawing stand-alone-rack 3 pages
 - Drawing aisle-3D 1 page
 - Drawing sliding-door 1 page
 - Drawing side-panel 1 page
 - Drawing side-panel 1 page
 - Drawing DIN-profile-cylinder 1 page
 - Drawing swing-frame 1 page
 - Drawing shelf-pull-out 1 page
 - Drawing gliding-rail 1 page
 - Drawing cable-tie 1 page
 - Drawing temperature-sensor 1 page
 - Drawing EMX888 1 page
 - Data sheet EMX888
-
- 22932-466_Mounting_instruction_side-by-side-kit 2 pages
 - 60130-061_Mounting_instruction_sliding-door-frame 10 pages
 - 60130-062_Mounting_instruction_sliding-door-glass 4 pages
 - 60130-152_Mounting_instruction_depth-profile 1 page
 - 60130-154_Mounting_instruction_gliding-rail 1 page
 - 60130-158_Mounting_instruction_side-panel-rev003 2 pages
 - 60130-163_Mounting_instruction_EMG-gasket 2 pages
 - 60130-187_Mounting_instruction_plinth 1 page
 - 60130-195_Mounting_instruction_shelf-pull-out 4 pages
 - 60130-199_Mounting_instruction_side-by-side-kit-rev003 1 page
 - 60130-204_Mounting_instruction_swing-frame-rev002 4 pages
 - 60130-212_Mounting_instruction_cable-route 1 page
 - 60130-549_Mounting_instruction_aluminium-profile-rev001 4 pages
 - 60130-550_Mounting_instruction_aisle-cover-rev001 4 pages
 - 60130-571_Mounting_instruction_rack-row-rev001 4 pages
 - 60130-622_Mounting_instruction_gasket-kit-rev001 4 pages



Appendices Folder 2

- Power distribution unit 400VAC 2 pages
- Wiring diagrams
 - Cabinet type O PDU 10A 72951-290_000_00_A 4 pages
 - Cabinet type A PDU 10A 72951-291_000_00_A 4 pages
 - Cabinet type B10 PDU 10A 72951-292_000_00_A 8 pages
 - Cabinet type D PDU 10A 72951-293_000_00_A 4 pages
 - Cabinet type F PDU 10A 72951-294_000_00_A 6 pages
 - Cabinet type V10 PDU 10A 72951-295_000_00_A 4 pages
 - Cabinet type C16 PDU 16A 72951-296_000_00_A 8 pages
 - Cabinet type B16 PDU 16A 72951-297_000_00_A 8 pages
 - Cabinet type E PDU 16A 72951-298_000_00_A 7 pages
 - Cabinet type T PDU 16A 72951-299_000_00_A 4 pages
 - Cabinet type U 4 pages
 - Cabinet type S PDU 10A 72951-301_000_00_A 6 pages
 - Cabinet type C25 PDU 25A 72951-302_000_00_A 8 pages
 - Cabinet type J PDU 25A 72951-303_000_00_A 4 pages
 - Cabinet type C63 PDU 63A 72951-304_000_00_A 8 pages
 - Cabinet type G PDU 50A 72951-305_000_00_A 6 pages
 - Cabinet type I PDU 50A 72951-306_000_00_A 4 pages
 - Cabinet type L PDU 125A 72951-307_000_00_A 4 pages
 - Cabinet type H PDU 10A 72951-308_000_00_A 6 pages
 - Cabinet type V16 PDU 16A 72951-309_000_00_A 4 pages
 - Cabinet type V25 PDU 25A 72951-310_000_00_A 4 pages

Appendices Folder 3

- Thermal_Concept_Gallery_v02_SD20170202

Appendices Folder 4

Terms of Delivery Pentair Technical Solutions

- G-P-931 claim process Intalex
- Draft Test Report Installation_ESS
- Installation and function test_ESS
- Management Process_Cartographie 1er niveau F-S-30.5
- PJM_Traitement des projets clients F-P-1066.4
- Delivery Installation_schedule_ESS