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Malaysia

ELECTRICAL REQUIREMENTS FOR PACKAGED EQUIPMENT

(PROJECT STANDARDS AND SPECIFICATIONS)

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1. SCOPE

1.1 This specification describes the requirements for electrical hardware and installation work to be incorporated as part of process, mechanical, control or instrumentation equipment being delivered by a single vendor as a package. It shall be supplementary to and basic equipment specification that refers to it, or to which may be attached.

1.2 The present specification is general, since it is being used to supplement basic specifications for a variety of packaged equipment. But, it is specifically intended that all its relevant requirements shall apply to the procurement of all types of packaged units or systems and their controls and instrumentation. These requirements shall apply as well associated directly with the above packaged equipment. Additionally, they shall apply to small independent field-located local process control boards not so associated.

1.3 Because of its broad scope, this specification cannot be all inclusive. However, it shall be used as a guide to the electrical construction, wiring, and type of components that may be incorporated by the Vendor in the basic equipment package(s). In any case of conflict between the requirements of this specification and those of the basic specification or the basic practices as amended or revised, the matter shall be brought to the attention of the Purchaser for resolution.

2. STANDARDS AND CODES

2.1 The electrical equipment and installations, including their erection and testing, shall conform in general to good engineering practices and in particular shall comply with the following applicable recommended Standards and Codes;

2.1.1 Local Standard and relevant codes

2.1.2 National Electrical Code (NEG)

2.1.3 National Fire Protection Association (NFPA)

2.1.4 International Electrotechnical Commission (IEC)

2.1.5 National Electrical Manufacturer’s Association (NEMA)

2.2 It shall be the Vendor's responsibility to be, or to become, knowledgeable of the requirements of these Standards and Codes. Any changes or alternations to the equipment to make it meet Standards and Codes requirements shall be at the expense of the Vendor.

2.3 In no way, does this specification supersede the relevant codes except when the requirements here are more stringent. Where applicable, materials shall have underwriter's laboratories approval and label.

3. DESIGN CONDITION

3.1 Service Condition

3.1.1 Ambient Condition

Electrical system shall be designed for use under the following ambient conditions, unless otherwise specified in the specific data sheet.

1) Altitude :

2) Ambient air temperature :

3) Relative humidity :

4) Special atmospheric conditions : Corrosive & sulfurous.

5) Rain fall

Maximum rainfall for a 24 hrs period :
Annual average (per year) :

6) Wind :

7) Seismic Conditions Seismic Zone 4 :

3.1.2 Power Supply Conditions

Electrical system shall be designed to operate satisfactorily at the rated load with the following variations in the power supply. Performance in these cases need not necessarily be in accordance with those established for operation at the rated voltage and the rated frequency.

1) Voltage variation ±1 0% of the rated voltage

2) Frequency variation ± 5% of the rated frequency

3) Combined voltage and frequency variation : such that the sum of the absolute percentages of the two variations is 1 0% or less, provided that frequency variation does not exceed 5%.

4. BASIC DESIGN

4.1 Packaged Wiring

Where feasible, the electrical items of the entire package or in any event those of each major physical unit of it, shall be physically mounted and completely wired by the Vendor. If interconnecting field wiring between several units of a package will be required, or where extensions of wiring to locations outside the package are to be installed during field erection. The packaged equipment wiring shall be brought out to identified terminal blocks. All such terminals shall be grouped, preferably at a single location, shall be enclosed in a manner suitable to the environment and the electrical area classification, and shall be arranged for ready accessibility to field wiring conduits coming in from either above or below, at Purchaser's option.

4.2 Division of Work

Electrical power shall be provided at the voltage(s) specified in paragraph 4.5 to the package unit(s) requiring an energy supply. However unless noted below or otherwise agreed to in writing by Purchaser, a single over-current and short-circuit protected feeder at one of the available voltages shall be the Vendor's sole energy for A. C. power. In the absence of the prior written agreement, the Vendor shall provide all needed distribution and control equipment, including transformation, over-current and short-circuit protection devices, and small motor starters, required to power his entire package. That is, the Vendor shall normally furnish anything required electrically to complete the package except for the following.

4.2.1 Electrical power, as described on the above

4.2.2 Wiring between the Vendor's equipment and equipment or devices outside the scope of the package purchase.

4.2.3 Wiring between the major units of a package too large to be furnished as a single physical assembly.

4.2.4 Connection of the package unit(s) to the Purchaser's grounding system (Vendor shall supply suitable connections)

4.2.5 Inter-wiring work between units inside package is included to scope of vendor

4.3 Area Classification

The equipment may be installed in an area where potential or actual hazards exist due to the presence of flammable vapors or dust. Each plant area will be classified with respect to such hazards in accordance with the IEC or ANSI.
The degree and type of hazard will normally be stated in the basic equipment specification.