

GENERAL SPECIFICATION

TELECOMMUNICATIONS

GS EP TEL 170

Communications Network

Rev.	Date	Purpose of the revision
08	09/2017	NTP update
07	05/2015	Organisation change – January 2015
06	08/2014	General Revision, chapters changes, wireless LAN added
05	10/2013	Opercom references update
04	01/2012	General Revision, update of standards and corrections
03	10/2008	P08 specifications + Standards update and correction
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1. Scope

This general specification concerns the Local Area Network (LAN) and Wireless LAN that shall support the Enterprise Information System (SIE), and the interconnection with the Industrial Information System (SII) or other systems (guests, CCTV, PAGA etc...).

The design of the Industrial Information Systems (SII) network is not part of this General Specification but is specified as per requirements of [GS EP INS 134](#) and [GS EP INS 135](#).

The purpose of this general specification is to define:

- The design of the SIE LAN
- The design of the Wireless LAN
- The IP address allocation for LANs
- Network transport infrastructure considerations.
- The factory and the site acceptance tests (FAT) for the LANs

The contracting parties mentioned in this General Specification are listed hereafter:

- Company: the party which signs the contracts and purchase orders
- Contractor: the fabrication Contractor on the yard or the construction Contractor on the final site
- Vendor: the supplier of the equipment.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
IEEE 802.1Q	Virtual LANs
IEEE 802.1W	Rapid Reconfiguration of Spanning Tree
IEEE 802.1X	Port-based Network Access Control (PNAC)
IEEE 802.3AN	10 Gigabit Ethernet
IEEE 802.3AT	Power Over Ethernet Plus (PoE+)
IEEE 802.3BA	40 Gigabit and 100 Gigabit Ethernet
IEEE 802.3U	100 Mbits - Fast Ethernet
IEEE 802.3Z	1Gigabit Ethernet
IEEE 802.11	Wireless Local Area Networks

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Reference	Title
ISO 7498	Information technology. Open systems interconnection. Basic reference model
ISO 8802.3 / IEEE 802.3	Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) (Ethernet) Access Method and Physical Layer Specifications
RFC 1918	Address Allocation for Private Internets

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP INS 134	Design and supply of integrated control and safety system
GS EP INS 135	Cybersecurity Requirements for Industrial Information Systems (SII)
GS EP EXP 101	Pre-Commissioning and Commissioning Specification
GS EP EXP 103	Pre-commissioning and Commissioning Engineering
GS EP EXP 105	Pre-Commissioning Execution
GS EP EXP 107	Commissioning Execution
GS EP TEL 410	Installation rules
GS EP TEL 414	Telecommunication cables
GS EP TEL 710	Telecom equipment numbering

The design of communications and computer network protocol shall respect the layered Open Systems Interconnection Basic Reference Model (OSI Reference Model) as defined in the standard [ISO 7498](#).

The first OSI layer (physical) shall be 10/100/1000Base-T (copper) and/or 10/100/1000/10G/40G/100GBase-X (optical fibre), the second OSI layer (data link) shall be [ISO 8802.3 / IEEE 802.3](#) and the third OSI layer (network) shall be IP. The fourth OSI layer (transport) shall be UDP/TCP.

The IEEE reference standards used for 100M [IEEE 802.3U](#), 1G [IEEE 802.3Z](#), 10G [IEEE 802.3AN](#) and 40G/100G [IEEE 802.3BA](#) shall be applied in all cases.

Network availability should be 99.999% which is equivalent to 5 minutes downtime/year.