TECHNICAL COMPLIANCE DOCUMENT

Layer 3 Managed Industrial Ethernet Switch - Make - Hirschmann / Ruggedcom

1. General Description

The offered switch is a managed Layer 3 Industrial Ethernet Switch designed for substation automation and mission-critical industrial applications. The switch supports advanced Layer 2 and Layer 3 features including full wire-speed routing, redundancy protocols, and industrial communication standards.

2. Technical Specifications

- **Switch Type:** Managed Layer 3 Industrial Ethernet Switch (Fanless)
- **Port Configuration:** 4 x Fast/Gigabit Combo + 8 x Fast Ethernet (Expandable to 28 Ports)
- **Mounting:** DIN Rail
- **Operating Voltage:** 2 x 60–250 V DC / 110–230 V AC
- **Power Consumption:** Maximum 36W
- **Operating Temperature:** 0°C to +60°C
- **Storage Temperature:** -40°C to +70°C
- **Humidity:** 10–95% Non-condensing
- **MTBF:** 705,427 hours @ 25°C
- **IP Rating:** IP20

3. Layer 2 Features

- VLAN (802.1Q), QinQ, Voice VLAN
- QoS (802.1D/p), DSCP Prioritization
- IGMP Snooping v1/v2/v3
- Jumbo Frames
- Storm Protection & Flow Control (802.3X)

4. Layer 3 Routing Features

- Full Wire-Speed Routing
- Static Routing
- RIP v1/v2
- OSPFv2
- VLAN-based Router Interfaces
- Proxy ARP
- IGMP Proxy (Multicast Routing)

5. Redundancy & High Availability

- RSTP (802.1D-2004), MSTP
- MRP (IEC 62439-2)

- HIPER-Ring
- VRRP / HiVRRP
- Link Aggregation (LACP)
- PRP & HSR (Optional variants)

6. Industrial Protocol Support

- IEC 61850 (MMS Server, Switch Model)
- IEEE 1613 Compliant
- EtherNet/IP
- PROFINET
- Modbus TCP

7. Security Features

- 802.1X Port-Based Access Control
- RADIUS Authentication & VLAN Assignment
- MAC Authentication Bypass
- DHCP Snooping & Dynamic ARP Inspection
- IPv4 / MAC / VLAN-based ACL
- HTTPS, SSHv2, SNMPv3
- Signed Firmware Images
- IEC 62443-4-2 certification is must

8. Time Synchronization

- IEEE 802.1AS / 802.1AS-2020
- PTPv2 Boundary Clock
- PTPv2 Transparent Clock (Two-Step)
- SNTP Client/Server

9. Certifications & Compliance

- IEC 61850-3 (Substation)
- IEEE 1613
- IEC 62443-4-2 Security Level 1
- CE, FCC, RCM
- EN 55022 / EN 55032 Class A

10. Warranty

Manufacturer Standard Warranty: 60 Months

11. Declaration

We hereby confirm that the offered equipment fully complies with the above technical specifications and is suitable for substation and industrial automation applications.

12. Make in India:

- Min Local Content – more than 50% make in India
- MII Letter is must as per MOP/Govt. of India Guidelines.

Authorized Signatory

Company Name: _____

Seal & Signature: _____