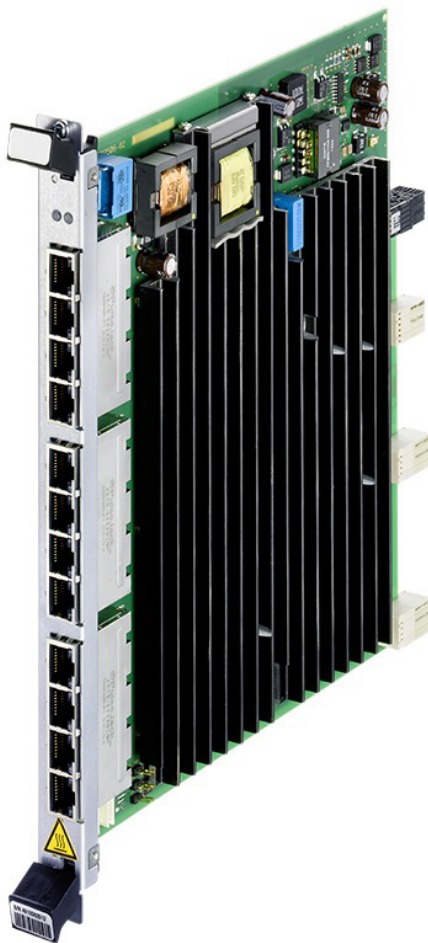


## XMC20 SUP12

High density Ethernet unit with Power over Ethernet support and optional Standalone Bridge mode in mission-critical networks



The Ethernet unit XMC20 SUP12 offers 12 Ethernet ports with Power over Ethernet (PoE) capabilities, providing up to 30 W per port (PoE+). Default unit (factory) software and mode provides Ethernet services using XMC20 chassis switch. An alternative optional unit software can be loaded to allow standalone bridge (SAB) mode for segregation of Ethernet services. In SAB mode, on-unit VLAN wire speed switching functionality allows segregation of one layer-2 switching instance dedicated to select service(s), isolated from other switch instances running on either other Standalone units or XMC20 chassis switch.

—  
01 XMC20 SUP12

The SUP12 capability to distribute PoE, together with its switching functions, makes it particularly suitable for addressing the need for Ethernet connectivity on locations where powering facilities are not easily accessible.

- 12 x 10/100/1000BASE-T ports with PoE support (PoE+)
- Synchronous Ethernet readiness
- For XMC25 and 23 subracks
- Supports XMC20 chassis switch mode or optional standalone bridge mode (optional software)
- In chassis switch mode, combined with central unit, can be part of MPLS-TP or ERPS networking (system software dependent)
- Fanless operation supported

- All functions managed out of one management system

### Power over Ethernet in XMC20

On many locations, Ethernet connections must be provided to a variety of devices like video cameras, IP telephones, access systems, wireless access points. Sometimes, providing a power outlet to these devices would imply additional investment to get the infrastructure in place. In these cases, having the power delivered to the devices using the Ethernet cable is of great advantage. Additional to providing power without the need for additional infrastructure, PoE installations also allow having a single centralized backup system in the case of

power failure. The backup for the telecommunication equipment also serves as the backup for all the devices powered by it. Some of the applications that can be served by PoE capabilities are video surveillance, security access control Voice over IP telephony, local wireless networks (WiFi Hotspots), and industrial automation.

SUP12 provides an embedded PoE capability in order to solve the issue of lack of powering infrastructure, plus the advantage to make installations of this type a lot faster.

#### **Chassis switch mode with default unit software**

SUP12 unit loaded with its (factory) default unit software allows the unit to be part of XMC20 chassis switch architecture. This means that XMC20 is one switch and an expandable number of ports. Every inserted Ethernet unit will expand the switch. With it one can adapt network access point to the local demands.

#### **Standalone bridge mode with optional unit software**

SUP12 unit can alternatively be loaded with SAB unit software to provide on-unit VLAN Bridge function (independent switching instance). This allows for segregation of services on this switch instance from other instances, including XMC20 chassis switch. The SUP12-SAB can be used either using EoS (front connection) or MPLS-TP (backplane) uplink. Each SUP12-SAB option allows creation of VLAN enabled and independent switching instance, therefore allowing the creation of separate Ethernet network and separation of traffic into different SDH channel or MPLS-TP link. Multiple SUP12-SAB option create multiple segregated instances. ETOP1-SAB also enables higher flexibility of (CE) VLAN bundling and service multiplexing.

#### **Ethernet services**

The SUP12 hardware has been prepared for Synchronous Ethernet (SyncE) to synchronize on NE clock and achieve accurate transmission times and reduce jitter/wander as well as asymmetric delay.

SUP12 delivers advanced Ethernet functionalities such as VLAN tagging/stacking, jumbo frames, VLAN QoS, RSTP/MSTP, port security and ERPS

(MSTP and ERPS support are system software dependent).

SUP12 provides high bandwidths of up to 1,000 Mbps via standard RJ45 connectors. Each of the electrical Ethernet interfaces can be configured individually. In addition to the 10 GbE backplane access, sufficient bandwidth can be delivered for each port.

Ethernet services aggregated on SUP12 can also take advantage of the different XMC20 multi-service capabilities and the variety of interfaces and transport technologies, e.g. optical and electrical Ethernet and the SDH uplink via Ethernet over SDH.

#### **ERPS for protection switching**

In Chassis switch mode, combined with chassis central unit, SUP12 can be part of system solution of Ethernet Ring Protection Switching (ERPS) for rapid restoration within Ethernet networks in ring topologies. ERPS support is installed system software dependent.

ERPS compliance with ITU-T G.8032v2 allows ring interconnections supporting major/subring configurations and multiple ERP instances (or multiple logical rings).

#### **MPLS-TP**

Ethernet ports can be used as Pseudo Wire Attachment Circuit (PWAC) ports or Customer VLAN (CVP) ports in MPLS-TP networks (installed software dependence).

#### **Safety concept**

XMC20 offers highest reliability and quality. For this purpose all modules come with an onboard power supply and high MTBF values.

#### **Management**

All services are managed centrally via the management system UNEM or via local management access (ECST).

## Technical Data

<b>Data Transmission</b>	
Number of ports	12 x 10/100/1000BASE-T, acc. to IEEE Std. 802.3-2008.
Connector	RJ45
<b>Power over Ethernet</b>	
Standards supported	PoE acc. to IEEE802.3af-2003, PoE+ acc. to IEEE 802.3at-2009 Electrical Isolation (Environment A) acc. to IEEE Std. 802.3-2008
Supported functionality (on each port)	PoE ports functioning as power sourcing equipment (PSE) supporting detection/ classification of Powered Devices (PDs)
Total power feeding	Up to 84 W of accumulate power budget for all PoE ports (measured at the outputs)
<b>Synchronization</b>	
SyncE	Synchronous Ethernet ready for downstream mode
<b>Ethernet Functionality</b>	
Ethernet Functionality	Customer bridging acc. to IEEE 802.1Q-2011, 4096 VLANs supported Port-based customer VLAN tunneling (Q-in-Q) Port-/PCP-/DSCP-based classification (CoS) of ingress traffic with eight priority queues per port Maximum frame length of up to 9'216 bytes (Jumbo frames)
Port Mirroring (chassis switch mode only)	Up to 32 source ports (RX/TX traffic) to a single mirror port
Port Security	Ingress Storm Control (flood control, flood rate limiting)
Spanning tree protocols	RSTP (Rapid Spanning Tree Protocol), acc. to IEEE 802.1D-2004 & MSTP (Multiple STP), acc. to IEEE 802.1Q-2011 (software dependence)
ERPS	In Chassis switch mode under Central Unit ERPS support (installed software dependence)
MPLS-TP	Ethernet ports can be used as Pseudo Wire Attachment Circuit (PWAC) ports or Customer VLAN (CVP) ports in MPLS-TP networks (installed software dependence)
<b>Standalone mode (SAB Software option) Functionality</b>	
Switching capacity	22 Gbits/s, 33 M frames/s, wire speed traffic forwarding @ 84 bytes/frame Wire speed MAC address learning
MAC Table	CAM table size 16000 addresses
<b>Management</b>	
ECST	For local management and offline configuration
UNEM	For central management
<b>Power Supply</b>	
Input voltage nominal (min/max)	-48/-60 V DC (-39.5 V DC ... -72 V DC)
<b>Operation Environment</b>	
Temperature range and humidity	According to XMC20 environmental specifications

### ABB Power Grids

Grid Automation  
Bruggerstrasse 72  
CH-5400 Baden, Switzerland

Phone: +41 84 484 58 45  
(Customer Support Center)

[abb.com/communicationnetworks](http://abb.com/communicationnetworks)

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Power Grids does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB Power Grids. Copyright© 2020 ABB Power Grids. All rights reserved