

## XMC20 TUGE1

# TUGE1 offers legacy G.703 64 kbps interfaces for dedicated networks

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TUGE1 integrates 64 kbps interfaces in the XMC20 platform. Thus, 64 kbps data devices, such as routers and teleprotection terminals, that are in line with the standard can be connected. With TUGE1 the TDM services common in dedicated networks can be supplied furthermore via the IP-based XMC20 platform.

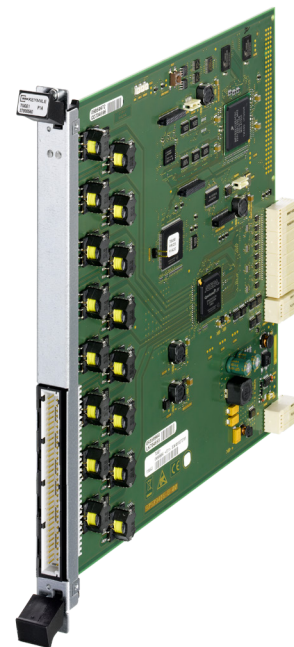
The TUGE1 data can be switched with other 64 kbps services in XMC20 and multiplexed to higher TDM hierarchical levels.

- 8 x 64 kbps for data interfaces in line with ITU-T G.703
- Interoperable with
- UMUX GECOD units
- XMP1 sub-module G.703, codirectional
- Supports LTP and SNCP/I redundancy functions
- For XMC25, XMC23 and XMC22
- Fanless operation possible
- All functions via one network management system

### Data interfaces

TUGE1 provides eight codirectional 64 kbps interfaces according to ITU-T G.703.

These can be transported via all transmission technologies provided by the XMC20 platform. As a result, the 64 kbps interfaces can be offered in a purely Ethernet backbone and in TDM networks.



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### Redundancy functions

TUGE1 supports different redundancy functions in order to achieve maximum availability of the services. These functions ensure that the services provided are still available even if part of the network fails:

- Network protection: 1+1 Linear Trail Protection
- 1+1 inherently monitored Subnetwork
- Connection Protection (SNCP/I)

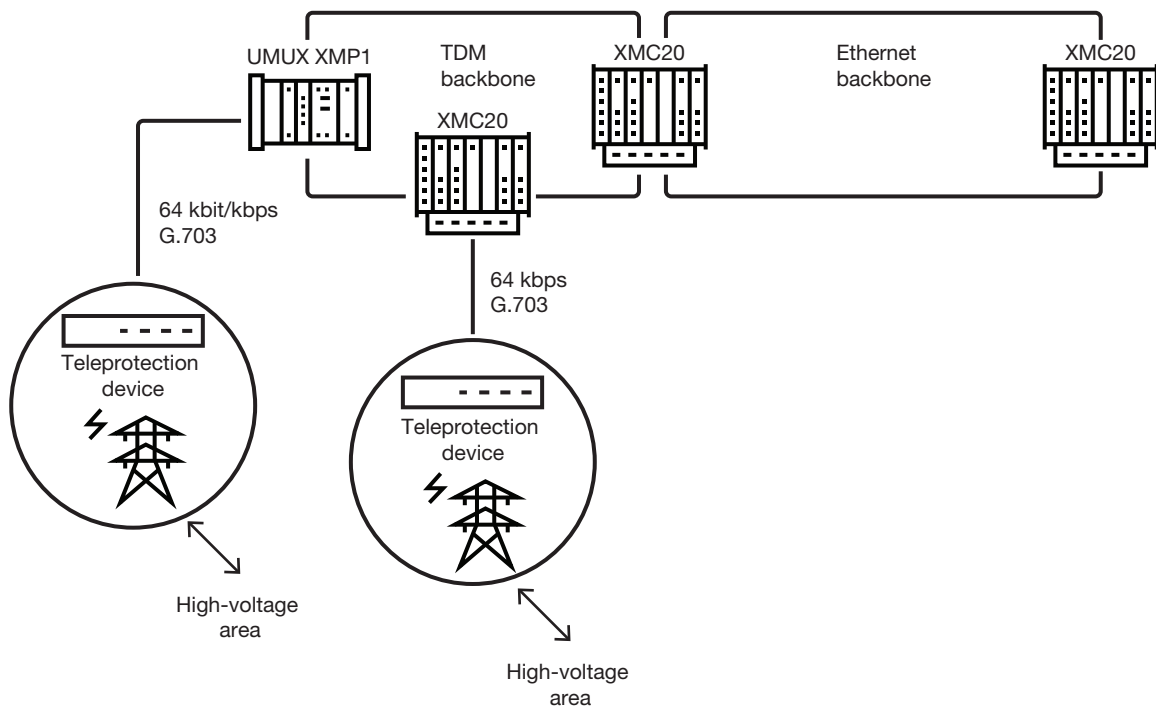
### Flexible transmission

The TUGE1 data can be forwarded via the various transmission technologies provided by XMC20:

- via PDH networks
- via SDH networks
- via Ethernet networks with circuit emulation
- via SHDSL paths

### Management

The management of TUGE1 and other functions are integrated in the ECST/UNEM management system. Just one single element manager for all types of service speeds up the job control process. This powerful and easy-to-use element manager offers efficient OAM&P (Operation, Administration, Maintenance and Provisioning) and lower running costs.



## Technical Data

Interface	
Number of interfaces	8
Type of interface	G.703, 64 kbps codirectional One wire pair per transmission direction
Front connector type	DIN 41612
Line impedance	120 ohm symmetrical
Standards	
ITU-T standard	G.703 (11/2001)
ETSI	ETSI EN 300 417-5-1 V1.2.1 (2001-10)
	ETSI EN 300 417-2-1 V1.2.1 (2001-10)
	ETSI EN 300 417-1-1 V1.2.1 (2001-10)
	EN 300 166 V1.2.1 (2001-09)
Performance monitoring	According to ITU-T G.826
Further Features	
Protection functions	1+1 Linear Trail Protection 1+1 inherently monitored Subnetwork Connection Protection (SNCP/I)
Switching time	< 50 ms
Further Hardware Information	
MTBF	109 years at 35 °C
TDM bus access	4 x P12
Management	
ECST	For local management
UNEM	For central management
Power Supply	
Input voltage nominal (min/max)	-48/-60 V DC (-39.5 V DC ... -72 V DC)
Operation Environment	
Temperature range and humidity	According to XMC20 environmental specifications