

## SDH Multiplexers\*

### 1. Base Modules

Name	Symbol
STM-1 Standard unit with chassis and backplane, 2 slots for SFP optics, 16xE1 interfaces individually configurable as G.703 or ISDN PRA, system controller, DC power converter and Base SW	TM-160.1.2
STM-1 Standard unit with chassis and backplane, 2 slots for SFP optics, system controller, DC power converter and base SW	TM-160.1.1
STM-4 SW download - TM/ADM configuration	LS-160

### 2. SDH STM-1 SFP Modules

Name	Symbol
SFP Optical module S.1.1 (MM/SM, 1310 nm, 28 km)	MD-160.1.2
SFP Optical module L.1.1 (SM SH, 1310 nm, 54 km)	MD-160.1.3
SFP Optical module L.1.2 (SM LH, 1550 nm, 90 km)	MD-160.1.4
SFP Electrical module STM-1	MD-160.1.0

### 3. SDH STM-4 SFP Modules

Name	Symbol
SFP Optical module S.4.1 (MM, 1310 nm, 28 km)	MD-160.2.2
SFP Optical module L.4.1 (SM SH, 1310 nm, 46 km)	MD-160.2.3
SFP Optical module L.4.2 (SM LH, 1550 nm, 76 km)	MD-160.2.4

### 4. Service Modules - PDH

Name	Symbol
module: 3xE3/T3 electrical interfaces, individual connectors	ME-160.2.0
module: 32xE1, LFH connector	ME-160.3.0
connection cable LFH to 32xE1 module, lenght 3 m	K160-1/3
connection cable LFH to 32xE1 module, lenght 10 m	K160-1/10
patchframe 32xE1 120Ω, RJ-45 ports	P-160.1-1
patchframe 32xE1 120Ω, KRONE coupling	P-160.1-2

### 5. Service Modules - Packet Traffic

Name	Symbol
module: 4x10/100BaseTX Fast Ethernet electrical interfaces (RJ-45) with auto-negotiation and 4 SDH mapper circuits including Ethernet Switch	MF-160.1.1.0
module: 4x10/100BaseTX Fast Ethernet electrical interfaces (RJ-45) with auto-negotiation and 4 SDH mapper circuits	MF-160.1.2.0
module: 1xGE Ethernet including SDH Mapper circuits. Electrical or Optical SFP module not included.	MG-160.1.0
SFP Electrical Ethernet Module	MF-160.1.0
SFP Optical Ethernet module (MM, 850 nm)	MF-160.1.1.1
SFP Optical Ethernet module (SM, 1310 nm, 15 km)	MF-160.1.2.1

\*OEM Ericsson

## TDM over IP Gateway

### 6. Gateway E1, G.703 (704) over Ethernet IP

Name	Symbol
gateway 1 x E1, G.703 (704) / Ethernet IP	TM-142.1-1
gateway 4 x E1, G.703 (704) / Ethernet IP	TM-142.1-4

Gateway TM-142 is equipped with external power supply 230V AC / 5V DC

**PDH modems and multiplexers**

New product.

**7. Fiber Optic Multiplexers 8 x E1, G.703 and 100Mbps Fast Ethernet**

Name	Symbol
multiplexer 8 x E1, 120Ω + 100Base-TX (1310 nm SC MM/SM LD, 2/40 km)	TM-64.1-3-1
multiplexer 8 x E1, 120Ω + 100Base-TX (1310 nm SC SM LD, 65 km)	TM-64.1-3-2
multiplexer 8 x E1, 120Ω + 100Base-TX (1550 nm SC SM LD, 80 km)	TM-64.1-4-1
multiplexer 8 x E1, 120Ω + 100Base-TX (1310/1550 nm SC WDM LD, 40 km)	TM-64.1-5-2
multiplexer 8 x E1, 120Ω + 100Base-TX (1550/1310 nm SC WDM LD, 40 km)	TM-64.1-6-2

*TM-64 multiplexers are supplied by 230V/50-60 Hz and 36-60V DC***8. Fiber Optic Modems E1, G.703**

Name	Symbol
modem E1 (1310 nm SC MM LED, 2 km, supplied 48 V, 120Ω)	TM-76.1-2-1
modem E1 (1310 nm SC MM/SM LD, 12/28 km, supplied 48 V, 120Ω)	TM-76.1-3-1
modem E1 (1310 nm SC SM LD, 48 km, supplied 48 V, 120Ω)	TM-76.1-3-2
modem E1 (1310 nm SC SM LD, 80 km, supplied 48 V, 120Ω)	TM-76.1-3-3
modem E1 (1550 nm SC SM LD, 100 km, supplied 48 V, 120Ω)	TM-76.1-4-4
modem E1 (1550 nm SC SM LD, 120 km, supplied 48 V, 120Ω)	TM-76.1-4-5
modem E1 (1310/1550 nm SC WDM LD, 28 km, supplied 48 V, 120Ω)	TM-76.1-5-1
modem E1 (1550/1310 nm SC WDM LD, 28 km, supplied 48 V, 120Ω)	TM-76.1-6-1
modem E1 (1310/1550 nm SC WDM LD, 38 km, supplied 48 V, 120Ω)	TM-76.1-5-2
modem E1 (1550/1310 nm SC WDM LD, 38 km, supplied 48 V, 120Ω)	TM-76.1-6-2
power supply 48 V/ 230 V	
assembly frame 1U / 19" for 4 pcs TM-76 modems	TP-01
assembly rack 1U / 19" for 4 pcs TM-76 modems	TP-02

**9. Fiber Optic Multiplexers 4 x E1, G.703**

Name	Symbol
multiplexer 4 x E1 (1310 nm SC MM LED, 2 km, 120 Ω)	TM-77.1-2-1
multiplexer 4 x E1 (1310 nm SC MM/SM LD, 12/28 km, 120 Ω)	TM-77.1-3-1
multiplexer 4 x E1 (1310 nm SC SM LD, 48 km, 120 Ω)	TM-77.1-3-2
multiplexer 4 x E1 (1310 nm SC SM LD, 80 km, 120 Ω)	TM-77.1-3-3
multiplexer 4 x E1 (1550 nm SC SM LD, 100 km, 120 Ω)	TM-77.1-4-4
multiplexer 4 x E1 (1550 nm SC SM LD, 120 km, 120 Ω)	TM-77.1-4-5
multiplexer 4 x E1 (1310/1550 nm SC WDM, LD, 28 km, 120 Ω)	TM-77.1-5-1
multiplexer 4 x E1 (1550/1310 nm SC WDM, LD, 28 km, 120 Ω)	TM-77.1-6-1
multiplexer 4 x E1 (1310/1550 nm SC WDM, LD, 38 km, 120 Ω)	TM-77.1-5-2
multiplexer 4 x E1 (1550/1310 nm SC WDM, LD, 38 km, 120 Ω)	TM-77.1-6-2
assembly frame 1U / 19" for 2 pcs TM-77 multiplexers	TP-03

*TM-77 multiplexers are supplied by 230V/50-60 Hz and 36-60V DC***10. Fiber Optic Modems E3, G.703**

Name	Symbol
modem E3 (1310 nm, LED, 16 km)	TM-61.1-2
modem E3 (1310 nm, LD, 50 km)	TM-61.1-3
modem E3 (1550 nm, LD, 83 km)	TM-61.1-4

*TM-61 modem is supplied by 230V/50-60 Hz and 36-60 V DC*

## Digital multiplexers

### 11. Multiplexers Ethernet / 4xE1, G.703 (704)

Name	Symbol
cross-connect access multiplexers Ethernet / 4xE1, G.703 (704)	TM-140
inverse multiplexer Ethernet / 4xE1, G.703 (704)	TM-141

*TM-140 and TM-141 multiplexers are supplied by 230V/50-60 Hz and 36-60 V DC*

### 12. Multiplexer E1 (G.703, G.704) to 2xEthernet, 5xRS-232/485

Name	Symbol
multiplexer 2xE1/ 2xEthernet, 5xRS-232/485 supplied 230 V	TM-81.1-1
multiplexer 2xE1/ 2xEthernet, 5xRS-232/485 supplied 48 V	TM-81.1-2

### 13. Multiplexer 4xRS-232 / G.703 or V.11

Name	Symbol
multiplexer 4xRS-232 / V.11	TM-82.1-1
multiplexer 4xRS-232 / G.703	TM-82.1-2

*TM-82 multiplexer is supplied by 230V/50-60 Hz and 36-60 V DC*

## SHDSL Modems

### 14. SHDSL Stand-alone Modems

Name	Symbol
SHDSL modem with V.35 interface supplied by 48 V	TM-74
SHDSL modem with G.703 interface supplied by 48 V	TM-75
SHDSL modem with Ethernet and RS-232 interfaces supplied by 48 V	TM-79
power supply 48 V/ 230 V for SHDSL modems	
assembly frame 1U / 19" for 4 pcs SHDSL modems	TP-01
assembly rack 1U / 19" for 4 pcs SHDSL modems	TP-02

## G.703 Interface Converters

### 15. E1, G.703 (704) Stand-alone Interface Converters

Name	Symbol
V.35, V.36, X.21, RS-530, RS-232 / E1, G.703 (704) converter supplied by 48 V and 230 V	TM-73.1
V.35 / G.703 (704) converter supplied by 48 V	TM-73.3
Ethernet 10/100 Mbps / G.703 (704) converter supplied by 5V	TM-78.1
power supply 48 V/ 230 V for TM-73.3 converter	
power supply 5 V/ 230 V for TM-78 converter	
power supply 5 V/ 48 V for TM-78 converter	
assembly frame 1U / 19" for 4 pcs TM-73.3 and TM-78 converters	TP-01
assembly rack 1U / 19" for 4 pcs TM-73.3 and TM-78 converters	TP-02
assembly frame 1U / 19" for 2 pcs TM-73.1 converters	TP-03

### 16. E3, G.703 Interface Converter

Name	Symbol
Ethernet 10/100 Mbps / E3, G.703 converter supplied by 48 V	TM-170
power supply 48 V/ 230 V for TM-170 converter	
assembly frame 1U / 19" for 4 pcs TM-170 converters	TP-01
assembly rack 1U / 19" for 4 pcs TM-170 converters	TP-02

## Ethernet Media Converters

### 17. 10/100/1000 Mbps Fiber Optic Converters

Name	Symbol
10/100/1000 Mbps, SC MM 850 nm, 550 m	SE-38.1-1-1
10/100/1000 Mbps, SC SM 1310 nm, 10 km	SE-38.1-3-2
10/100/1000 Mbps, SC SM 1310 nm, 20 km	SE-38.1-3-3
10/100/1000 Mbps, SC SM 1550 nm, 40 km	SE-38.1-4-4
10/100/1000 Mbps, SC SM 1550 nm, 60 km	SE-38.1-4-5
10/100/1000 Mbps, SC WDM 1550 nm, 10 km – it works with SE-38.1-6-2	SE-38.1-5-2
10/100/1000 Mbps, SC WDM 1310 nm, 10 km – it works with SE-38.1-5-2	SE-38.1-6-2
10/100/1000 Mbps, SC WDM 1550 nm, 20 km – it works with SE-38.1-6-3	SE-38.1-5-3
10/100/1000 Mbps, SC WDM 1310 nm, 20 km – it works with SE-38.1-5-3	SE-38.1-6-3
10/100/1000 Mbps, SC WDM 1550 nm, 40 km – it works with SE-38.1-6-4	SE-38.1-5-4
10/100/1000 Mbps, SC WDM 1310 nm, 40 km – it works with SE-38.1-5-4	SE-38.1-6-4
10/100/1000 Mbps, SC WDM 1550 nm, 60 km – it works with SE-38.1-6-5	SE-38.1-5-5
10/100/1000 Mbps, SC WDM 1310 nm, 60 km – it works with SE-38.1-5-5	SE-38.1-6-5

*SE-38 is equipped with external power supply 230V AC / 5V DC*

### 18. 100Mbps Fiber Optic Converter

Name	Symbol
100Mbps, SC MM 1310 nm, 2 km	SE-37.1-2-1
100Mbps, SC SM 1310 nm, 40 km	SE-37.1-3-1
100Mbps, SC SM LH 1310 nm, 65 km	SE-37.1-3-2
100Mbps, SC WDM 1310/1550 nm, 20 km – it works with SE-37.1-6-1	SE-37.1-5-1
100Mbps SC WDM 1550/1310 nm, 20 km – it works with SE-37.1-5-1	SE-37.1-6-1
100Mbps SC WDM 1310/1550 nm LH, 40 km – it works with SE-37.1-6-2	SE-37.1-5-2
100Mbps SC WDM 1310/1550 nm LH, 40 km – it works with SE-37.1-5-2	SE-37.1-6-2

power supply 6 V/ 230 V for SE-37

*SE-37 can be supplied with 6-60 V AC/DC*

## Industry Control Equipment

New product.

### 19. RS-232, RS-422 and RS-485 fiber optic converter

Name	Symbol
RS-232/422/485 fiber optic converter, end of bus, SC MM/SM 1310 nm, 2/40 km	TR-55.1-1-2
RS-232/422/485 fiber optic converter, bus extension, SC MM/SM 1310 nm, 2/40 km	TR-55.1-2-2
RS-232/422/485 fiber optic converter, end of bus, SC WDM 1310/1550 nm, 20 km - it works with TR-55.1-1-6 and TR-55.1-2-6	TR-55.1-1-5
RS-232/422/485 fiber optic converter, end of bus, SC WDM 1550/1310 nm, 20 km - it works with TR-55.1-1-5 and TR-55.1-2-5	TR-55.1-1-6
RS-232/422/485 fiber optic converter, bus extension, SC WDM 1310/1550 + 1310/1550 nm, 20 km - it works with TR-55.1-2-6 and TR-55.1-1-6	TR-55.1-2-5
RS-232/422/485 fiber optic converter, bus extension, SC WDM 1550/1310 + 1550/1310 nm, 20 km - it works with TR-55.1-2-5 and TR-55.1-1-5	TR-55.1-2-6
RS-232/422/485 fiber optic converter, bus extension, SC WDM 1550/1310 + 1310/1550 nm, 20 km - it works with TR-55.1-2-5 and TR-55.1-1-5	TR-55.1-2-7

power supply 6 V/ 230 V for TR-55

*TR-55 can be supplied with 6-60 V AC/DC*

## Connection Cables for Telecommunication Equipment

### 20. Connection Cable for TM-73.1

Name	Symbol
V.35, DB-25/ MR-34 female	K49-1/1
X.21, DB-25/ DB-15 female	K49-3/1
RS-449 DB-25/ DB-37 female	K49-5/1
RS-232, DB-25/ DB-25 female	K49-10/1

### 21. Connection Cable for TM-77

Name	Symbol
4xE1,G.703, DB-25 male 1m	K77-2/1
4xE1,G.703, DB-25 male 5m	K77-2/5