OTS622
SDH/SONET Multiservice Optical Transport Systems

- ■ Next generation SDH Optical Transport Systems for STM-4/1, E1, E3, 10/100BaseTx, 100BaseFx, 1000BaseX, 1000BaseT services
- ■ Add/drop, terminal multiplexer and cross-connect
- ■ Ethernet over SDH, GFP/VCAT/LCAS technologies
- ■ Compact, flexible and cost-effective SDH equipment for metro and access network applications
- ■ Network management system SUNCE-M or SNMP-based management

OTS main unit

TMN interface	RS232/V.24, 10/100 BaseTX, Q2 (RS485), Q2Et (10/100 BaseTX), 2 Mbit/s / G.703
EOW telephone interface	Z (2-wire)
DCC (F1 or E2) interface	64 kbit/s, V11
Performance management	G.826, G.783
21 x 2 Mbit/s interface	G.703 (120/75 Ω)
Mapping/multiplexing	G.707 at paths: VC12/TU-12/TUG-2/TUG-3/VC4/AU-4/AUG/STM-N
3 x 34 Mbit/s interface	G.703 (75 Ω)
Mapping/multiplexing	G.707 at paths: VC3/TU3/TUG-3/VC4/AU-4/AUG/STM-N
Ethernet interface	4 x10/100 BaseTX (IEEE 802.3) 1 x100 BaseFx (IEEE 802.3)
Mapping	GFP-F G.7041 (n x VC12, n x VC3 or VC4)
Capacity adjustment, LCAS	static, dynamic
2 x 155/622 Mbit/s interface	G.957, G.703
Jitter and wander	G.825
Power consumption	max 30 W

OTS-G main unit

Same as OTS except:

Ethernet interface	1x1000 BaseT/BaseX (IEEE 802.3)

STI2-63 tributary unit

63 x E1 interface	G.703 (120/75 Ω)
Jitter and wander	G.823
Mapping/multiplexing	G.707 at paths: VC12/TU-12/TUG-2/TUG-3/VC4/AU-4/AUG/STM-N
Power consumption	max 25 W

OTS622s-21E1 — compact 1U system same functionalities as OTS unit, but without interfaces for 34 Mbit/s and Ethernet

OTS622s-21E1/E3 — compact 1U system same functionalities as OTS unit, but without interfaces for Ethernet

FE-5

	Fast Ethernet interfaces module for OTS622s systems
Ethernet interface	4 x10/100 BaseTx (IEEE 802.3) 1 x100 BaseFx (IEEE 802.3)

GbE-2

	Gigabit Ethernet interface module for OTS622s systems
Ethernet interface	1x1000 BaseT/BaseX (IEEE 802.3)

Traffic protection

Line protection	1+1 MSP
Path protection	VC12, VC3, VC4
Subnetwork protection	SNCP

Plug-in SFP transceivers

STM-4:	ITU-T G.957
OI.S4A	LC/FPLD 1310 nm/15 km
OI.L4A	LC/DFBLD 1310 nm/48 km
OI.L4B	LC/DFBLD 1550 nm/80 km
OI.L4B1	LC/DFBLD 1550 nm/120 km
STM-1:	ITU-T G.957
OI.S1A1	LC/FPLD 1310 nm/15 km
OI.S1A	LC/FPLD 1310 nm/40 km
OI.S1B	LC/DFBLD 1550 nm/93 km
OI.S1 electrical	CMI/12.7 dB at 78 MHz
FE:	IEEE 802.3
OI.S1A1	LC/FPLD 1310 nm/15 km
OI.S1A	LC/FPLD 1310 nm/40 km
OI.S1B	LC/DFBLD 1550 nm/93 km
GbE:	IEEE 802.3
OI.GbE-AS	LC/MQW FPLD 1310 nm/10 km
OI.GbE-A	LC/DFBLD 1310 nm/30 km
OI.GbE-ZX	LC/DFBLD 1550 nm/60 km
EI.GbE-RJ45	RJ45/CAT5/CATe/CAT6/100 m

IRITEL a.d. BEOGRAD

05.05.2014

IRITEL bright connections

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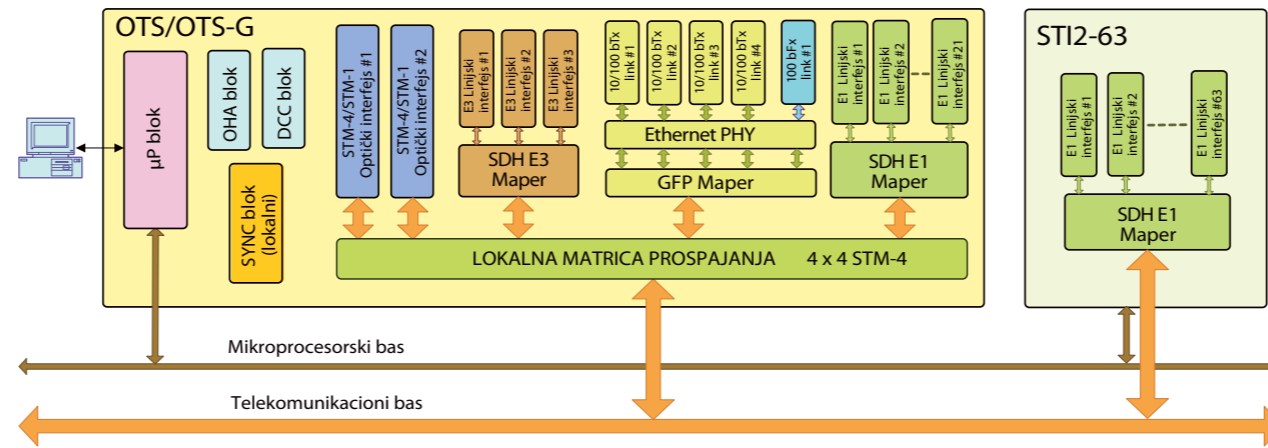
Basic configurations

- **OTS622s** compact 1U system, options:
  - **OTS622s-21E1:** 2 x STM-4/1, 21 x 2 Mbit/s
  - **OTS622s-21E1/E3:** 2 x STM-4/1, 21 x 2 Mbit/s, 3 x 34 Mbit/s
  - **FE-5** module for OTS622s-21E1 or OTS622s-21E1/E3: 4 x 10/100BaseTx, 1 x 100BaseFx
  - **GbE-2** module for OTS622s-21E1 or OTS622s-21E1/E3: 1 x 1000BaseX/BaseT
- **OTS622-21E1** "two slots - two OTS/OTSG units":
  - 2 x (2 x STM-4/1), 2 x (21 x 2 Mbit/s) , 2 x (3 x 34 Mbit/s), 2 x [(4 x 10/100BaseTx, 1 x 100BaseFx) or (1 x 1000BaseX/T)]
- **OTS622-84E1** "two slots system":
  - 2 x STM- 4/1, 84 x 2 Mbi t /s (OTS/OTSG unit 21 x 2 Mbit/s and one tributary unit 63 x 2 Mbit/s), 3 x 34 Mbit/s, (4 x 10/100BaseTx, 1 x 100BaseFx) or (1 x 1000BaseX/T)
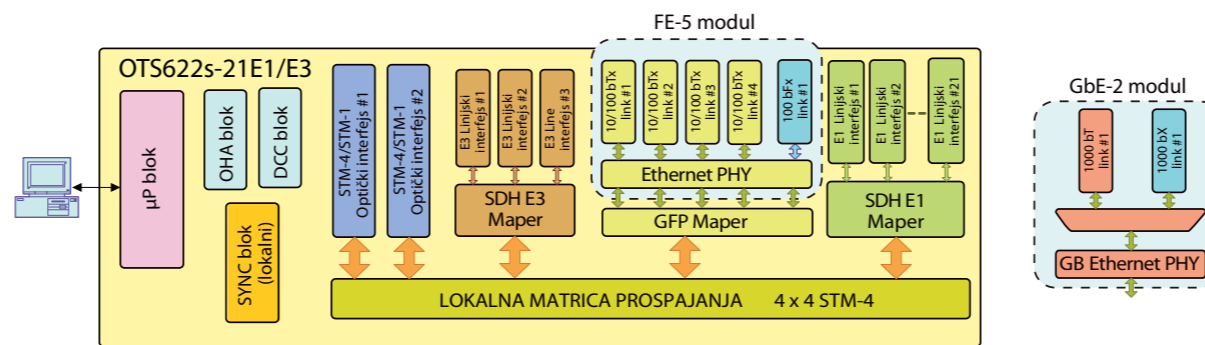
Applications

- Point-to-point fibre optic transmission
- Linear fibre optic networks, providing add-and-drop capability
- Add-drop fibre ring at STM-1 or STM-4 level
- Connecting to the same or higher order SDH networks
- Local cross-connect at VC12, VC3 and VC4 levels

Main features

- Multiservice SDH optical transport system for voice and data transmission at STM-1 (155 Mbit/s) and STM-4 (622 Mbit/s) level
- Optical line interfaces 622 Mbit/s and 155 Mbit/s provide transmission over single-mode optical fibre at 1310 nm for section length of up to 50 km, or at 1550 nm for section length of up to 120 km
- Plug-in SFP optical or electrical tranceivers, provide STM-1 or STM-4 interface configurations on the same unit
- WDM option-single fibre transmission (1310 and 1550 nm), passive optical filter
- CWDM option - wavelength division multiplexing (1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611 nm +1310 nm), passive optical filters
- Full non blocking cross-connect matrix, capacity 16x16 VC4 (2.5 Gb/s) up to VC12 level
- PDH tributary interfaces for 2 Mbit/s and 34 Mbit/s
- Ethernet over SDH via GFP/VCAT/LCAS technologies
- Static and dynamic Ethernet traffic capacity adjustment, LCAS procedure
- Line protection at multiplex section, 1+1 MSP, higher order path or lower order path protection (VC12, VC3, VC4), sub-network protection SNCP

OTS622-84E1 block diagram

OTS622s-21E1/E3 block diagram
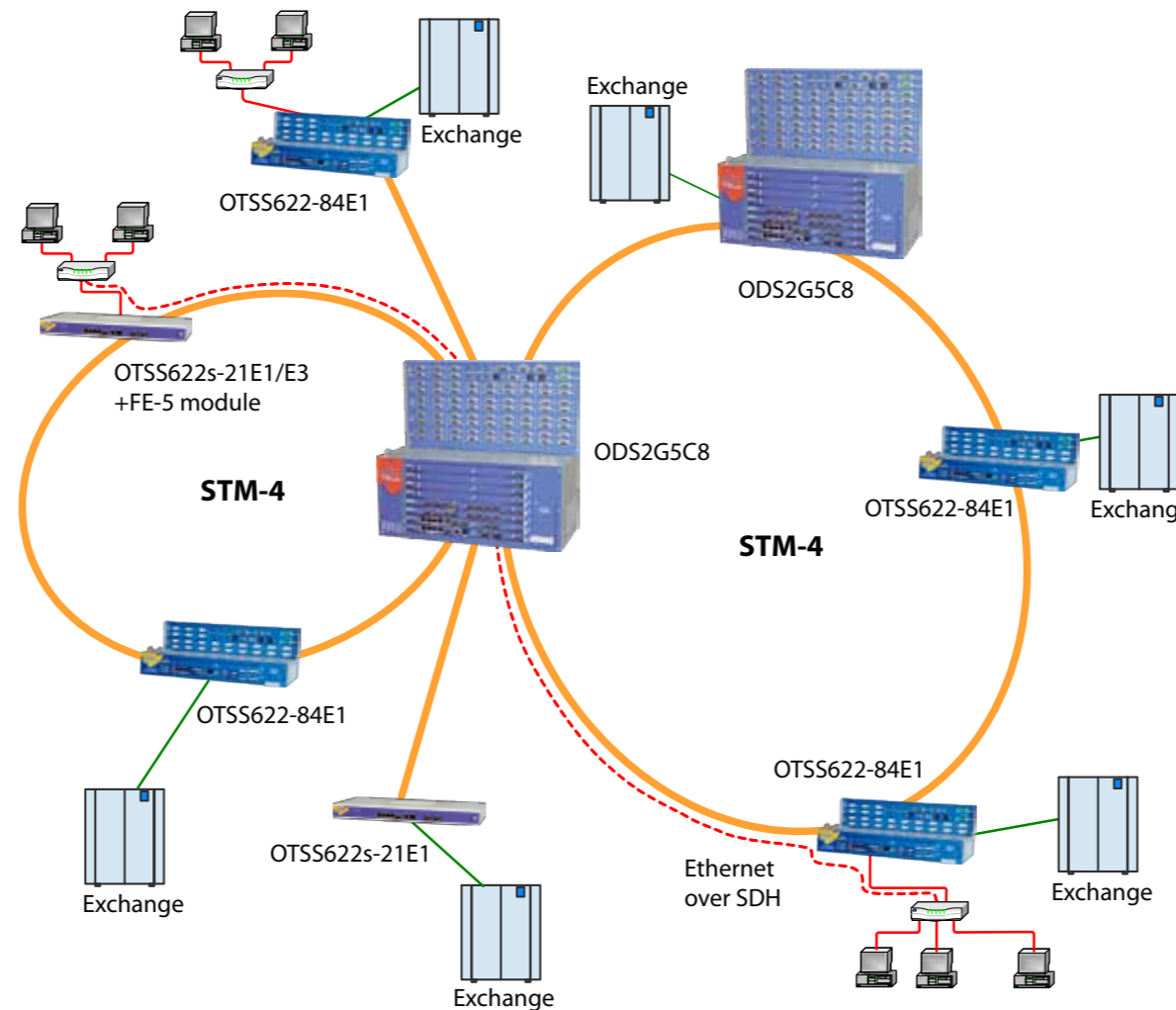
OTS622 application in complex STM-4 network

- Advanced fault diagnostics (integrated BER tester, etc)
- Unit's configuration parameters are stored in backplane memory, which enables "plug & play" change of units
- SONET option (OC-12/OC-3, T1, T3) is software configurable
- OTS622 has been designed in compliance with new ITU-T recommendations and ETSI standards

Control and monitoring

- Integrated network management system SUNCE-M provides continuous management of OTS622 and all other IRITEL's SDH and PDH equipment (ODS2G5, ODS155, FM-MSAN ...).
- The computer (PC) in management operations centre is connected to one network element (OTS622) using Ethernet 10/100BaseTx or RS232 interface (F interface).
- NMS interconnections of collocated IRITEL's devices using Q2 (RS485) or Q2Et (10/100BaseTx) interfaces
- NMS interconnection of remote IRITEL's SDH equipment using DCC channels (192 kbit/s, 576 kbit/s)
- Additional G.703 2 Mbit/s interfaces used for connections of independent subnetworks to one centralized management system SUNCE-M
- SNMP northbound and southbound interfaces
  - SNMP MIB
  - Control and monitoring using standard SNMP viewer

Power supply

- DC power supply –48 V DC or –60 V DC
- Optional 230 V AC internal power supply for OTS622s systems

Mechanical design

- Unit: 20 x 277 x 175 mm (H x W x D)
- Mechanical modules
  - OTS622s: 44.5 x 436.6 x 238 mm
  - OTS622-21E1: 150 x 436.6 x 238 mm
  - OTS622-84E1: 150 x 436.6 x 238 mm
- ETSI or 19"cabinet: 2200 x 600 x 300 mm