FlexDSL **Telecommunications AG**

FlexDSL Orion3

TDM Based SHDSL.bis

Features

- Up to 15.2Mbps Data Transmission per Copper Pair
- SHDSL and SHDSL.bis, TC-PAM16/32
- Additional TC-PAM4/8/64/128 Available
- 60.8 Mbps over Quadruple Copper Pair
- E1 (G.703/704) and Nx64 (V.35, V.36, X.21)
- Ethernet with Integrated Layer 2 managed Ethernet Switch supports VLAN, RSTP and QoS
- RS-232 and RS-485 Daugherboards
- Multiservice Operation
- Point-to-Point, Point-to-Multipoint & Ring Operation
- Console Port, Telnet, Web, SNMP, SD-Card
- 24/48VDC Powered, Low Power Consumption
- Remote Power Support 120/200VDC
- Included Primary Protection
- Repeater supported and available
- 19", Plastic or Robust DIN-Rail Metal Enclosure
- Industrial Temperature Range Available

The FlexDSL **Orion3 SHDSL.bis Extended** product family offers a broad range of products, which are based on the latest SHDSL.bis standards (ITU-T G.991.2 & ETS TS 101 524), while also being fully interoperable with all our existing SHDSL equipment (Orion1, Orion2 & MiniFlex). The FlexDSL Orion3 supports TC-PAM16/32 and the new TC-PAM4/8/64/128 line coding. The support of these line codes ensures compatibility with existing SHDSL equipment, that is already installed, in order to protect customer investments, while at the same time providing an upgrade path to the newest DSL technologies.

SHDSL.bis Extended allows symmetrical data and voice transmission at speeds up to 15.2Mbps over a single pair of copper. In addition, the FlexDSL Orion3 modem range also supports DSL channel bonding for up to 4 copper pairs in order to achieve speeds to 60.8Mbps! This incredible speed makes Fiber installations in a lot of places needless. FlexDSL Orion3 SHDSL.bis Extended modems can provide up to 4 complete E1 interfaces, which support framed and unframed services (G.703/G.704). An integrated 2 or 4 port Ethernet layer 2 managed switch with VLAN, RSTP and QoS support (10/100BaseT) ensures connectivity to IP services. Beside of E1 and Ethernet we have additional interfaces like Nx64 (that can be configured to be a V.35, V.36, X.21 or V.24 interface by software) and RS-232/485. This makes FlexDSL Orion3 SHDSL.bis Extended modems a perfect solution for a wide range of applications in which TDM and IP services need to be transmitted over copper wires.

Like all FlexDSL Orion & MiniFlex products, the Orion3 SHDSL.bis Extended modems family is based on industrial components and is manufactured according to highest quality standards providing additional value due to the extended temperature range and higher reliability. The combination of comprehensive functions providing maximum flexibility together with the higher quality of the FlexDSL Orion3 SHDSL.bis Extended product family make it the perfect choice for all your DSL needs.

Possible Application: Point-to-Point & Point-to-Multipoint
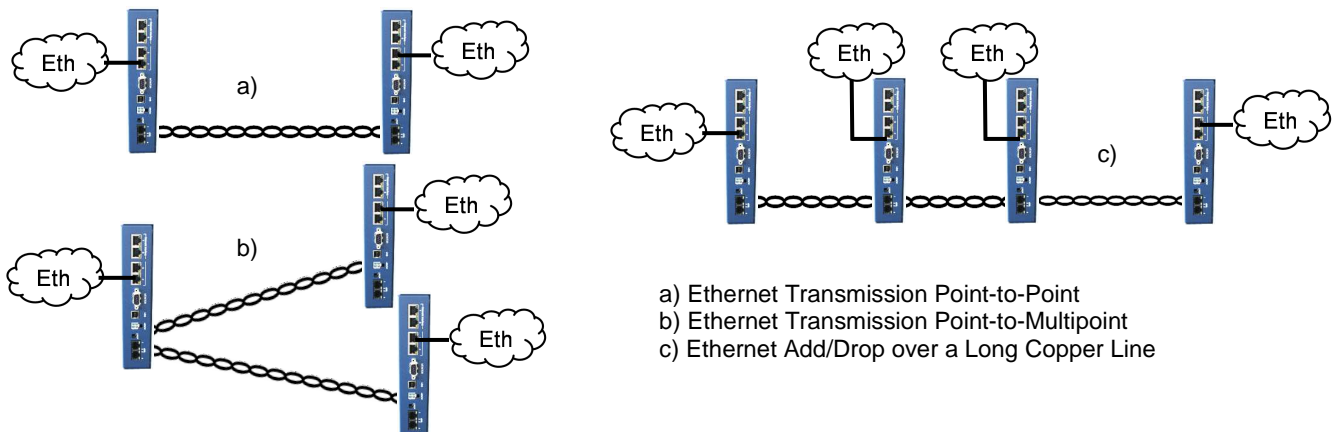
a) Ethernet Transmission Point-to-Point
b) Ethernet Transmission Point-to-Multipoint
c) Ethernet Add/Drop over a Long Copper Line

Possible Application: Typical Service Provider Application
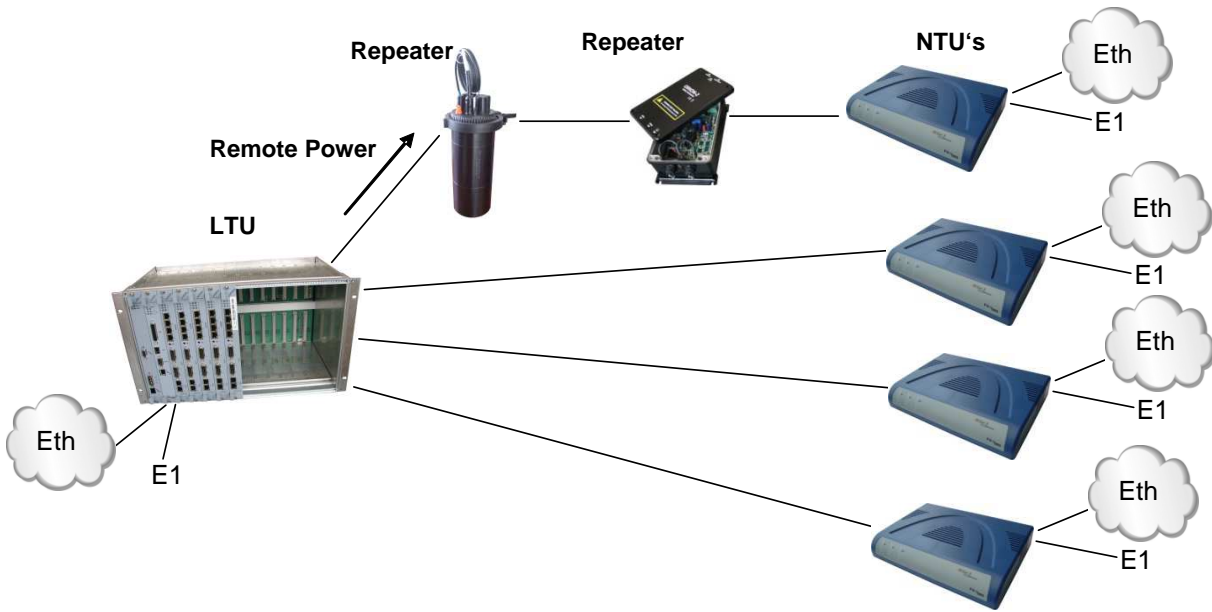
Possible Application: Point-to-Point Application with Failure Protection
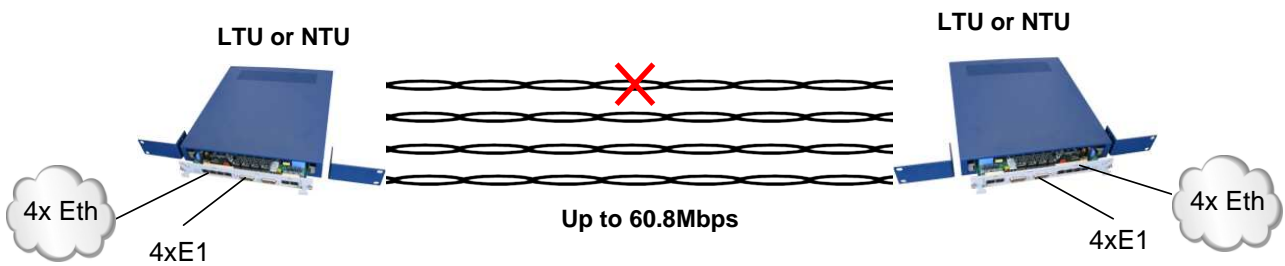
Possible Application: Ethernet Add/Drop Repeater Application with Remote Power

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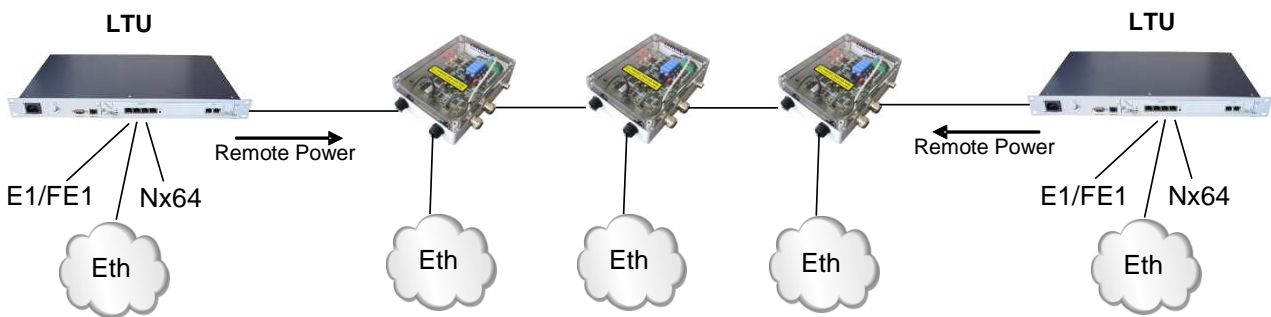
Possible Application: Ethernet to E1 Converter

LTU or NTU

1 … 4xE1

TDM Network
(E1, STM)

1 … 4xE1

LTU or NTU

4x Eth

4x Eth
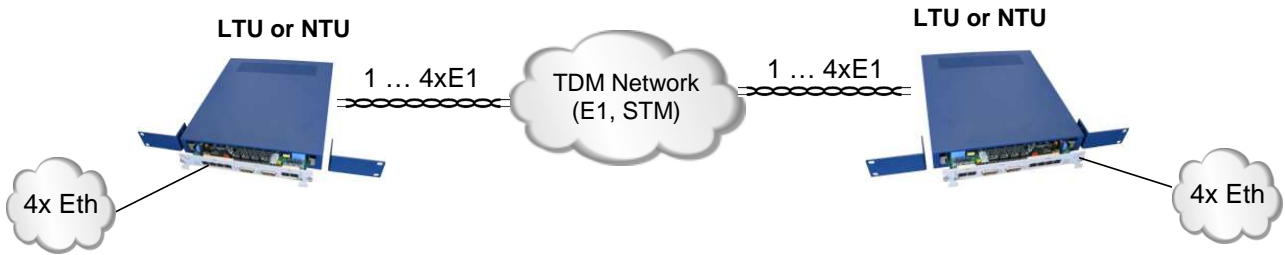
Possible Application: Ring Application

Eth

Eth

SHDSL Ring

Eth

Eth

Eth
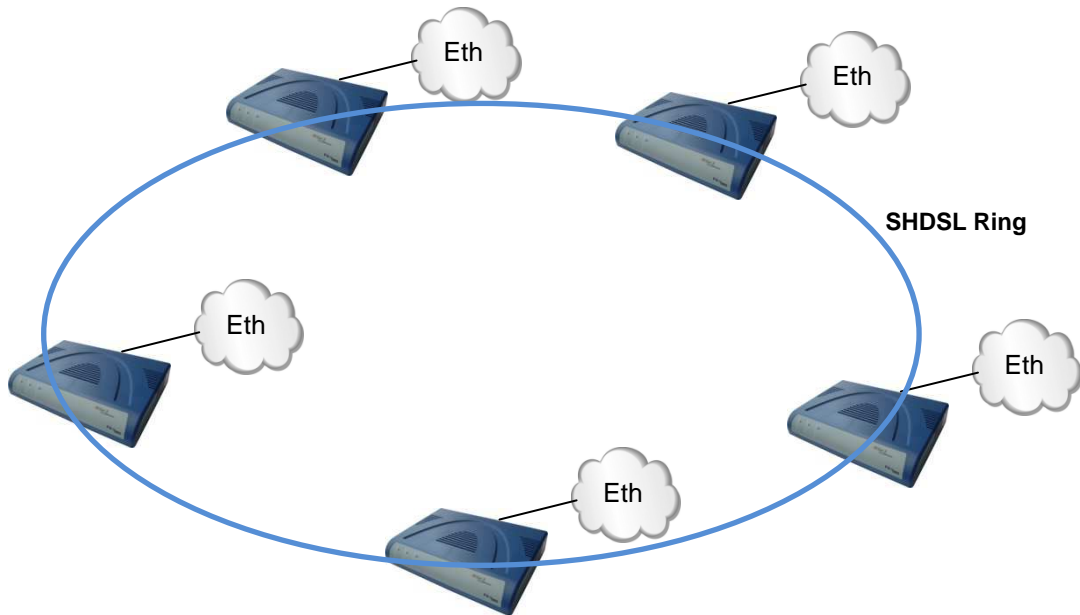
Possible Application: Copper to Fiber Converter with V84S

Optical Line

Eth

**Copper
Line**

Eth

**Copper
Line**

Eth

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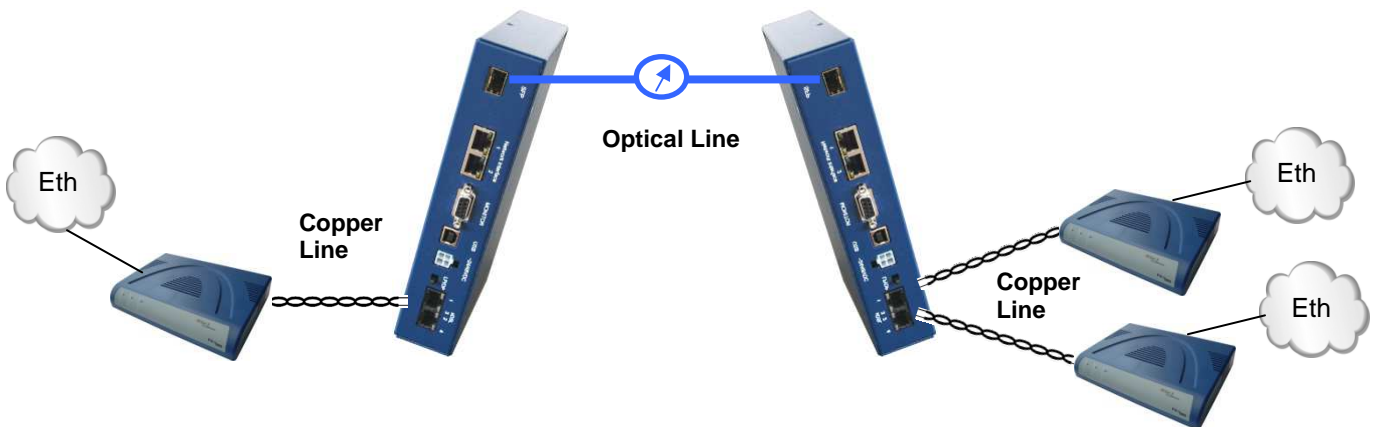
Orion3 SHDSL Standalone Modem

Model:	FG-PAM-SAN-2E1B/2Eth,V80
	FG-PAM-SAN-2E1B/2Eth-24V,V80
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1 with Modes Master / Slave / Auto
Interface:	2x E1 (120Ohm), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 2.8W Typ.
	18 to 230VDC, no remote power when FG-PAM-SAN-2E1B/2Eth-24V,V80
Physical Interfaces:	RJ48 (E1), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SA2N-2E1B/2Eth,V81
	FG-PAM-SA2N-2E1B/2Eth-24V,V81
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.6W Typ.
	18 to 230VDC, no remote power when FG-PAM-SA2N-2E1B/2Eth-24V,V81
Physical Interfaces:	RJ48 (E1), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SAN-2Eth,V82
	FG-PAM-SAN-2Eth-24V,V82
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1 with Modes Master / Slave / Auto
Interface:	2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 2.3W Typ.
	18 to 230VDC, no remote power when FG-PAM-SAN-2Eth-24V,V82
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SA2N-2Eth,V83
	FG-PAM-SA2N-2Eth-24V,V83
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.1W Typ.
	18 to 230VDC, no remote power when FG-PAM-SA2N-2Eth-24V,V83
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

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Orion3 SHDSL Standalone Modem

Model:	**FG-PAM-SA4N-4Eth,V84** **FG-PAM-SA4N-4Eth-24V,V84**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.1W Typ. 18 to 230VDC, no remote power when FG-PAM-SA4N-4Eth-24V,V84
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-SA4N-2E1B/2Eth,V84E** **FG-PAM-SA4N-2E1B/2Eth-24V,V84E**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.3W Typ. 18 to 230VDC, no remote power when FG-PAM-SA4N-2E1B/2Eth-24V,V84E
Physical Interfaces:	RJ48 (E1), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-SA4N-3Eth,V84S** **FG-PAM-SA4N-3Eth-24V,V84S**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x Ethernet 10/100BaseT, 1x Ethernet SFP 100BaseFX (Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.1W Typ. 18 to 230VDC, no remote power when FG-PAM-SA4N-3Eth-24V,V84S
Physical Interfaces:	RJ45/SFP (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-SAN-N64/2E1B,V85** **FG-PAM-SAN-N64/2E1B-24V,V85**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1 with Modes Master / Slave / Auto
Interface:	2x E1 (120Ohm), 1x Nx64 (V.35,V.36,X.21)
Power:	36 to 230VDC, accepts local and remote power, 2.8W Typ. 18 to 230VDC, no remote power when FG-PAM-SAN-N64/2E1B-24V,V85
Physical Interfaces:	RJ48 (E1), DB26 (Nx64), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

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Orion3 SHDSL Standalone Modem

Model:	FG-PAM-SA2N-N64/2E1B,V86 FG-PAM-SA2N-N64/2E1B-24V,V86
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 1x Nx64 (V.35,V.36,X.21)
Power:	36 to 230VDC, accepts local and remote power, 3.6W Typ 18 to 230VDC, no remote power when FG-PAM-SA2N-N64/2E1B-24V,V86
Physical Interfaces:	RJ48 (E1), DB26 (Nx64), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SAN-N64/2Eth,V87 FG-PAM-SAN-N64/2Eth-24V,V87
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1 with Modes Master / Slave / Auto
Interface:	1x Nx64 (V.35,V.36,X.21), 2x Ethernet 10/100BaseT (Layer2 Manag. Switch)
Power:	36 to 230VDC, accepts local and remote power, 2.8W Typ. 18 to 230VDC, no remote power when FG-PAM-SAN-N64/2Eth-24V,V87
Physical Interfaces:	DB26 (Nx64), RJ45 (ETH), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SA2N-N64/2Eth,V88 FG-PAM-SA2N-N64/2Eth-24V,V88
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	1x Nx64 (V.35,V.36,X.21), 2x Ethernet 10/100BaseT (Layer2 Manag. Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.6W Typ. 18 to 230VDC, no remote power when FG-PAM-SA2N-N64/2Eth-24V,V88
Physical Interfaces:	DB26 (Nx64), RJ45 (ETH), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Attention: All units having an interface like N64 (V.35,V.36,X.21), V24 (RS-232, V.24), 485 (RS-485) and 703 (G.703, E0) can be adapted to any of these interfaces.

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Orion3 SHDSL DIN Rail Modem

Model:	**FG-PAM-RAIL2N-2E1B/2Eth, V81**
	FG-PAM-RAIL2N-2E1B/2Eth-24V, V81
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.6W Typ.
	18 to 230VDC, no remote power whe FG-PAM-RAIL2N-2E1B/2Eth-24V, V81
Physical Interfaces:	RJ48 (E1), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-RAIL2N-2Eth, V83**
	FG-PAM-RAIL2N-2Eth-24V, V83
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.1W Typ.
	18 to 230VDC, no remote power when FG-PAM-RAIL2N-2Eth-24V, V83
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-RAIL4N-4Eth, V84**
	FG-PAM-RAIL4N-4Eth-24V, V84
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.1W Typ.
	18 to 230VDC, no remote power when FG-PAM-RAIL4N-4Eth-24V, V84
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-RAIL4N-2E1B/2Eth, V84E**
	FG-PAM-RAIL4N-2E1B/2Eth-24V, V84E
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.3W Typ.
	18 to 230VDC, no remote power when FG-PAM-SA4N-2E1B/2Eth-24V,V84E
Physical Interfaces:	RJ48 (E1), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

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Orion3 SHDSL DIN Rail Modem

Model:	**FG-PAM-RAIL2N-V24/2Eth, V88** **FG-PAM-RAIL2N-V24/2Eth-24V, V88**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	1x RS-232 (V.24), 2x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 3.6W Typ. 18 to 230VDC, no remote power whe FG-PAM-RAIL2N-V24/2Eth-24V, V88
Physical Interfaces:	DB26 (RS-232), RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9 (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-RAIL4N-3Eth, V84S** **FG-PAM-RAIL4N-3Eth-24V, V84S**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	2x Ethernet 10/100BaseT, 1x Ethernet SFP 100BaseFX (Managed Switch)
Power:	36 to 230VDC, accepts local and remote power, 5.1W Typ. 18 to 230VDC, no remote power when FG-PAM-RAIL4N-3Eth-24V, V84S
Physical Interfaces:	RJ45/SFP (Ethernet), RJ48 (SHDSL), Molex (Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	**FG-PAM-RAIL4N-4Eth-24V, V84I**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4 with Modes Master / Slave / Auto / Multipoint / Multipair
Interface:	4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	18 to 230VDC, no remote power
Physical Interfaces:	RJ45 (Ethernet), Combicon (SHDSL & Power), DB9/USB (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Attention: All units having an interface like N64 (V.35,V.36,X.21), V24 (RS-232, V.24), 485 (RS-485) and 703 (G.703, E0) can be adapted to any of these interfaces.

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Orion3 SHDSL Sub Rack Module

Model:	FG-PAM-SRL-2E1B/4Eth-RP,V90
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1
Modes:	Master / Slave / Auto
Interface:	2x E1 (120Ohm), 4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Backplane)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SRL-2E1B/N64/4Eth-RP,V91
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
Copper Pairs:	1
Modes:	Master / Slave / Auto
Interface:	2x E1 (120Ohm), 1x Nx64 (V.35,V.36,X.21), 4x Ethernet 10/100BaseT
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), DB26 (Nx64), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Back)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SR2L-4E1B/4Eth-RP,V93
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	4x E1 (120Ohm), 4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Backplane)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SR2L-2E1B/N64/4Eth-RP,V94
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 1x Nx64 (V.35,V.36,X.21), 4x Ethernet 10/100BaseT
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), DB26 (Nx64), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Back)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

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Orion3 SHDSL Sub Rack Module

Model:	FG-PAM-SR2L-2E1B/V24/4Eth-RP,V94
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	2
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	2x E1 (120Ohm), 1x RS-232 (V.24), 4x Ethernet 10/100BaseT
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), DB26 (RS-232), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Ba
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SR4L-4E1B/4Eth-RP,V96
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	4x E1 (75/120Ohm), 4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 72VDC local power, 120/200VDC remote power source
Physical Interfaces:	DB15 (E1), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Backplane)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Model:	FG-PAM-SR4L-4Eth,V98
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 72VDC local power
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Backplane)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

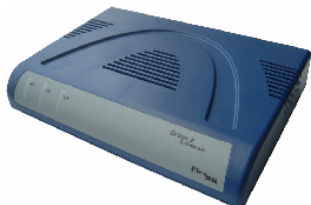| Model:	FG-PAM-SR4L-2V24/4Eth,V98
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 60.928Mbps, 4x 15.232Mbps
Copper Pairs:	4
Modes:	Master / Slave / Auto / Multipoint / Multipair
Interface:	2x RS-232 (V.24), 4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 72VDC local power
Physical Interfaces:	DB26 (RS-232), RJ45 (Ethernet), RJ48 (SHDSL), DIN41612 (Backplane)
Management:	Telnet, HTTP, SNMP, SD-Card support and Console Port via ACU/TCU
Temperature:	Standard: -5 to +45ºC, Extended: -20 to +80ºC

Attention: All units having an interface like N64 (V.35,V.36,X.21), V24 (RS-232, V.24), 485 (RS-485) and 703 (G.703, E0) can be adapted to any of these interfaces.

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Orion3 SHDSL Repeater

Model:	FG-PAM-RGN-Eth-PL, V83
	FG-PAM-RG2N-Eth-PL, V84

DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-Eth-PL, V83)
	2 (FG-PAM-RG2N-Eth-PL, V84)
Modes:	Master / Slave / Auto
Interface:	2/4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9 (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC

Model:	FG-PAM-RGN-2Eth-RL, V81
	FG-PAM-RG2N-4Eth-RL, V84

DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-2Eth-RL, V81)
	2 (FG-PAM-RG2N-4Eth-RL, V84)
Modes:	Master / Slave / Auto
Interface:	2/4x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), RJ48 (SHDSL), Molex (Power), DB9 (LCT)
Management:	Console Port, Telnet, Web, SNMP and SD-Card support
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC

Model:	FG-PAM-RGN-Eth-IPP, V83R
	FG-PAM-RG2N-Eth-IPP, V84R

DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps
	128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-Eth-IPP, V83R)
	2 (FG-PAM-RG2N-Eth-IPP, V84R)
Modes:	Master / Slave / Auto
Interface:	1x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), Screwing Terminal (SHDSL, Power), RJ45 (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC

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Orion3 SHDSL Repeater

Model:	**FG-PAM-RGN-Eth-IPL, V83R** **FG-PAM-RG2N-Eth-IPL, V84R**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps 128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-Eth-IPL, V83R) 2 (FG-PAM-RG2N-Eth-IPL, V84R)
Modes:	Master / Slave / Auto
Interface:	1x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), Screwing Terminal (SHDSL, Power), RJ45 (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC

Model:	**FG-PAM-RGN-Eth-IPH, V83R** **FG-PAM-RG2N-Eth-IPH, V84R**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps 128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-Eth-IPH, V83R) 2 (FG-PAM-RG2N-Eth-IPH, V84R)
Modes:	Master / Slave / Auto
Interface:	1x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), Screwing Terminal (SHDSL, Power), RJ45 (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC

Model:	**FG-PAM-RGN-Eth-IPS, V83R** **FG-PAM-RG2N-Eth-IPS, V84R**
DSL Version:	SHDSL / SHDSL.bis / Extended
Modulation:	TC-PAM16/32 and with Licence TC-PAM4/8/16/32/64/128
Data Rate:	128kbps - 15.232Mbps 128kbps - 30.464Mbps, 2x 15.232Mbps
Copper Pairs:	1 (FG-PAM-RGN-Eth-IPS, V83R) 2 (FG-PAM-RG2N-Eth-IPS, V84R)
Modes:	Master / Slave / Auto
Interface:	1x Ethernet 10/100BaseT (Layer 2 Managed Switch)
Power:	36 to 230VDC, accepts local and remote power
Physical Interfaces:	RJ45 (Ethernet), Screwing Terminal (SHDSL, Power), RJ45 (LCT)
Management:	Console Port, Telnet, HTTP and SNMP
Power Supply:	90-260VAC option with FG-PAM-PA48G (not included)
Temperature:	-25 to +80ºC