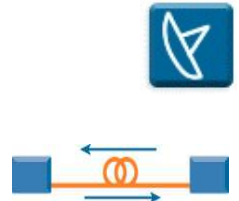


- Bidirectional signal transmission over one optical fibre
- RS485 signal transmission over optical fibre
- Access for local and remote monitoring of modules



Non-contractual photos



DESCRIPTION :

These modules allow RF signals transmission over optical fibre and are particularly adapted to the extension of radio coverage:

- In the tunnels,
- In public places,
- For railway infrastructures,
- On highways.

The RF bandwidth of the products enables their use on FM bands, paging, Broadcasting, TETRA,...

The optical transmitters integrate **DFB laser**, with a built-in optical isolator to ensure a quality transmission with a reduced noise and low distortions over long distance, even in interfered.

A data transmission channel transmitted over the fiber enables remote monitoring and communication with equipment connected to the RS485 bus of the modules.

The modules are monitored by the bus for safe operation and rapid diagnosis.

A supervision module with IP access is offer to concentrate supervision of the master modules to the central office and remote slave modules.

These modules are available for remote sites (Slave modules) and for the Central (master modules) in an integrable stand-alone housing and in a 7TE modular rack-mount to be inserted into the FCTO07110S-RF rack.

Products associated with the chassis:

- Modular Power Supply **FCKS20320S-RF**
- Modular Power Supply 48VDC **FCKM40320S-RF**
- Centralized supervision module **ICDP04R10S-RF**

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FUNCTION

- Transmission of RF signals and bidirectional data on a single optical fiber by wavelength division multiplexing.
- Two frequency bands are available:
 - From 30 to 1000MHz
 - From 350 to 2700MHz
- Transparent full-duplex RS485 data transmission on the fiber.
- The RS485 port from the master module to the central office gives access to the local supervision of the module and to the remote supervision of the slave module over the fibre.
- Point to point or star optical network.

MAIN FEATURES

- Point to point RF signals communication over a singlemode optical fibre.
- Over two optical fibre version (duplex connectors) on request, please consult us.
- Bandwidth of 30 - 1000MHz or 350-2700MHz signals according to module references.
- 12 dB maximum optical budget to cover distances up to 35 km.
- Wavelengths: 1310nm / 1550nm.
- Integrable stand-alone housing and modular rack-mount for 19", 3U chassis.
- MTBF > 100 000 hours.
- Production place and after sales service: Voiron (France).
- Product warranty : 3 years

Technical specifications	FXHS-30-1000MHz et FXHS-350-2700MHz series
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RF signal specifications (for the link)		FXHS-30-1000MHz serie	FXHS-350-2700MHz serie
Bandwidth at -3dB	MHz	30 to 1000	350 to 2700
Flatness in the bandwidth	dB	± 1.5	± 1.5
Maxi. Link gain (1)	dB	12 (± 3) - 2 LO (optical loss)	12 (± 3) - 2 LO (optical loss)
Pre-amplification on the transmitter RF input	dB	0 to 10 dB (front panel adjustment)	0 to 10 dB (front panel adjustment)
Output RF level adjustment range	dB	> 20	> 20
Correction of optical losses		Automatic or manual	Automatic or manual
RF access impedance	Ω	50	50
ROS		< 1,5 : 1	< 1,5 : 1
Noise level at the link output (2)	dBm/Hz	<-130	<-130
Power input compression @ 1 dB (2)	dBm	+ 14	+ 14
Third-order interception point (2,3)	dBm	>30 (Measured at 400 and 900MHz)	>30 (Measured at 900 and 2200MHz)

Guaranteed performance for an optical reflection rate of less than -45 dB
Note 1: Measured with 10 meters of optical fibre.
Note 2: Preamp Gain = 0dB, link with 4500m of optical fibre, transmission gain = 0dB.
Note 3: Two carriers P = -3dBm, ΔF = 1MHz

Optical specifications		
Optical fibre		Singlemode fibre G652
Emission wavelength :		
FXHS2 serie ...	nm	1310 ± 20
FXHS4 serie...	nm	1550 ± 20
Typical optical line budget	dB	0 à 12
Optical power	dBm	4 (± 1.5)
Transmitter type		Laser DFB with a built-in optical isolator
Relative intensity noise	dB/Hz	≤ -155
Receiver type		PIN Photodiode

Canal de données		
Type of transmitted data		RS485 full-duplex (4 wires)
Rate	Kbps	≤ 57,6

Supervision	
Communication	Serial link shared with the data channel
Access	On the master module for local control and control of the slave module via the fibre link
Serial Link settings	8, N, 1
Rate	57,6 Kbps

Commands		Control	
Correction of optical losses	On / Off (receiver)	Identification	Reference and serial number
Reception gain	Manual or CAG instructions	Optical reception	Received optical signal level
Alarm	Threshold adjustment	RF gain on the optical transmitter	Gain setpoint on the RF input
Address	Address assignment	Alarm	Reading alarm states
Update	Firmware update	
....			

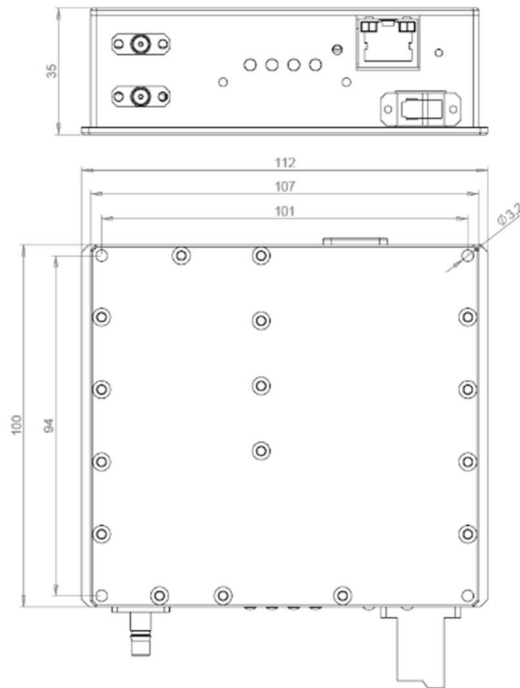
Indicators	
Power supply presence	Green
Automatic correction of optical losses	Green
Laser defect	Red
Optical reception defect	Red

Connectors	
Optical Connector	SC/APC (Front panel)
Radio Frequencies	SMA (Front panel)
Data channel	Male 9-pin Sub-D connector on the back side, common with power supply access and RJ45 on the front panel

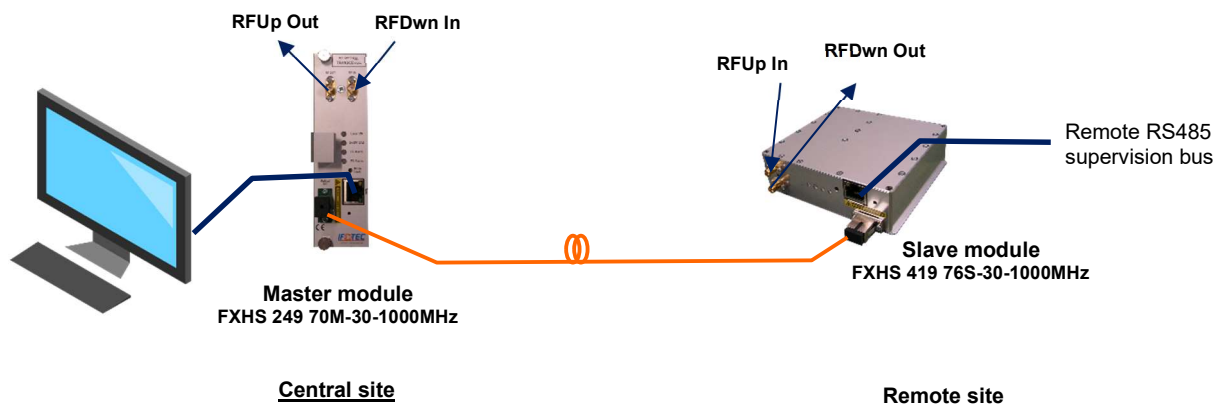
Housing & power supply		
	7TE modular rack-mount	Integrable stand alone housing
Housing type	Stand alone housing with front face for 3U chassis	Integrable housing 112 x 100 x 35 mm (L x W x H)
Power supply	By the chassis	9 to 36 VDC
Power connector	Backplane	Common 9-pin SubD- with RS485 access
Supply voltage	Supplied by the chassis	9 to 36 VDC
Power consumption	6W	<250mA at 24VDC

Environment		
Operating temperature	°C	-20 ; + 60 (See mounting recommendations of the modules)
Storage temperature	°C	- 45 ; + 85
Hygrometr	%	0 to 85 (non-condensing)

Implantation and mechanical dimensions of the products



Typical scheme of a link



PART NUMBERS :

RF and RS485 bidirectional signal transmission over a single optical fibre					
Module reference (Note 1)	Wavelength	Module type (Note 2)	Housing	Power supply	Optical Con.
FXHS 249 70M-bw	Tx : 1310nm Rx : 1550nm	Central master	3U Rack-mount	Rack RF	1 x SC/APC
FXHS 219 76M-bw			Integrable stand alone housing	9 to 36 VDC	
FXHS 449 70S-bw	Tx : 1550nm Rx : 1310nm	Remote slave	3U Rack-mount	Rack RF	
FXHS 419 76S-bw			Integrable stand alone housing	9 to 36 VDC	

Note 1: The reference is to be completed according to the bandwidth **bw=30-1000MHz** or **bw=350-2700MHz**

Note 2: A link must have a master module and a slave module.

In line with the company policy of continuous improvement, product specifications are subject to change