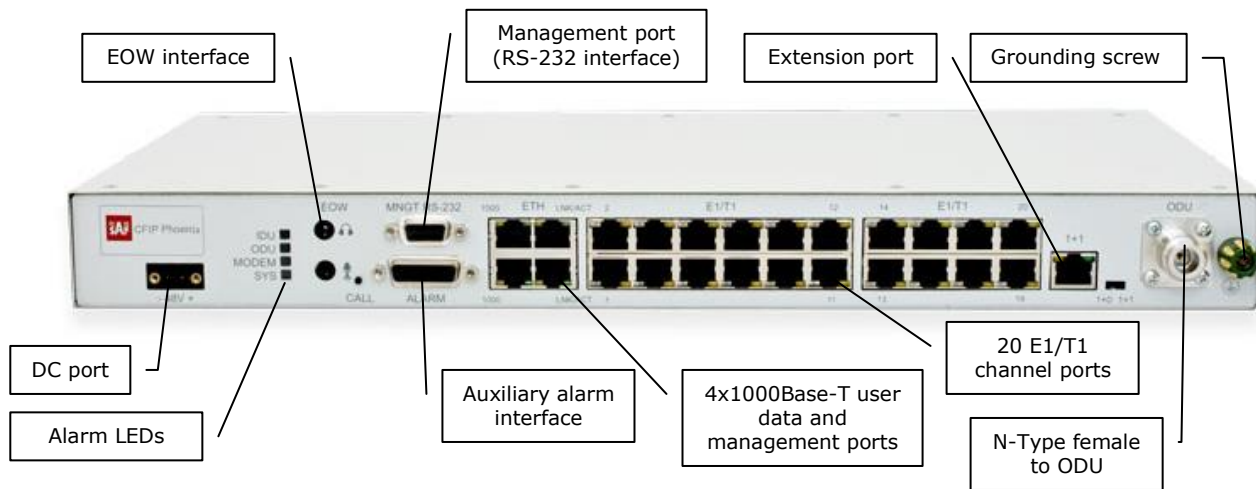


CFIP Phoenix IDU Technical Specification



Modem	
Channel Bandwidths	3.5, 7, 14, 28, 40, 56 MHz
Modulations	4QAM, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Capacity	9 - 366 Mbps
Supported radios	CFIP ODU CFIP Phoenix IRFU
Applications	
Configuration	1+0, 1+1 (HSB, SD, FD), Ring/Mesh (with RSTP), 2+0, 3+0, 4+0 (built-in Ethernet aggregation)
Protection switching	Hot Stand-by (<50ms), Space/Frequency diversity (hitless, errorless)
Ports	
Ethernet	4x1000Base-T, RJ-45
E1/T1	20 E1/T1, RJ-45
Serial port for configuration	RS-232, DB-9 connector
Alarm port	4 digital inputs, 4 relay outputs (26 pin hi-density D-SUB)
ODU port	N-Type Female
EOW port	3.5mm headset and mic, 64 Kbps
Extension/protection port	RJ-45
DC power connector	2ESDV-02 with screw locks
Management features	
Management port	Ethernet with VLAN support or serial (RS-232)
Monitoring	via Telnet, WEB GUI, NMS, SNMP Manager, Serial interface
SNMP	Yes, SNMP traps, MIB, SNMP v1/v2c, RMON
Performance graphs	Uptime, Rx level, Tx level, System temperature, Radial MSE, LDPC decoder stress, constellation diagram, equalizer graph
EMS	Web based, HTTP
ATPC feature	Yes
ACM feature	Hitless 0ms

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Ethernet	
Switch type	Managed Gigabit Ethernet Layer 2
Max frame size	9728 bytes
MAC table	4K entries; automatic learning and aging
Packet buffer	128KB; non-blocking store&forward
Flow Control	IEEE 802.3x
VLAN support	IEEE 802.1Q (up to 4K VLAN entries)
QinQ (Double Tagging)	Yes, IEEE 802.1ad (Providing Bridging Technique)
QoS	64 level DiffServ (DSCP) or 8 level 802.1p mapped in 4 prioritization queues with VLAN support
QoS queuing	Fixed or weighted (configurable ratio)
Spanning Tree Protocol	IEEE 802.1D-2004 RSTP IEEE 802.1Q-2005 MSTP
MEF	MEF 9, MEF 14
Mechanical & Electrical	
Operational use	Conforms to ETSI EN 300 019 Class 3.1E, IP20, NEMA 1
Temperature Range / Humidity	-5°C to +55°C / 5% to 95%
Dimensions: HxWxD / weight	1U (45x430x240 mm) / 3.1 kg
Max. power consumption	20-30 W
IDU-ODU connection	Belden 9914/RG-8 cable (300 m), RG213 cable (200 m), N-Type connectors
DC port	-40.5V to -57V DC (conforms to ETSI EN 300 132-2)
Built-in DC and IF port surge protection	Conforms to ETSI EN 301 489-1; EN 61000-4-5; IEC 61000-4-5



CFIP Phoenix ODU, CFIP Phoenix IRFU



Ports	CFIP Phoenix ODU	CFIP Phoenix IRFU
Antenna	N-Type or flange	A) N-Type or flange B) Tx and Rx ports ⁵
IF to IDU	N-Type	SMA
RSSI	BNC	2-port for multi-meter
Power	--- (over IF port)	2-pin power port (alternative to IF port)
Mechanical & Electrical		
Operational use	Conforms to ETSI EN 300 019 Class 4.1, IP65, NEMA 4X	Conforms to ETSI EN 300 019 Class 3.1E, IP20, NEMA 1
Temperature Range	-33°C to +55°C	-33°C to +55°C
Dimensions: HxWxD / weight	288x288x80 mm / 3.5 kg	19" 2U rack 90x430x260 / 5.8 kg
IF port surge protection	Conforms to ETSI EN 301 489-1; EN 61000-4-5; IEC 61000-4-5	
Input DC voltage	-40.5V to -57V DC (conforms to ETSI EN 300 132-2)	
Max. power consumption	SP: 13-27 W; HP: 21-39 W	

Max Tx Power								
Modulation	Standard / High / Very High ¹ Tx Power ⁵ , dBm							
	4, U4 GHz	L6, U6 GHz	7GHz	8 GHz	10, 11, 15 GHz	13 GHz	18, 23, 26 GHz	38 GHz
4QAM	+33	+19/+27/+33	+19/+27/+32	+19/+27/+31	+19/+25	+19/+25/+29	+19	+17
16QAM	+32	+18/+26/+32	+18/+26/+31	+18/+26/+30	+18/+24	+18/+24/+28	+18	+16
32QAM	+31	+17/+25/+31	+17/+25/+30	+17/+25/+29	+17/+23	+17/+23/+27	+17	+15
64QAM	+29	+15/+23/+29	+15/+23/+28	+15/+23/+27	+15/+21	+15/+21/+25	+15	+13
128QAM	+29	+15/+23/+29	+15/+23/+28	+15/+23/+27	+15/+21	+15/+21/+25	+15	+13
256QAM	+26	+12/+20/+26	+12/+20/+25	+12/+20/+24	+12/+18	+12/+18/+22	+12	+10

Band	Frequency range	Duplex offset
4 GHz	3.6 – 4.2 GHz	213 MHz, 320 MHz
U4 GHz	4.4 – 5.0 GHz	100 MHz, 300 MHz, 312 MHz
L6 GHz	5.925 – 6.425 GHz	252.04 MHz, 266 MHz
U6 GHz	6.425 – 7.125 GHz	160 MHz, 170 MHz, 200 MHz, 340 MHz
7 GHz	7.110 – 7.900 GHz	154 MHz, 161 MHz, 168 MHz, 196 MHz, 245 MHz
8 GHz	7.725 – 8.5 GHz	119 MHz, 126 MHz, 151.614 MHz, 154 MHz, 160 MHz, 208 MHz, 266 MHz, 300 MHz, 310 MHz, 311.32 MHz, 525 MHz, 550 MHz
10 GHz	10.15 – 10.68 GHz	65 MHz, 91 MHz, 300 MHz, 350 MHz
11 GHz	10.7 – 11.7 GHz	490 MHz, 500 MHz, 530 MHz
13 GHz	12.75 – 13.25 GHz	225 MHz, 266 MHz
15 GHz	14.4 – 15.35 GHz	315 MHz, 322 MHz, 420 MHz, 475 MHz, 490 MHz, 644 MHz, 728 MHz

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Band	Frequency range	Duplex offset
18 GHz	17.7 – 19.7 GHz	1008 MHz, 1010 MHz, 1560 MHz
23 GHz	21.2 – 23.6 GHz	1008 MHz, 1036 MHz, 1200 MHz, 1232 MHz
26 GHz	24.25 – 27.5 GHz	800 MHz, 1008 MHz
38 GHz	38.6 – 40 GHz	700 MHz, 1260 MHz

CFIP ODU waveguide flange sizes						
4, U4, L6, U6 GHz	7, 8 GHz	10, 11 GHz	13, 15 GHz	18, 23 GHz	26 GHz	38 GHz
N-type	UBR84	UBR100	UBR140	UBR220	UBR260	UBR320



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CFIP ODU RSL at 10 ⁻⁶ (dBm) ⁵ and Total Payload Capacity (Mbps)																
BW ³ , MHz	Modulation	FEC ⁴	4, U4 GHz ⁶	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	38 GHz	Bit rate, Mbps	
3.5	4QAM	Strong	-	-97	-95	-95	-97	-96	-95	-93,5	-95	-97	-96,5	-93,5	3	
	16QAM	Strong	-	-90,5	-88	-88	-90	-89	-88	-88	-88,5	-90	-89,5	-86,5	7	
	32QAM	Strong	-	-87	-85	-85,5	-87	-86	-85	-85	-85,5	-87	-86,5	-83,5	9	
	64QAM	Strong	-	-84	-81,5	-82	-84	-83	-82	-82	-82	-82	-83,5	-83	-80	13
		Weak	-	-81,5	-79	-79,5	-81	-80	-79,5	-79	-79,5	-79,5	-81	-81	-78	14
7	4QAM	Strong	-	-93	-92	-92	-94	-93	-92,5	-91	-92	-94	-93,5	-90,5	8	
	16QAM	Strong	-	-86,5	-85	-85,5	-87,5	-86,5	-85,5	-85	-85,5	-87,5	-87	-84	17	
	32QAM	Strong	-	-83,5	-82,5	-83	-84,5	-83,5	-83	-82,5	-83	-84,5	-84	-81	21	
	64QAM	Strong	-	-80	-79	-80	-81,5	-80,5	-79,5	-79,5	-79,5	-81,5	-80,5	-77,5	28	
	128QAM	Strong	-	-77	-76	-76,5	-78	-77	-76	-76,5	-76	-78	-77,5	-74,5	34	
		Weak	-	-75	-73,5	-75	-76	-75	-74,5	-74	-74	-75,5	-75,5	-72,5	36	
14	4QAM	Strong	-91.5	-90	-90,5	-90	-91	-90	-90	-89	-90,5	-91	-90,5	-87,5	17	
	16QAM	Strong	-85	-83,5	-83,5	-83,5	-84,5	-83,5	-83,5	-83	-84	-84	-83,5	-80,5	34	
	32QAM	Strong	-81.5	-80	-80	-80,5	-81,5	-80,5	-80	-80	-80,5	-80,5	-80,5	-77,5	45	
	64QAM	Strong	-79.5	-77,5	-77,5	-78	-79	-78	-77,5	-77,5	-78	-78,5	-78	-75	57	
	128QAM	Strong	-76	-74,5	-74,5	-75	-75,5	-74,5	-74,5	-74	-75	-75	-75	-72	68	
	256QAM	Strong	-72.5	-71	-71	-71,5	-72	-71	-70,5	-70,5	-72	-71,5	-71,5	-68,5	79	
		Weak	-69	-67,5	-67,5	-68	-69	-68	-67,5	-67	-68	-65,5	-68	-65	86	
28	4QAM	Strong	-88.5	-90.5	-89.5	-89	-88.5	-89.5	-89.5	-89	-90	-89	-91.5	-85	35	
	16QAM	Strong	-82.5	-84.5	-83	-83	-82.5	-83.5	-83.5	-83	-84	-83	-85	-79	69	
	32QAM	Strong	-79.5	-81.5	-80	-80	-80	-80.5	-80.5	-80.5	-80.5	-80	-82	-76	88	
	64QAM	Strong	-77.5	-79	-77.5	-77.5	-77	-78	-77.5	-77	-78	-77.5	-79.5	-73.5	115	
	128QAM	Strong	-74.5	-75.5	-74.5	-74	-73.5	-74.5	-74.5	-74	-75.5	-74	-76.5	-70	138	
	256QAM	Strong	-70.5	-72.5	-71	-70.5	-70.5	-71	-71	-70.5	-72	-71	-73	-67	161	
Weak		-68.5	-69	-67	-66	-66	-67	-67	-66.5	-69	-67.5	-70	-63.5	174		

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CFIP ODU RSL at 10 ⁻⁶ (dBm) ⁵ and Total Payload Capacity (Mbps)															
BW ³ , MHz	Modulation	FEC ⁴	4, U4 GHz ⁶	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	38 GHz	Bit rate, Mbps
40	4QAM	Strong	-86.5	-89	-87.5	-88	-87.5	-88	-88	-88	-88	-87.5	-89.5	-83.5	49
	16QAM	Strong	-80.5	-82.5	-81.5	-81.5	-81	-82	-82	-81.5	-82.5	-81	-83.5	-77	98
	32QAM	Strong	-78	-80	-78.5	-79	-78.5	-79.5	-79.5	-79	-79.5	-78.5	-80.5	-74.5	127
	64QAM	Strong	-75.5	-77	-76	-75.5	-75.5	-76.5	-76	-76	-77	-75.5	-78	-71.5	163
	128QAM	Strong	-72.5	-74	-73	-72.5	-72.5	-73.5	-73	-72.5	-73.5	-72.5	-74.5	-68.5	196
	256QAM	Strong	-68.5	-70.5	-69.5	-69	-68.5	-69.5	-69.5	-69	-70.5	-69	-71	-65	229
		Weak	-66.5	-68	-67	-64.5	-64.5	-65.5	-65	-65	-67.5	-66.5	-68.5	-62.5	245
56	4QAM	Strong	-	-87	-85.5	-86	-85.5	-87	-86.5	-86	-87	-85.5	-88	-81.5	72/67 ²
	16QAM	Strong	-	-81	-80	-79.5	-79.5	-80.5	-80	-79.5	-80.5	-79.5	-82	-75.5	145/135 ²
	32QAM	Strong	-	-78	-77	-77.5	-77	-78	-77.5	-77	-77.5	-76.5	-79	-72.5	182
	64QAM	Strong	-	-75.5	-74.5	-74	-73.5	-74.5	-74.5	-74	-75.5	-74	-76	-70	240
	128QAM	Strong	-	-72	-71	-71	-70.5	-71.5	-71.5	-71	-72	-70.5	-73	-66.5	287
	256QAM	Strong	-	-68.5	-67.5	-67	-66.5	-68	-67.5	-67	-68.5	-67	-69.5	-63	335
		Weak	-	-64	-63	-63	-62.5	-63.5	-63	-62.5	-64.5	-62.5	-65	-58.5	363

Notes:

¹ Preliminary data

² Higher capacity is available in 16QAM and 4QAM if using 32QAM-256QAM with ACM enabled

³ According to ETSI channel plan

⁴ Forward Error Correction (FEC) can be optimized either for sensitivity (Strong FEC) or for capacity (Weak FEC)

⁵ For CFIP Phoenix IRFU with Tx and Rx ports (without diplexer), Tx Power is increased by 1dBm and RSL figures for improve by up to 1.5 dBm

⁶ For 4GHz and U4GHz radios there are two hardware revision standard bandwidth (up to 40MHz) and wide bandwidth (up to 56MHz) channels



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ETSI Ver. 1.14, 2015



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CFIP Phoenix series

Hybrid split mount system