

MOD. A4D SERIES



DIGITAL RADIO LINKS

FREQ. 2 ÷ 23 GHz

Digital microwave Radio Link “A4D” series can be utilised to carry signals Studio - Transmitter (STL), Transmitter – Studio (TSL), in the distribution/contribution networks and also for Mobile connections. Available from 2 to 23 GHz with modulations QPSK, QAM, COFDM and transfer capacity up to 155 Mb/s with interfaces I/O: GbE, ASI, BTS, SDI, PAL/NTSC, G.703 and E1/T1.

The installation of full In Door Unit (IDU) or splitted Out Door Unit (ODU) versions with coaxial or waveguide I/O allows the realisation of every kind of connections that would be fixed, semi-fixed, Mobile for mono or bi-directional use.



Features

- Frequency: from 2 ÷ 23 GHz
- Out Door / In Door / Mobile version
- Modulation: QPSK – 16/32/64/128/256 QAM and COFDM
- Interfaces: GbE, ASI, BTS, SDI, PAL/NTSC, G.703, E1/T1
- IF 70 MHz IN / OUT
- 6/7/8MHz channel bandwidth
- Viterbi rate & Reed Solomon
- Excellent MER
- Colour front panel control
- Embedded Linux OS
- Complete web management

Applications

- Backbone Systems
- STL/TSL connection
- Mobile Systems



DEVICES COMPOSITION

FULL IN DOOR UNIT VERSION

Frequency	Transmitter section	Receiver section
From 2 to 14 GHz	EK-MFR/2*	EK-MFR/2*

OUT DOOR UNIT VERSION - SINGLE CHANNEL

Frequency	Transmitter section		Receiver section	
From 2 to 23 GHz	EK-MFR/2*	A4D-ExT/1	EK-MFR/2*	A4D-ExR/1

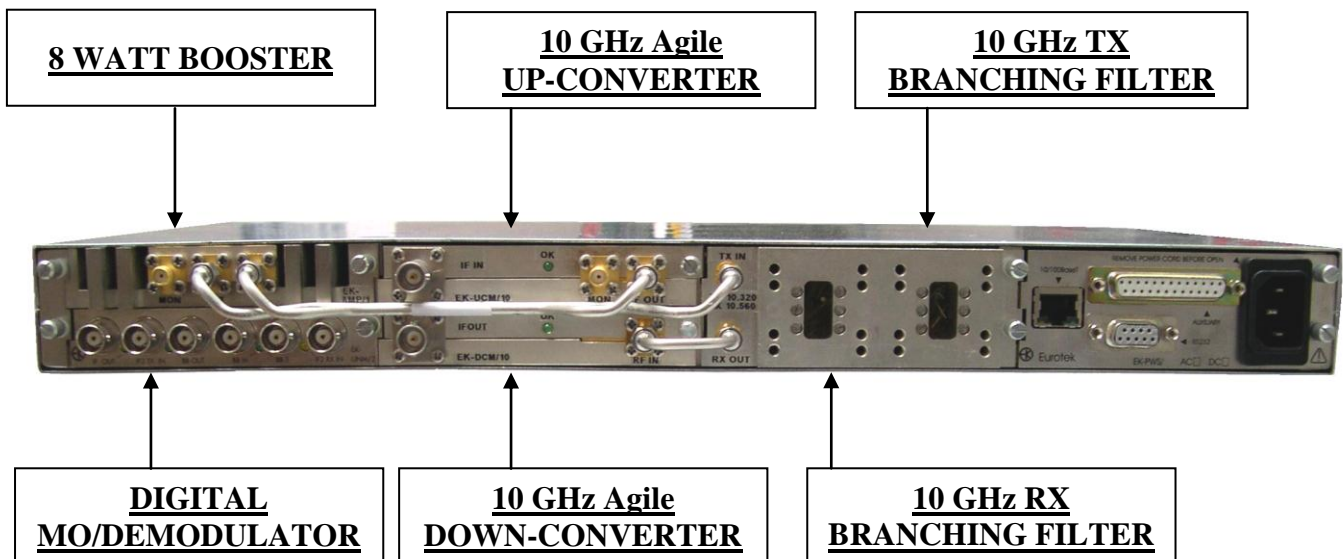
OUT DOOR UNIT VERSION - MULTICHANNEL

Frequency	Transmitter section		Receiver section	
From 2 to 23 GHz	EK-MFR/2*	A4D-ESxT/1	EK-MFR/2*	A4D-ESxR/1

* The EK-MFR/2 section must be assembled with the optional boards that are described in the Eurotek documentation.

AUTOCOMPOSE EXAMPLE

10 GHz DIGITAL RADIO LINK TRANSCEIVER with BOOSTER - FULL INDOOR VERSION



A4D Full In Door Unit (IDU) specification

Link section performance (-40 dBm at receiver input)

Frequency band	1.98 ÷ 2.1 GHz / 2.3 ÷ 2.7 GHz / 3.2 ÷ 3.8 GHz / 3.9 ÷ 4.4 GHz / 4.4 ÷ 4.9 GHz / 5.2 ÷ 5.4 GHz / 5.9 ÷ 6.4 GHz / 6.4 ÷ 7.2 GHz / 7 ÷ 8 GHz / 8 ÷ 8.5 GHz / 10 ÷ 10.7 GHz / 10.7 ÷ 11.7 GHz / 11.7 ÷ 12.5 GHz / 12.7 ÷ 13.3 GHz / 14.25 ÷ 14.5 GHz
Noise Figure	< 3 dB @ -40 dBm
FI band	from 60 ÷ 80 MHz +/- 0.5 dB from 62 ÷ 78 MHz within 3 nS
FI connections	-25 ÷ 0 dBm @ 75 Ohm
Output interface	Coaxial "N" female connector (2,3,4, 5, 6, 7, 8 GHz band) Waveguide Flange type UBR120 (10, 11, 12, 13, 14 GHz band)
Input interface	Coaxial BNC female connector

Freq. band (GHz)	1.98 - 2.1	2.3 - 2.7	3.2 - 3.8	3.9 - 4.4	4.4 - 4.9	5.2 - 5.4	5.9 - 6.4	6.4 - 7.2	7.0 - 8.0	8.0 - 8.5	10.0 - 10.7	10.7 - 11.7	11.7 - 12.5	12.7 - 13.3	14.2 - 14.5
Output power (dBm) QPSK*	t.b.d	t.b.d	24	24	24	25.5	27	27	27	27	27	27	27	27	27
Output power (dBm) 16QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 32QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 64QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 128QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 256QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24

* Output power excluding branching filter (necessary) - Branching filter loss: 0.5 dB Multi-channel vers. / 1.5 dB Single channel version

Working climatic conditions (IDU)

Normal	+5° ÷ +40°Celsius
Extreme	-5° ÷ +45°Celsius

Power supply

Transmitter side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)
Receiver side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)

Rack mechanical specifications (IDU)

Height	44 mm (1U)		
Width	482 mm (19")		
Depth	312 mm	Weight	in function of boards inside it

A4D Out Door Unit (ODU) Single channel specification

Link section performance (-40 dBm at receiver input)	
Frequency band	1.98 ÷ 2.1 GHz / 2.3 ÷ 2.7 GHz / 3.2 ÷ 3.8 GHz / 3.9 ÷ 4.4 GHz / 4.4 ÷ 4.9 GHz / 5.2 ÷ 5.4 GHz / 5.9 ÷ 6.4 GHz / 6.4 ÷ 7.2 GHz / 7 ÷ 8 GHz / 8 ÷ 8.5 GHz / 10 ÷ 10.7 GHz / 10.7 ÷ 11.7 GHz / 11.7 ÷ 12.5 GHz / 12.7 ÷ 13.3 GHz / 14.25 ÷ 14.5 GHz
Noise figure	< 3 dB @ -40 dBm
FI band	from 60 ÷ 80 MHz +/- 0.5 dB from 62 ÷ 78 MHz within 3 nS
Output interface	Coaxial "N" female connector (2,3,4 GHz band)
	Waveguide Flange type PDR70 (5, 6, 7 GHz band)
	Waveguide Flange type PDR84 (8 GHz band)
	Waveguide Flange type PBR120 (10, 11, 12, 13, 14 GHz band)
Input interface	Coaxial "N" or Lemo (optional) female connector

Freq. band (GHz)	1.98	2.3	3.2	3.9	4.4	5.2	5.9	6.4	7.0	8.0	10.0	10.7	11.7	12.7	14.2
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2.1	2.7	3.8	4.4	4.9	5.4	6.4	7.2	8.0	8.5	10.7	11.7	12.5	13.3	14.5
Output power (dBm) QPSK*	t.b.d	t.b.d	24	24	24	25.5	27	27	27	27	27	27	27	27	27
Output power (dBm) 16QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 32QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 64QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 128QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24
Output power (dBm) 256QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24

* Output power excluding branching filter (necessary) - Branching filter loss: 0.5 dB Multi-channel vers. / 1.5 dB Single channel vers.

Working climatic conditions (ODU)	Working climatic conditions (IDU)
Normal	-20° ÷ +40°Celsius
Extreme	-30° ÷ +50 Celsius
	Normal
	+5° ÷ +40°Celsius
	Extreme
	-5° ÷ +45°Celsius

Power supply (IDU)	
Transmitter side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)
Receiver side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)

RF Head (ODU) mechanical specifications		Rack (IDU) mechanical specifications	
Height	120 mm	Height	44 mm (1U)
Width	80 mm	Width	482 mm (19")
Depth	255 mm	Depth	312 mm
	Weight		Weight in function of boards inside it
	3 Kg.		

A4D Out Door Unit (ODU) Multi-channel specification

Link section performance (-40 dBm at receiver input)	
Frequency band	1.98 ÷ 2.1 GHz / 2.3 ÷ 2.7 GHz / 3.2 ÷ 3.8 GHz / 3.9 ÷ 4.4 GHz / 4.4 ÷ 4.9 GHz / 5.2 ÷ 5.4 GHz / 5.9 ÷ 6.4 GHz / 6.4 ÷ 7.2 GHz / 7 ÷ 8 GHz / 8 ÷ 8.5 GHz / 10 ÷ 10.7 GHz / 10.7 ÷ 11.7 GHz / 11.7 ÷ 12.5 GHz / 12.7 ÷ 13.3 GHz / 14.25 ÷ 14.5 GHz / 17.7 ÷ 19.7 GHz / 21.2 ÷ 23.6 GHz
Noise Figure	< 3 dB @ -40 dBm
FI band	from 60 ÷ 80 MHz +/- 0.5 dB from 62 ÷ 78 MHz within 3 nS
Output interface	Coaxial "N" female connector (2,3,4 GHz band)
	Waveguide Flange type PDR70 (5, 6, 7 GHz band)
	Waveguide Flange type PDR84 (8 GHz band)
	Waveguide Flange type PBR120 (10, 11, 12,13, 14 GHz band)
	Waveguide Flange type PBR220 (18, 23 GHz band)
Input interface	Coaxial "N" or Lemo (optional) female connector

Freq. band (GHz)	1.98	2.3	3.2	3.9	4.4	5.2	5.9	6.4	7.0	8.0	10.0	10.7	11.7	12.7	14.2	17.7	21.2
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2.1	2.7	3.8	4.4	4.9	5.4	6.4	7.2	8.0	8.5	10.7	11.7	12.5	13.3	14.5	19.7	23.6
Output power (dBm) QPSK*	t.b.d	t.b.d	24	24	24	25.5	27	27	27	27	27	27	27	27	27	24	24
Output power (dBm) 16QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24	21	21
Output power (dBm) 32QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24	21	21
Output power (dBm) 64QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24	21	21
Output power (dBm) 128QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24	21	21
Output power (dBm) 256QAM*	t.b.d	t.b.d	21	21	21	22.5	24	24	24	24	24	24	24	24	24	21	21

* Output power excluding branching filter (necessary) - Branching filter loss: 0.5 dB Multi-channel version / 1.5 dB Single channel version

Working climatic conditions (ODU)		Working climatic conditions (IDU)	
Normal	-20° ÷ +40°Celsius	Normal	+5° ÷ +40°Celsius (IDU)
Extreme	-30° ÷ +50°Celsius	Extreme	-5° ÷ +45°Celsius (IDU)

Power supply (IDU)	
Transmitter side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)
Receiver side	85÷264V _{ac} +/- 10% 47÷ 63Hz 120W 10A and optional: 18÷ 36V _{dc} or 36÷72V _{dc} (negative galvanic insulated)

RF Head (ODU) mechanical specifications		Rack (IDU) mechanical specifications	
Height	120 mm	Height	44 mm (1U)
Width	80 mm	Width	482 mm (19")
Depth	255 mm	Depth	312 mm
Weight	3 Kg.	Weight	in function of boards inside it

**Strada Com. Savonesa n° 9
15057 Rivalta Scrivia (AL)
ITALY
Tel. +39 0131 860205 r.a.
Fax +39 0131 860993
e-mail: info@eurotek.eu
<http://www.eurotek.eu>**