

## HDO204 CATV FIBRE RECEIVER

HDO204 is a quadruple receiver module for fibre optic return path links in CATV networks. It is installed into HDX installation frame.

### Features

- Four return path receivers in one module
- Wide input power/ output level range
- High input power and RFoG models available
- Three output level control modes:
  - Manual
  - Automatic based on OMI, target output level and optical input level
  - Automatic based on optical input level
- Integrated A/B route backup switches as a standard feature
- Automatic power save mode
- Small form factor family, 2 RU height
- Fibre connectors can be located at the rear or at the front panel



### Management features

- HFC/ RFoG network type selection for optimisation of settings
- A/B route backup configuration with monitoring
- Optical input power measurement and monitoring
- Power save mode setting automatic/ manual
- Automatic output level control with monitoring
- Signal LEDs for the statuses of each receiver
- Module LED for internal status
- Internal temperature measurement and monitoring
- Intelligent fan speed control with monitoring
- Non-volatile logging of 32 latest events, including alarms, alarming values, settings changes and application starts.
- Uptime and total uptime counters
- All adjustments and alarm limits fully user configurable
- Local PC connection through backplane HDO bus with HDX021 adapter cable
- Remote IP connection through HDC100 controller module
- SNMP monitoring and configuration through HDC100 controller module

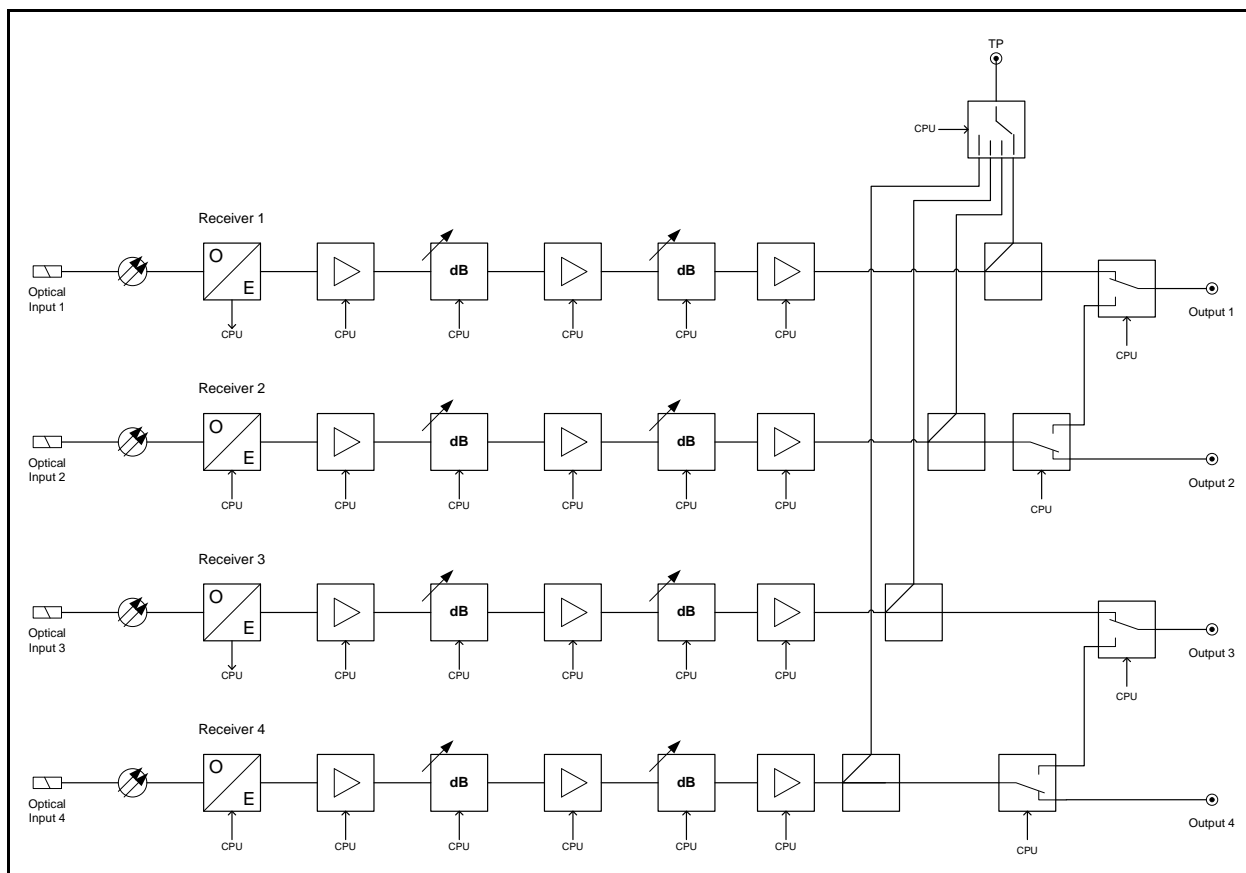
Technical specifications

Parameter	Specification	Note
<b>Optical parameters</b>		
Light wavelength	1260...1620 nm	
Input power range		1)
Standard model	-25...-5 dBm	
High input power model	-20...+3 dBm	
RFoG model	-30...-7 dBm	
Responsivity of photodiode	>0.85 A/W at 1310 nm >0.90 A/W at 1550 nm	
<b>RF parameters</b>		
Frequency range	5...230 MHz	
Output level		2)
Standard model	$2 * P_{opt} + 134 \text{ dB}\mu\text{V}$	
High input power model	$2 * P_{opt} + 130 \text{ dB}\mu\text{V}$	
RFoG model	$2 * P_{opt} + 137 \text{ dB}\mu\text{V}$	
Flatness	$\pm 0.75 \text{ dB}$	3)
Slope variation	$\pm 0.75 \text{ dB}$	
RF impedance	75 $\Omega$	
Output return loss	18 dB	
Level control range	60 dB	
RF test points	20 dB	4)
Isolation	50 dB	5)
<b>Linearity and noise parameters</b>		
Noise current density		6)
Standard model	3.8 pA/ $\sqrt{\text{Hz}}$	
High input power model	3.8 pA/ $\sqrt{\text{Hz}}$	
RFoG model	1.2 pA/ $\sqrt{\text{Hz}}$	
CINR (full load 5-204 MHz)		7)
Standard model	49 dB @ -5 dBm, 29 dB @ -20 dB	
High input power model	51 dB @ 0 dBm, 25 dB @ -20 dB	
RFoG model	48 dB @ -7 dBm, 28 dB @ -25 dB	
<b>General</b>		
Power consumption	8.5 W, RFoG model 7.7 W	
Supply voltages	25 V / 235 mA, RFoG model 210 mA 6.3 V / 450 mA, RFoG model 410 mA	
Optical connectors	SC/APC or E-2000/APC	8)
RF Connectors	F female	9)
Cooling	Field replaceable fan	10)
Dimensions	2U x 7HP x 380 mm Occupies 1/12 of HDX002	h x w x d
Weight	1.5 kg	
EMC compliance	EN 50083-2	
Enclosure classification	IP20	
Operating temperature range	0...+45 °C	
Storage temperature range	-20...+60 °C	
Operating relative humidity	0...85 %	

Notes

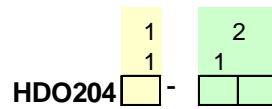
- 1) Standard, high input power and RFoG models are available, see ordering information. High input power model contains internal 2 dB optical attenuator in the front of photodiode.
- 2) Gain limited maximum output level when OMI is 10 %.  $P_{opt}$  is the optical input power.
- 3) Typical value. Maximum value is  $\pm 1.0$  dB.
- 4) Compared to output. Typical accuracy is  $\pm 0.5$  dB. Maximum value is  $\pm 0.75$  dB.
- 5) This is a crosstalk attenuation between different signal paths.
- 6) Typical value that can be used in C/N calculation. In C/N calculation must be taken into account that the high input power model contains an internal 2 dB optical attenuator in the front of photodiode.
- 7) Typical value with a low noise transmitter. The total OMI is 25 % and the output level is 90 dB $\mu$ V if not gain limited.
- 8) Fibre connectors can be located at the rear or at the front panel.
- 9) Fixed connections are located at the rear panel. Test points are located at the front panel.
- 10) The fan can be replaced by the user without signal interruption.

Block diagram



Ordering information

**HDO204 configuration map**



<b>1-1 Receiver type</b>	
<b>A</b>	Standard receiver
<b>H</b>	High input power receiver
<b>R</b>	RFoG receiver
<b>2-1 Fibre location</b>	
<b>FA</b>	Front, SC/APC 9 deg.
<b>FC</b>	Front, E-2000 8 deg.
<b>FD</b>	Front, SC/APC 8 deg.
<b>RA</b>	Rear, SC/APC 9 deg.
<b>RC</b>	Rear, E-2000 8 deg.
<b>RD</b>	Rear, SC/APC 8 deg.

DOC00xxxx, Rev. 004