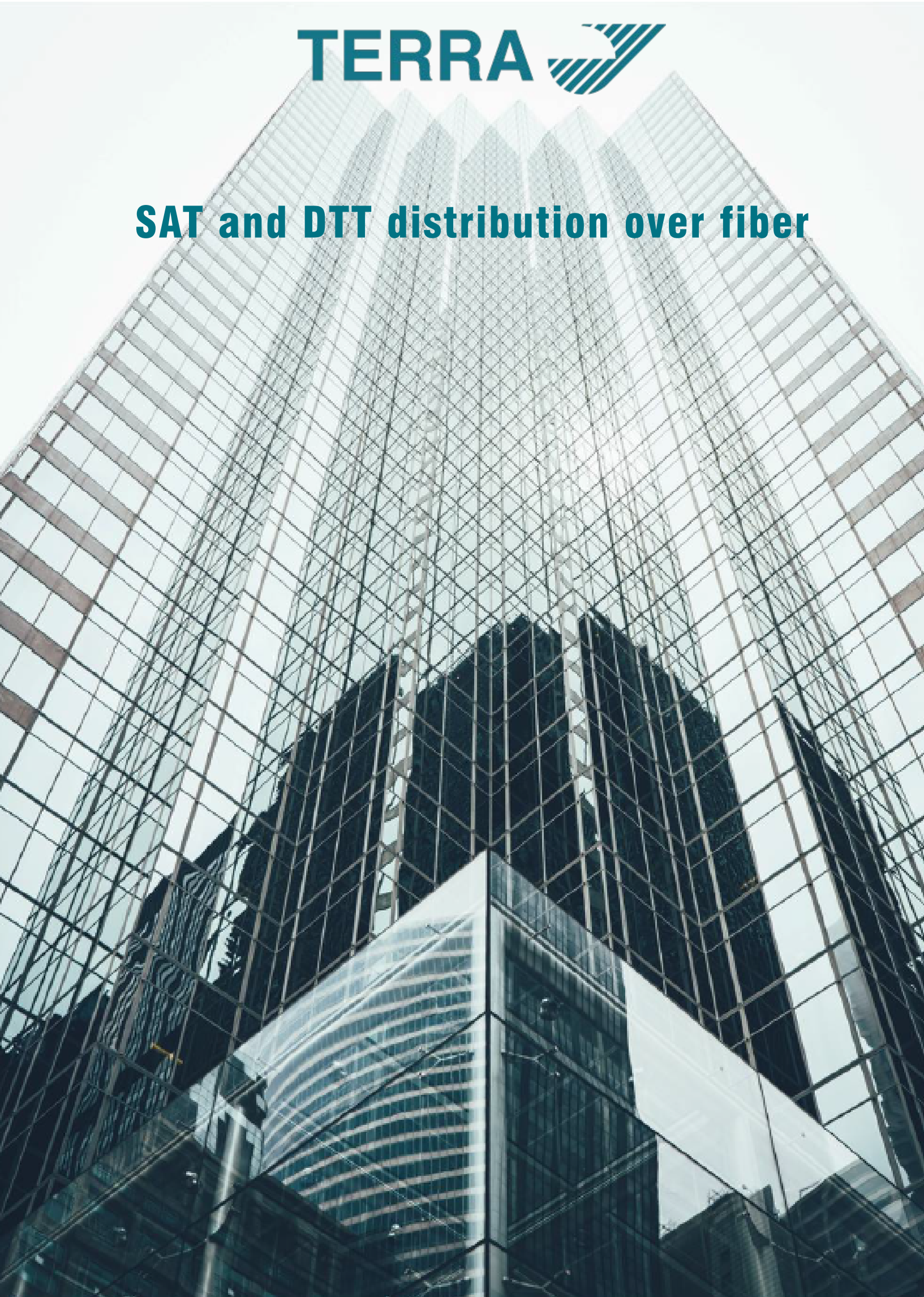


TERRA 

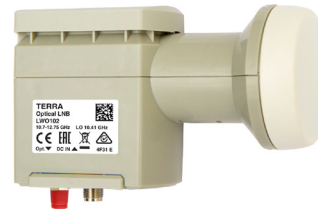
SAT and DTT distribution over fiber



Optical LNB	p.3
Wideband LNB	p.4
DTT processing units	p.4
Optical transmitter	p.5
Active splitter	p.6
Optical amplifiers	p.7
Wideband receivers	p.8
Quattro receivers	p.9
Configuration examples	p.10-11
Quad receivers	p.12
dSCR receivers	p.13
Remote monitoring	p.14
Optical splitters	p.15
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Fiber optical LNB

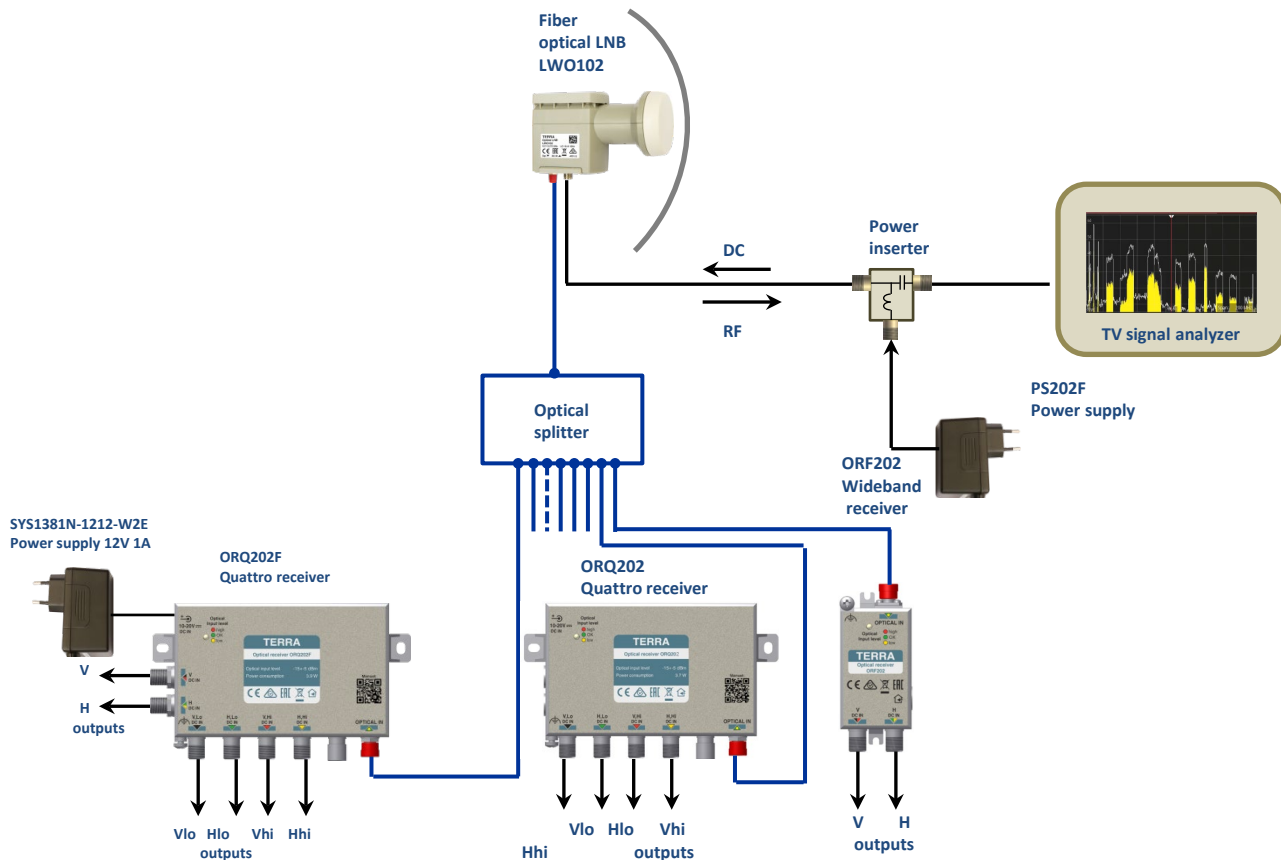
- low noise down converter with single mode fiber optical output
- built-in AGC system
- extended lifetime of the laser
- optimized for Astra and Hotbird
- test point for dish alignment
- 40 mm feed



Technical specifications	
TYPE	LW0102*
Input frequency range V & H	10.7 - 12.75 GHz
Noise figure, typical	0.7 dB typical, 1.0 dB max.
LO frequency of downconverter	10.41 GHz
LO phase noise	< - 75 dBc/Hz @ 10 kHz
Image rejection	40 dB min
Cross-pol isolation, typical	22 dB
Optical output	
Wavelength	see ordering information*
Main characteristics	
Power consumption	4 W max.
Supply voltage	10 - 20 V
Operating temperature range	-30° ÷ + 60° C
Dimensions/Weight (packed)	141x89x63 mm / 0.35 kg

* ordering information: Type LW0102 4F31 E Laser 4 dBm FP 1310 nm FC/UPC

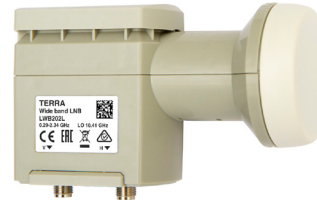
Installation example of fiber optical LNB



Transmitting equipment


Wideband 40 mm PLL LNB

- dedicated for operation with **OTF30x** optical transmitter
- PLL low noise converter
- excellent immunity & linearity





Technical specifications		
T Y P E		LWB202L
Input frequency range		10.7 - 12.75 GHz
Noise figure		0.7 dB typical, 1.0 dB max.
LO frequency		10.41 GHz
LO phase noise		< -75 dBc/Hz @ 10 kHz
Conversion gain, typical		55 dB
Gain variation over full band/27 MHz		4 dB max./± 0.5 dB
Image rejection		40 dB min
Cross-pol isolation, typical		22 dB
Return loss / impedance		12 dB / 75 Ω
Output frequency range		290-2340 MHz
General		
Supply voltage /power consumption		10 - 20V/2W max.
Operating temperature range		-30° ÷ + 60° C
Dimensions/Weight (packed)		141x89x63 mm / 0.35 kg

DTT processing units

- dedicated for operation with **OTF30x** optical transmitter
- processing of VHF and UHF of air signal
- integrated AGC loop
- integrated LTE 700/800 signal suppression filter 
- DC feeding via output connector
- for outdoor mounting
- shielded metal case inside plastic housing



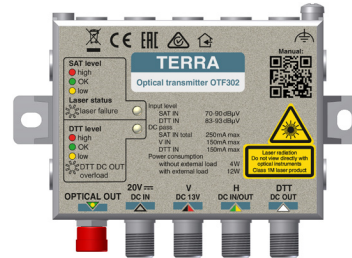
Technical specifications			
T Y P E		MCA101T	MCA101L
RF inputs			
VHF gain/input level	87.5-240 MHz	-3...-14 dB adjustable, passive min. 86 dBμV, max. 97 dBμV*	
UHF input level, AGC range	470-694 MHz	55-80 dBμV 	-
	470-790 MHz	-	55-80 dBμV 
UHF noise figure		< 5 dB	
RF output			
Output level UHF, AGC range		93 dBμV	
General			
Return loss / impedance		> 10 dB / 75 Ω	
Supply voltage /power consumption		10 - 20V/1.4W max.	
Operating temperature range		-20° ÷ +50 °C	
Dimensions/Weight (packed)		89x107x43 mm/0.18 kg	

* see requirements for OTF30x terrestrial input

Transmitting equipment

Optical transmitter

- dedicated for operation with DTT processing unit **MCA101x** and wideband LNB **LWB20xL**
- compact optical transmitter with 2 wideband and DTT inputs
- DC by pass for remote feeding of DTT unit and LNB
- built-in AGC system
- LED status indication
- remote monitoring by PC102W programmer, see www.terraelectronics.com
- robust die-cast housing



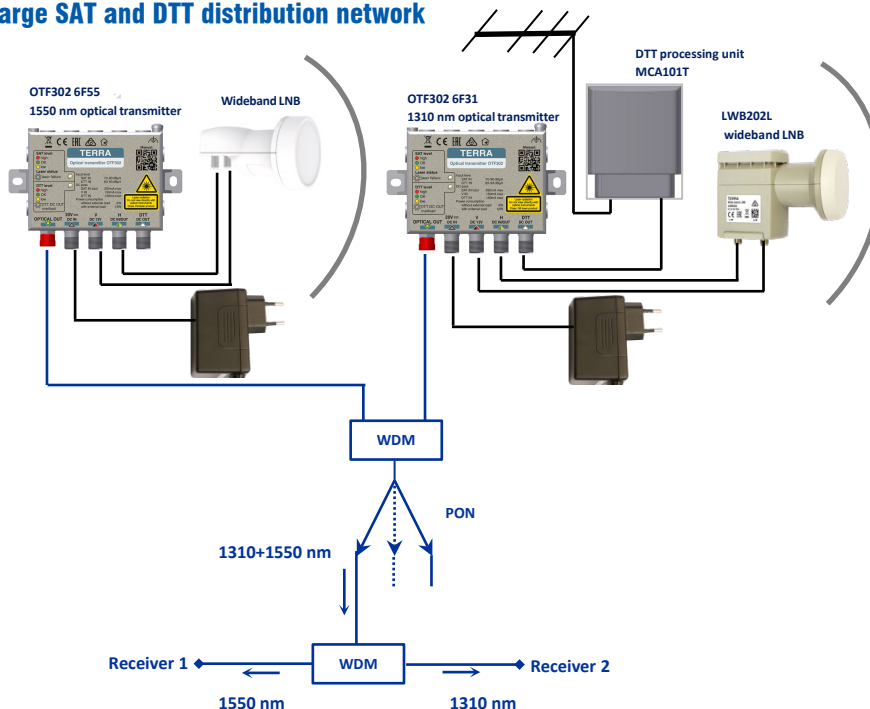
Technical specifications

T Y P E		OTF302*
Wideband inputs		
Frequency range		2 x (290-2350 MHz)
RF input level (AGC range) for 60 transponders		70-90 dB μ V (per carrier)
LNB remote feeding		13 V via V input -150 mA max., 20 V via H input, 350 mA max. total
DTT input		
System frequency range**		87.5-240 / 470-790 MHz
RF input level***		83 dB μ V / 83-93 dB μ V
Remote feeding		19 V 150 mA max.
Optical output		
Wavelength		see ordering information*
General		
Input return loss / impedance		> 12 dB / 75 Ω
Supply voltage		20 V
Power consumption****		4 W max.
Operating temperature range		-20 ÷ + 40 °C
Dimensions/Weight (packed)		116x84x25.5 mm/0.28 kg

* ordering information:

Type	Power	Laser	Wavelength	Connector	** the set with MCA101x
OTF302 3C55 E	3 dBm min.	DFB	1550 \pm 3 nm	FC/UPC	*** FM level the same like DTT, DAB level 12 dB below
OTF302 3C53 E	3 dBm min.	DFB	1530 \pm 3 nm	FC/UPC	Delivery by special order **** without remote feeding
OTF302 6F31 E	6 dBm	FP	1310 nm	FC/UPC	
OTF302 6F55 E	6 dBm	FP	1550 nm	FC/UPC	

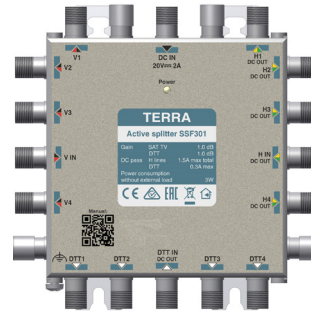
Installation example of large SAT and DTT distribution network



Transmitting equipment

Active splitter

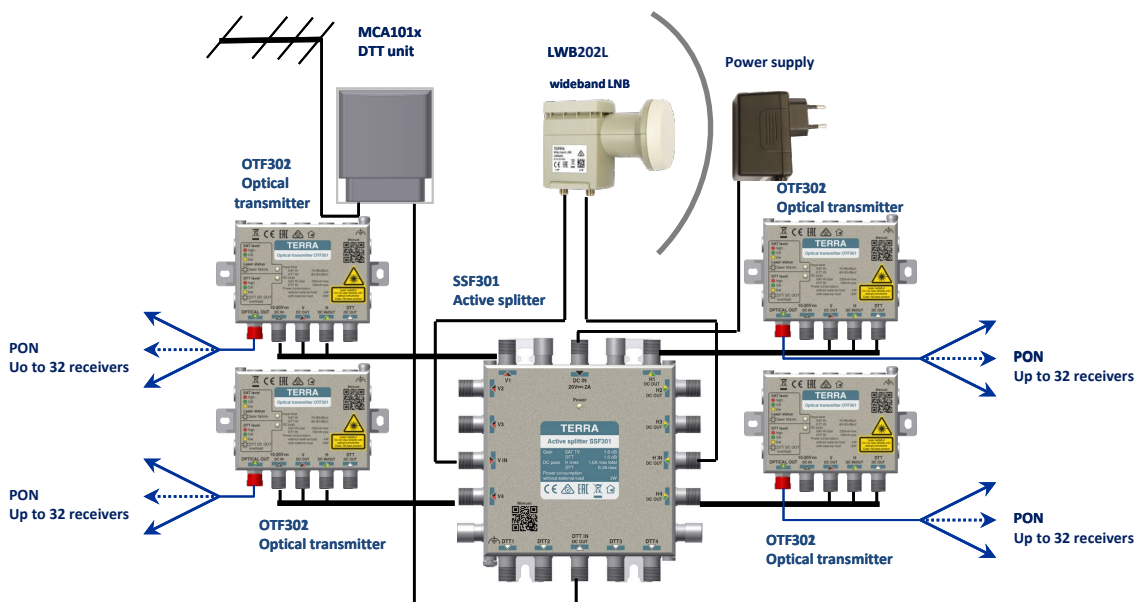
- 4 way splitter of H and V wideband SAT IF and DTT signals
- dedicated for operation with **OTF30x** optical transmitter
- high outputs isolation
- DC pass through SAT H ports and between DTT ports
- die-cast housing



Technical specifications		SSF301
TYPE		
Ordering number		TBD
Frequency range	SAT IF	290-2350 MHz
	DTT*	87.5-240 / 470-790 MHz
Insertion loss	SAT IF	1 dB
	DTT	1 dB
Output level	SAT IF	85 dB μ V max. (per carrier)
	DTT	93 dB μ V max. (per carrier)
Outputs decoupling	SAT IF	24 dB
	DTT	24 dB
General		
Return loss / impedance		>10 dB / 75 Ω
Supply voltage		20 V
Power consumption without external load		3 W
DC pass	from DC IN into SAT H lines	1.5 A max.
	between DTT ports	300 mA max.
Operating temperature range		-20° ÷ + 50° C
Dimensions/Weight (packed)		135x135x30 mm/0.44 kg

* system frequency range of the set with MCA101x

An example of active splitter installation



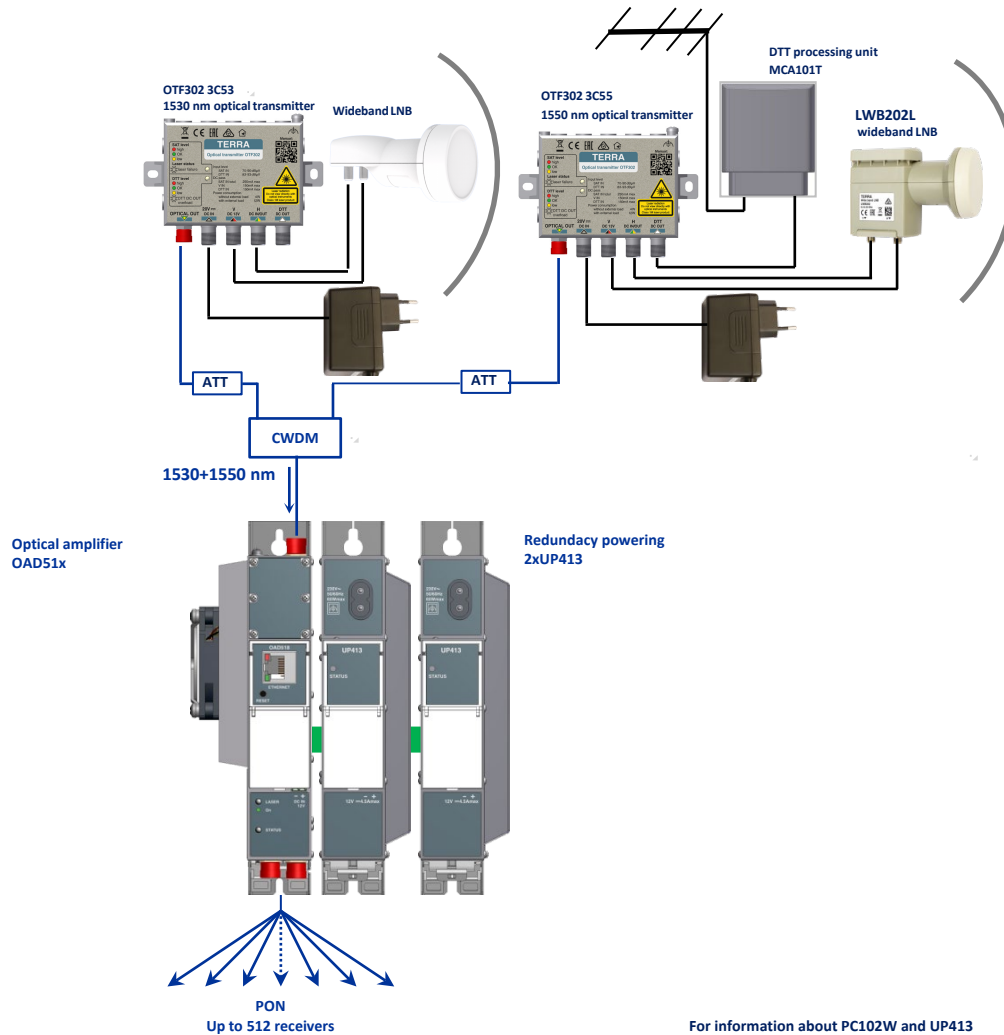
Optical amplifiers

- C-band booster amplification
- low noise, high output, high reliability
- Web interface and SNMP monitoring
- automatic shutdown on low input
- easy changeable integrated fan
- DIN rail or wall mounting
- robust die-cast housing
- FC/UPC optical connectors



Technical specifications		OAD514 E	OAD518 E
T Y P E			
Operating wavelength		1528-1564 nm	
Input power		-3... +10 dBm	
Number of outputs		4	8
Power per output		13 dBm	10 dBm
Noise figure		5 dB max.	
Status indication		LAN & LED	
Supply voltage		12 V ± 1 V	
Power consumption		15 W max.	
Operating temperature range		10 ÷ + 35 °C	
Dimensions/Weight (packed)		65x198x124.5 mm/1.64 kg	65x198x124.5 mm/1.7 kg

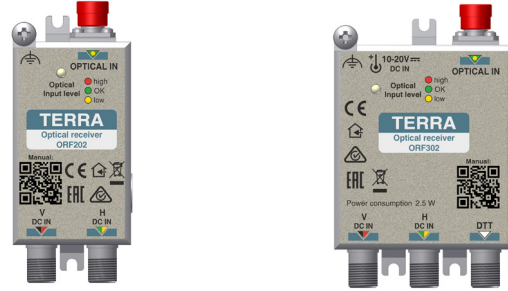
Installation example of large 2 SAT and DTT distribution network



Receiving equipment

Wideband receivers

- compact optical receivers with 2 wideband and DTT outputs
- suitable for operation with **OTF30x** optical transmitters
- built-in AGC system based on optical signal level
- powered via SAT IF outputs or from external PS
- robust die-cast housing
FC/UPC optical connector
DC IN - 3.5/1.3 mm DC jack (ORF302 only)



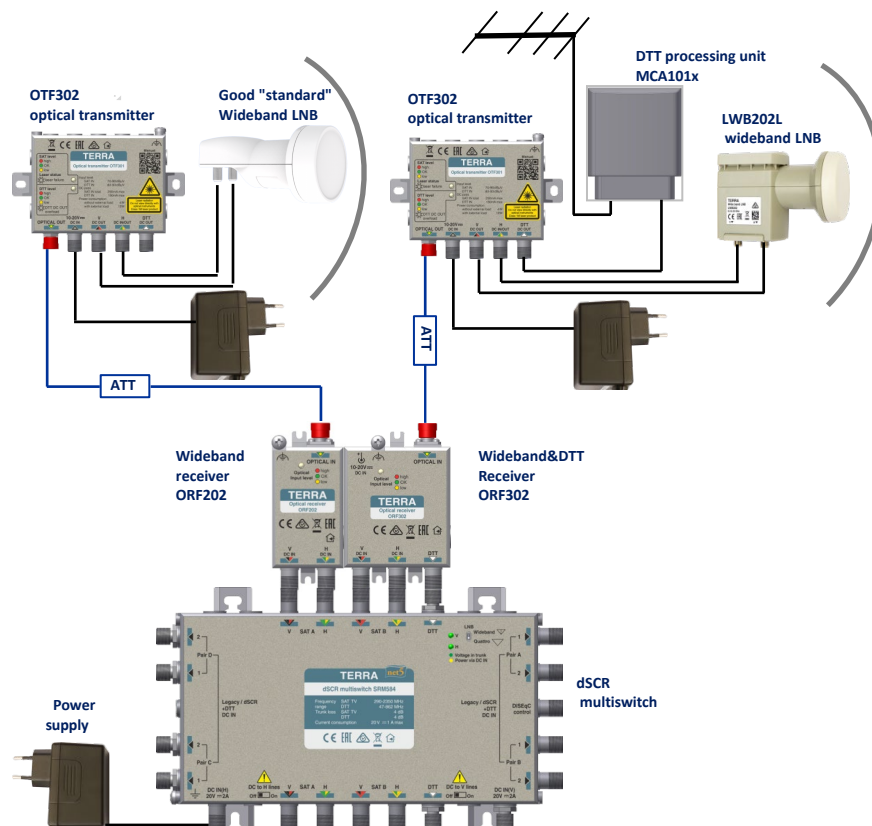
Technical specifications

T Y P E		ORF202*	ORF302*
Optical input			
Detection wavelength range		1100 - 1650 nm	
Input level (OLC range)**		-15 ÷ -5 dBm	
RF outputs			
Frequency range	wideband	2 x (290-2350 MHz)	
	DTT	-	87.5-240 & 470-790 MHz
SAT IF output level		75 dBμV	
DTT output level		-	75 dBμV
General			
Return loss / impedance		> 10 dB / 75 Ω	
Supply voltage	DC input	-	10-20 V
	wideband outputs	-	10-20 V
Power consumption		2.0 W	2.5 W
Operating temperature range		-20 °C ÷ + 50 °C	
Dimensions/Weight (packed)		40x93x23 mm/0.15 kg	60x93x23 mm/0.2 kg

* versions with higher output level (90 dBμV) ORF202H and ORF302H, could be supplied under special request

** the system performance depends on optical level

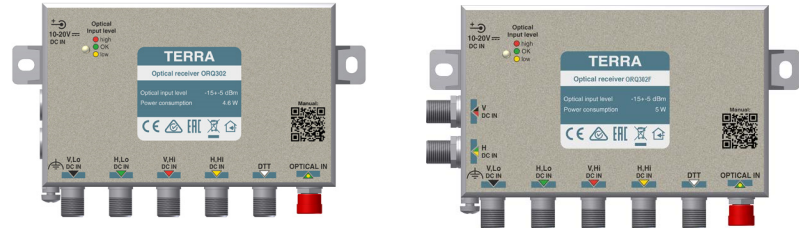
An example of 2 SAT and DTT content distribution via a dSCR multiswitch



Receiving equipment

Quattro receivers

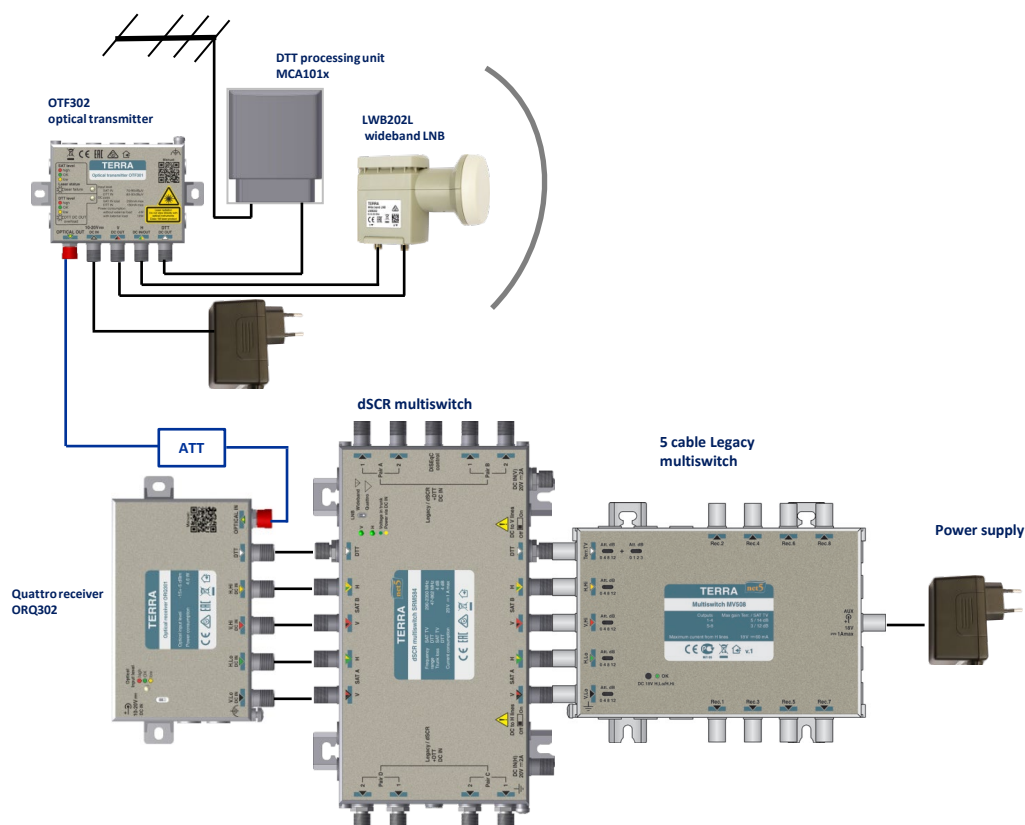
- compact optical receivers with 2 wideband, quattro and DTT outputs
- compatible with OTF302 optical transmitter
- built-in AGC system based on optical signal level
- powered via RF outputs or from external PS
- robust die-cast housing
optical connector FC/UPC
DC IN - 3.5/1.3 mm DC jack



Technical specifications		ORQ202*	ORQ202F*	ORQ302*	ORQ302F*
TYPE					
Optical input					
Detection wavelength range		1100 - 1650 nm			
Input level (OLC range)**		-15 ÷ -5 dBm			
Wideband and quattro outputs					
Frequency range	wideband	-	2 x (290-2340 MHz)	-	2 x (290-2340 MHz)
	quattro	2 x (950-2150) & 2 x (1100-2150) MHz			
Output level	wideband	-	80 dB μ V	-	80 dB μ V
	quattro	80 dB μ V			
DTT output					
Frequency range		-		87.5-240/470-790 MHz	
Output level		-		80 dB μ V	
General					
Internal IF		290-2340 MHz			
Return loss / impedance		> 10 dB / 75 Ω			
Supply voltage	DC input	10-20 V			
	wideband outputs	-	10-20 V	-	10-20 V
Power consumption		3.7 W	3.9 W	4.6 W	4.8 W
Operating temperature range		-20 °C ÷ + 50 °C			
Dimensions/Weight (packed)		147x89x26 mm/0.4 kg		149x89x26 mm/0.4 kg	

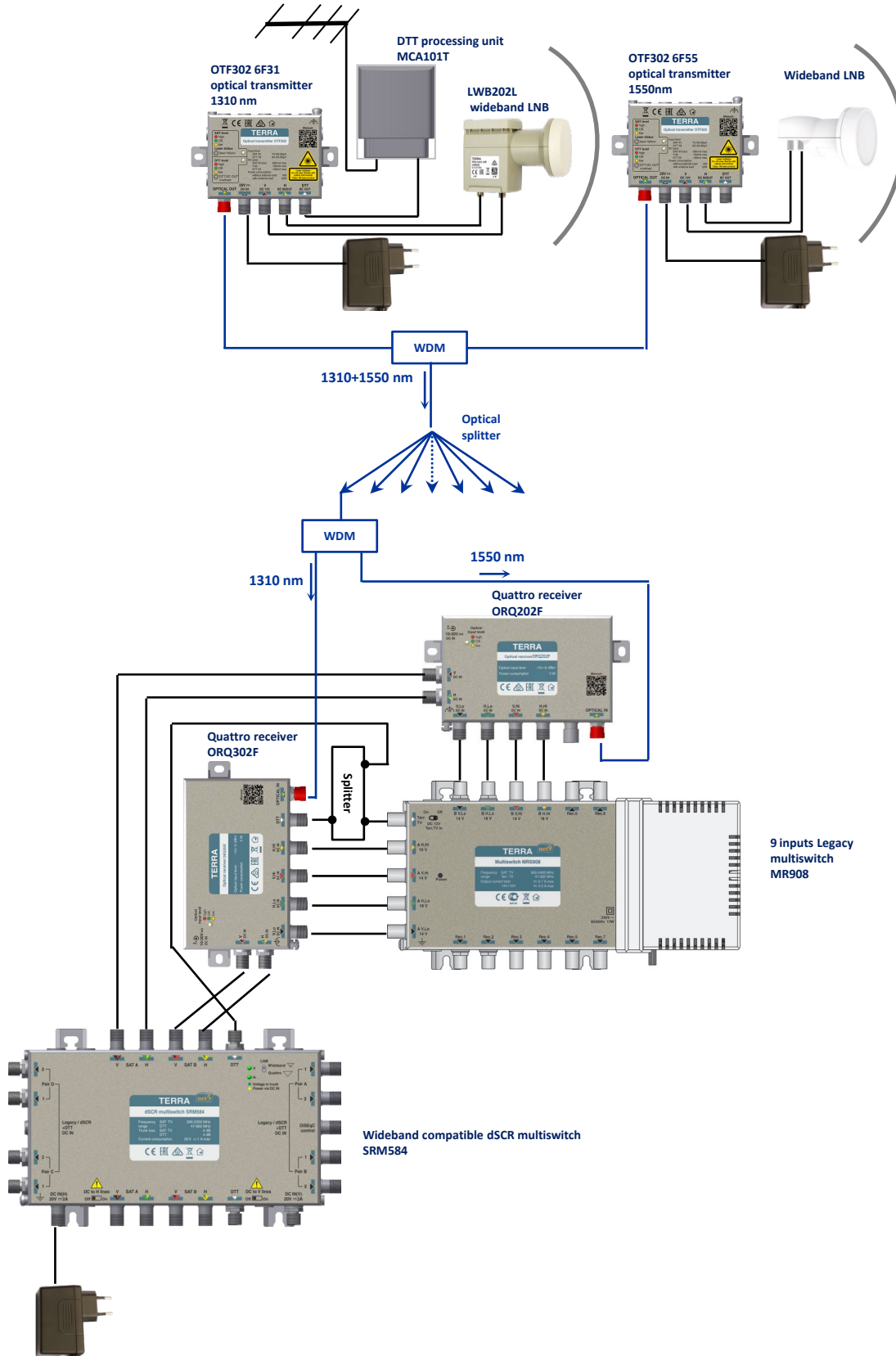
** the system performance depends on optical level

An example of quattro receiver installation



Configuration examples

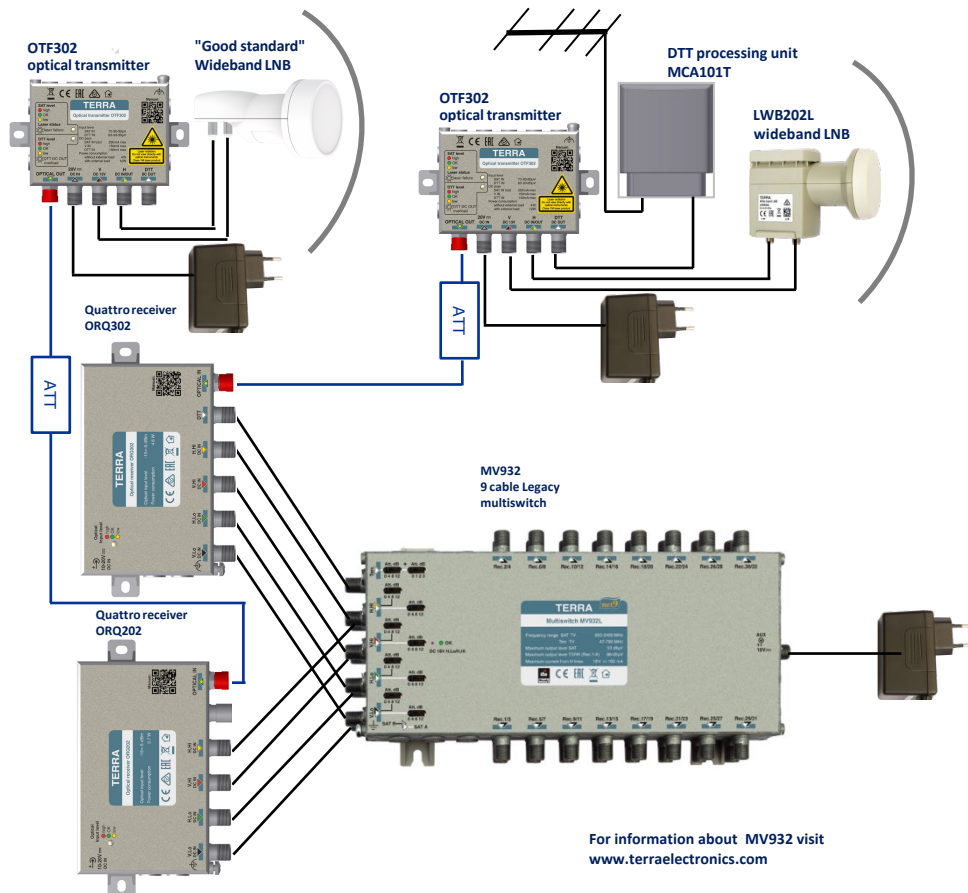
Installation example of 2 SAT and DTT content distribution to customer premises via dSCR and Legacy multiswitches.



For information about other products visit www.terraelectronics.com

Configuration examples

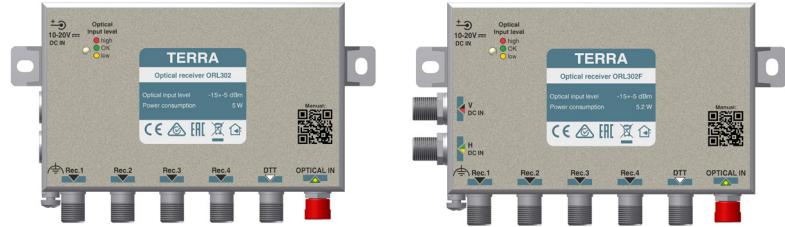
Installation example of 2 SAT and DTT content distribution to customer premises via Legacy multiswitch.



Receiving equipment

Quad receivers

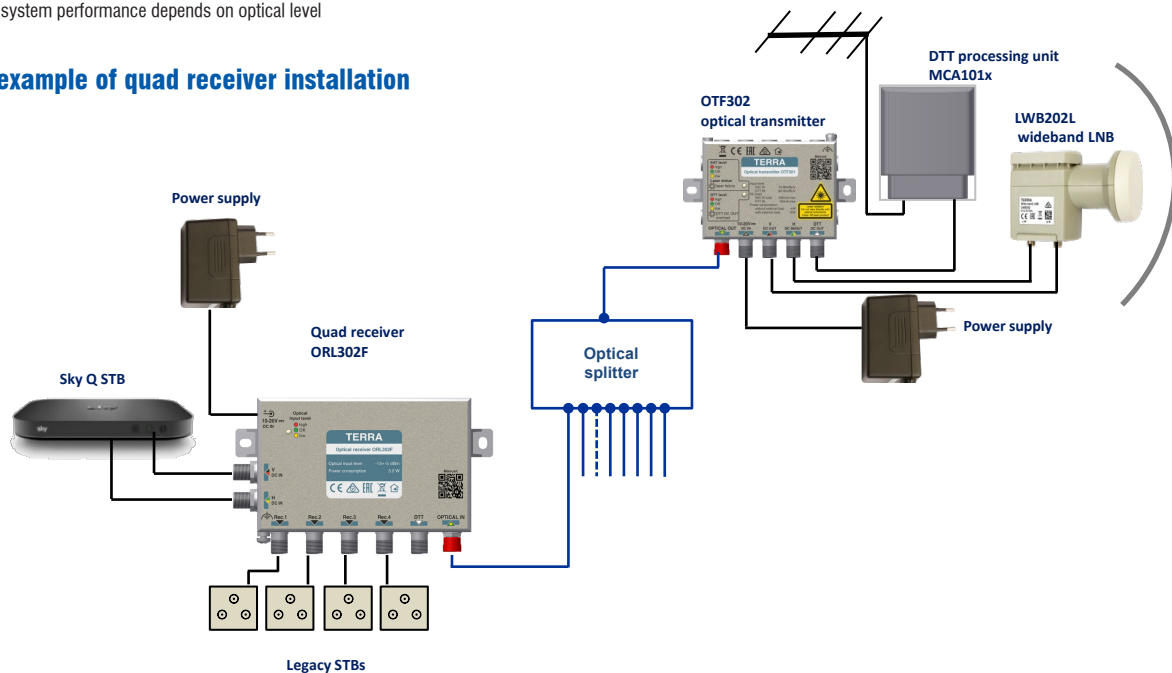
- compact optical receivers with 2 wideband, 4 legacy & DTT and separate DTT outputs
- standby mode of legacy section
- compatible with OTF30x optical transmitter
- built-in AGC system based on optical signal level
- powered via wideband outputs or from external PS
- robust die-cast housing
FC/UPC optical connector
DC IN - 3.5/1.3 mm DC jack



Technical specifications		TYPE	
		ORL302	ORL302F
Optical input			
Detection wavelength range		1100 - 1650 nm	
Input level (OLC range)*		-15 ÷ -5 dBm	
Wideband and DTT outputs			
Frequency range	SAT IF	-	2 x (290-2340 MHz)
	DTT	87.5-240 / 470-790 MHz	
Output level	SAT IF	-	75 dB μ V
	DTT	75 dB μ V	
Legacy outputs			
Numbers of outputs		4	
Frequency range	SAT IF	950-2150 MHz	
	DTT	87.5-240 / 470-790 MHz	
Output level	SAT IF	75 dB μ V	
	DTT	75 dB μ V	
Control commands		13 V / 18 V, 0 / 22 kHz	
General			
Internal IF		290-2340 MHz	
Return loss / impedance		> 10 dB / 75 Ω	
Supply voltage	DC input	10-20 V	
	wideband outputs	-	10-20 V
Power consumption	total	5.0 W	5.2 W
	legacy standby	2.5 W	2.7 W
Current consumption from legacy receiver		max. 60 mA	
Operating temperature range		-20 °C ÷ + 50 °C	
Dimensions/Weight (packed)		147x89x26 mm/0.4 kg	149x89x26 mm/0.4 kg

* the system performance depends on optical level

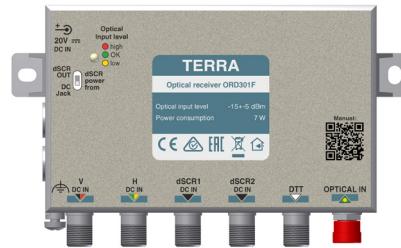
An example of quad receiver installation



Receiving equipment

dSCR receivers

- compact optical receiver with 2 wideband, 2 dSCR / legacy & DTT and separate DTT outputs
- compatible with **OTF30x** optical transmitter
- built-in AGC system based on optical signal level
- powered via RF outputs or from external PS
- selectable powering mode of dSCR section
- control according legacy/EN50494/EN50607
- configurable with programmer PC102W see www.terraelectronics.com
- robust die-cast housing
FC/UPC input optical connector
DC IN - 3.5/1.3 mm DC jack

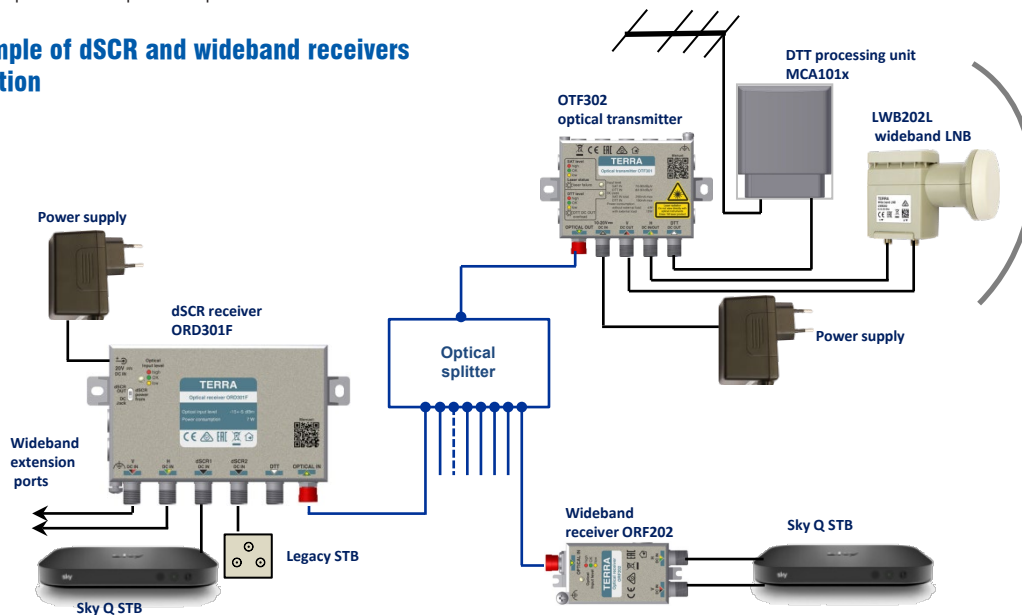


Technical specifications

T Y P E		ORD301F
Optical input		
Detection wavelength range		1100 - 1650 nm
Input level (OLC range)*		-15 ÷ -5 dBm
Wideband and DTT outputs		
SAT IF frequency range		2 x (290-2350 MHz)
DTT frequency range		87.5-240 / 470-790 MHz
Output level		75 dB μ V
dSCR outputs		
SAT IF frequency range		950-2150 MHz
User bands		32 max. per pair outputs, configurable
User band bandwidth		20-60 MHz, configurable
Control commands		EN50494 / EN50607 (SCR/dSCR), Legacy (13 V / 18V, 0 / 22 kHz)
Output level	dSCR mode	76 dB μ V
	legacy mode	70 dB μ V
DTT frequency range		87.5-240 / 470-790 MHz
DTT output level		75 dB μ V
General		
Return loss / impedance		> 10 dB / 75 Ω
Supply voltage	DC input	20 V
	dSCR outputs	13-18 V
	wideband outputs	10-20 V
Power consumption		7 W
Operating temperature range		-20 °C ÷ + 50 °C
Dimensions/Weight (packed)		147x89x26 mm/0.4 kg

* the system performance depends on optical level

An example of dSCR and wideband receivers installation



Remote access

- remote access to OTF302 by PC102W programmer, see www.terraelectronics.com
- store and upload up to 4 users selectable configurations
- no PC required for configuration uploading
- free PC application software for creating new configurations
- Web & remote control through Wi-Fi access
- LED status indicator
- connectors:
 - RF ports & DC input - type F
 - PC connection - micro USB



Technical specifications	
T Y P E	PC102W
Frequency range	DC+22 kHz, 47-2400 MHz
RF through loss	< 1.5 dB
Multiswitch powering/control	14/18 V & 600 mA max. EN50494/EN50607/DiSEqC 2.0
Supply voltage	18 - 20 V
Current consumption	5 V 200 mA (from USB port) 20 V 50 mA* (from power supply)
Operating temperature range	0° ÷ + 50° C
Dimensions/Weight (packed)	133x73x39 mm/0.36 kg

CONF. #1 | device | Save | Set | Get | Export | Import | Multisw. upgrade

Configuration

dSCR model: OTF302 | Satellite: A | Set

OTF Settings: OMI factor: 1.0 (Ch 54..68)

MCA settings: UHF channels number: 16

Increase OMI → 1.3, 1.2, 1.1
 Nominal OMI for satellite with 60 transponders per polarity → 1.0 (Ch 54..68)
 Decrease OMI → 0.9 (Ch 43..53), 0.8 (Ch 34..42), 0.7 (Ch 27..33), 0.6 (Ch 21..26), 0.5 (Ch 17..20), 0.4 (Ch 13..16), 0.3 (Ch 11..12)

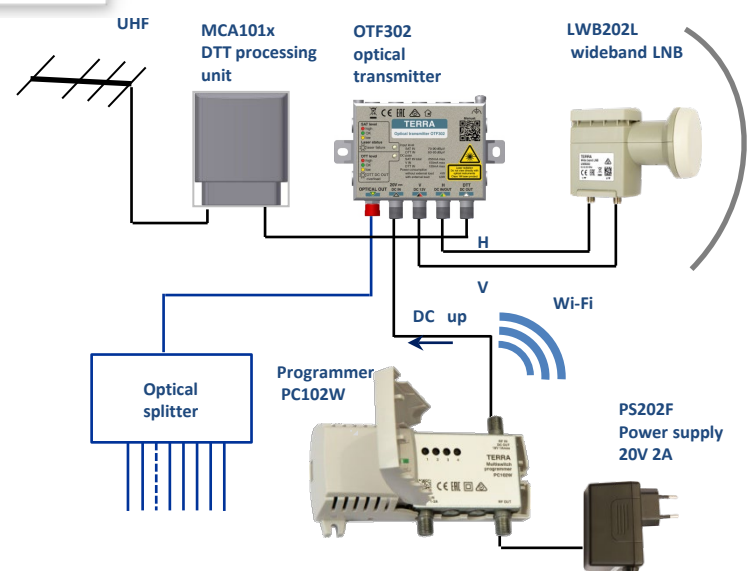
Change the number of UHF channels → UHF channels number: 16

Monitoring:

- powering voltage and current
- SAT input level and OMI
- DTT input level and number of UHF channels
- Tx laser current
- temperature

Control:

- SAT OMI
- number of UHF channels (DTT OMI)

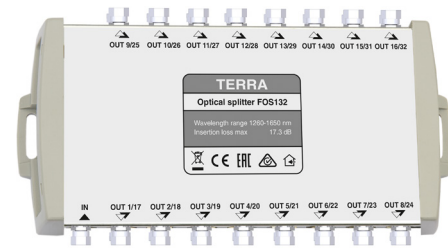
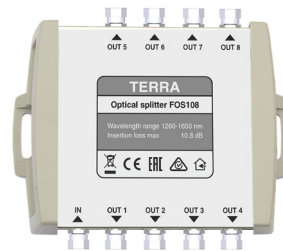


Optical splitters

- PLC optical splitters for single mode fiber application
- good mechanical stability due to metal case
- wide wavelength bandwidth
- FC/UPC connectors

FOS102
FOS104
FOS108
FOS116

FOS132



Technical specifications

T Y P E	FOS102*	FOS104*	FOS108*	FOS116*	FOS132*
Number of outputs	2	4	8	16	32
Operating wavelength	1260-1650 nm				
Insertion loss, max.	3.9 dB	7.4 dB	10.8 dB	14.1 dB	17.3 dB
Loss uniformity, max.	0.6 dB	0.6 dB	0.8 dB	1.2 dB	1.5 dB
Return loss	> 45 dB				
PDL, max.	0.2 dB	0.2 dB	0.3 dB	0.3 dB	0.3 dB
Directivity, min.	55 dB				
Optical input power, max.	300 mW				
Operating temperature range	-20° ÷ + 50° C				
Dimensions	117x96x34 mm		117x106x34 mm	117x106x50 mm	182x106x50 mm
Weight (packed)			0.26 kg	0.30 kg	0.46 kg

Line equalizers

- for slope compensation in wideband SAT IF networks
- robust die-cast housing
- EQF041** compensates slope of 15 m of RG-6 coaxial cable
- EQF081** compensates slope of 30 m of RG-6 coaxial cable
- EQF121** compensates slope of 45 m of RG-6 coaxial cable



Technical specifications		EQF041	EQF081	EQF121
T Y P E				
Frequency range			290-2350 MHz	
Slope value		4 dB	8 dB	12 dB
Return loss / impedance			> 12 dB / 75 Ω	
Insertion loss	290 MHz	4.7 dB	10.7 dB	15.5 dB
	950 MHz	2.5 dB	5.5 dB	6.5 dB
	2150 MHz	1.3 dB	1.6 dB	1.7 dB
	2350 MHz	1.2 dB	1.3 dB	1.3 dB
DC pass			20 V 400 mA max.	
Dimensions/Weight (packed)			80x27x19 mm / 0.085 kg	

An example of line equalizers installation

