SRY Compact Fibre System Summary

An optical transmit and receive RF over fibre system, with options to cover 500 to 3150 MHz, for links up to 10km.

The ODU is built in a compact and ruggedised EMC sealed housing and the IDU can either be a standard 19" rack mount chassis or also in an ODU housing making for an overall more ruggedised compact solution. The fibre system consists of up to 6 transmission paths. These can be a combination of uplinks, downlinks, 10MHz or Ethernet, with a variety of connector options and configurations, (Please see the table on page 3 for more details). IP65 rated DC PSUs for the Outdoor unit can be supplied as can optical cross site cables.

Indoor

Wide range of frequencies
For uplink and downlink

Variable gain
on Rx and Tx modules for enhanced signal control

IDU M&C
Via dual RJ45 connectors

10MHz reference
Signal input for up & downlinks via external input or multiplexed with L-band input

Outdoor

IP65 rated
Weatherproof housing

LNB powering
13/18V, 500mA, 22KHz (LNB)

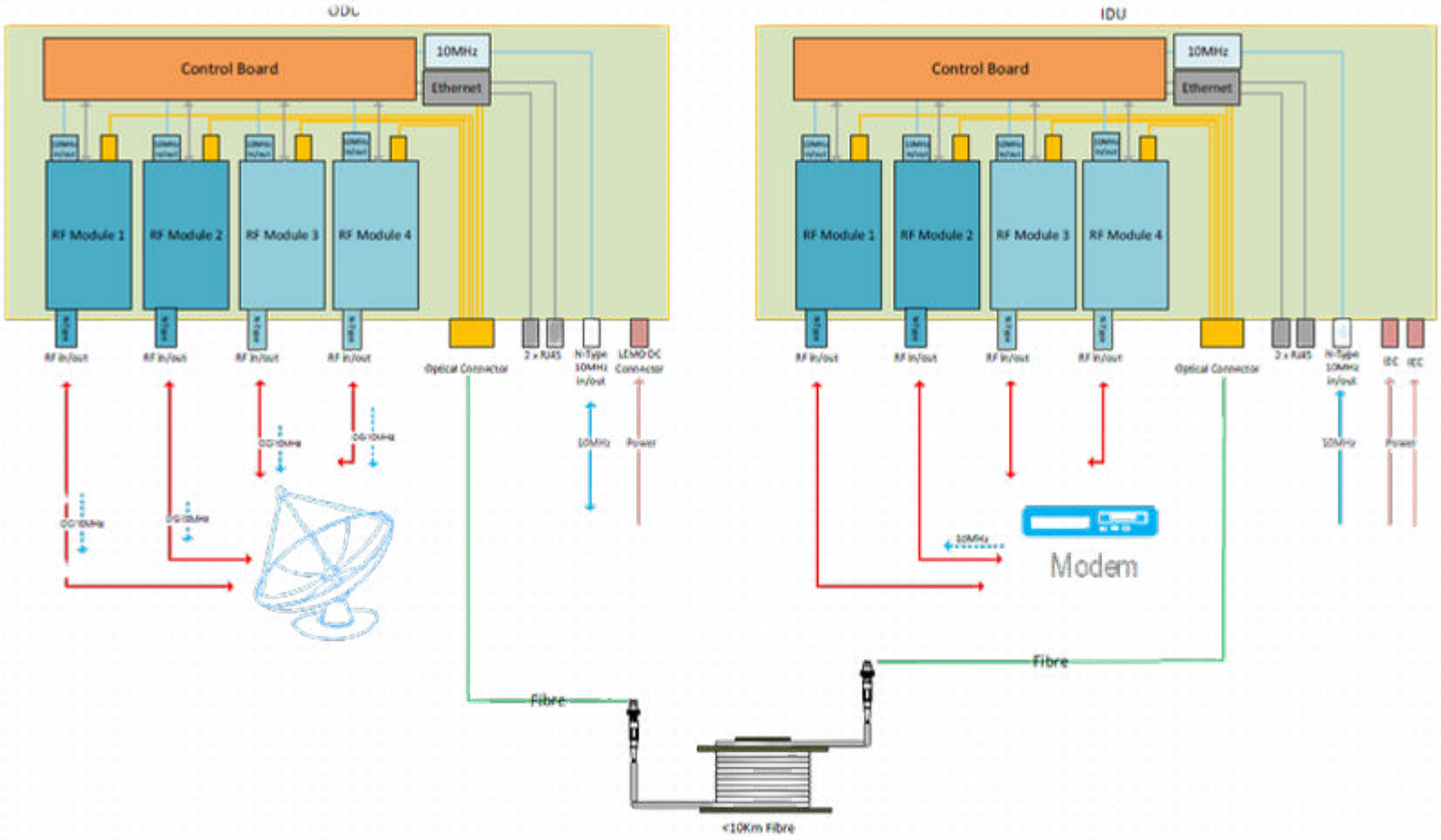
10MHz reference
output for supply to other equipment

Local/remote M&C
via optical Ethernet link or dual RJ45 connector

SRY-xTxR-90xx-yyzz &
SRY-xTxR-95xx-yyzz

DATASHEET

System Schematic



System Schematic

RF channel config. options (Covering 500MHz to 3150MHz)
Single Rx or Single Tx
Dual Rx or Dual Tx
Quad Rx or Quad Tx
Single Rx and Dual Tx
Dual Rx and Single Tx
Dual Rx and Dual Tx
3x Rx
3x Tx

Other options
Optical Ethernet
LNB powering
Optical 10MHz
10MHz ref. output
CWDM mux (only available with IS connector)
Dual DC input (ODU only)
Optical cross-site cables
IP65 rated DC PSU for ODU

RF connectors
N-type (50 Ohm) - N5
SMA (50 Ohm) - S5

Optical connectors
SC/APC - SA (IDU only)
Expanded Beam Mini - EBM
Senko IP SC/APC - IS (ODU only)
Neutrik Quad - NQ

System Schematic

Model number	No. L-band Tx modules	No. L-band Rx modules	Frequency (MHz)	10MHz module	IDU or ODU	Optical Ethernet	CWDM MUX	DC inputs	RJ45 ports
SRY-4T0R-9005-xxIS	4	0	850-2450MHz	Rx	ODU	Y	Y	1	2
SRY-0T4R-9505-xxSA	0	4	850-2450MHz	Tx	IDU	Y	Y	N/A	2
SRY-0T4R-9006-xxIS	0	4	850-2450MHz	Rx	ODU	Y	Y	1	2
SRY-4T0R-9506-xxSA	4	0	850-2450MHz	Tx	IDU	Y	Y	N/A	2
SRY-1T1R-9010-xxxx	1	1	850-2450MHz	Rx	ODU	Y	N	1	2
SRY-1T1R-9510-xxxx	1	1	850-2450MHz	Tx	IDU	Y	N	N/A	2
SRY-1T1R-9011-xxxx	1	1	850-2450MHz	Tx	ODU	Y	N	1	2
SRY-2T2R-9012-xxIS	2	2	500-3150MHz	Rx	ODU	Y	Y	1	2
SRY-2T2R-9512-xxSA	2	2	500-3150MHz	Tx	IDU	Y	Y	N/A	2
SRY-2T2R-9013-xxIS	2	2	850-2450MHz	Tx	ODU	Y	Y	1	2
SRY-2T2R-9513-xxSA	2	2	850-2450MHz	Rx	IDU	Y	Y	N/A	2
SRY-2T1R-9018-xxxx	2	1	850-2450MHz	Rx	ODU	N	N	1	2
SRY-1T2R-9518-xxxx	1	2	850-2450MHz	Tx	IDU	N	N	N/A	2
SRY-4T0R-9019-xxIS	4	0	500-3150MHz	Rx	ODU	Y	Y	1	2
SRY-0T4R-9519-xxSA	0	4	500-3150MHz	Tx	IDU	Y	Y	N/A	2
SRY-0T4R-9020-xxIS	0	4	500-3150MHz	Rx	ODU	Y	Y	1	2
SRY-4T0R-9520-xxSA	4	0	500-3150MHz	Tx	IDU	Y	Y	N/A	2

The above list is not exhaustive. Please enquire with ETL for other configurations not listed.

RF Parameters		
Link Parameters		
Frequency Range		500 to 3150MHz (Extended L-band)
Optical Wavelength		1310nm ± 10nm (some models have CWDM wavelengths)
Gain Setting Modes		Manual gain control (MGC) Automatic gain control (AGC) Fixed gain (FG)
Manual Gain Setting Range		50 dB in 0.5 dB steps (Max Gain: 1m fibre, -50dBm RF i/p power Min Gain: 1m fibre, -10dBm RF i/p power)
Output AGC Flatness		±2.0 dB over full band (input -10 to -40dBm)
Gain Stability over Temperature		±1.0 (tbc - over operating temperature in AGC mode)
Gain Flatness (1m fibre. Input -10 dBm, output -10 dBm)	Full band	±2.0 dB
	850-2150MHz	±1.5 dB
	Any 36MHz	±0.25 dB
Group Delay Variation	Full band	<2ns
	Any 36MHz	<0.5ns
NF (max. gain, tested over 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power)	Typ.	25 dB
	Worst Case	27 dB
NF (max. input power, tested over 1m fibre, -10 dBm RF i/p power, -10 dBm o/p power. 0 dB gain)	Typ.	25 dB
	Worst Case	27 dB
SFDR (Test condition: 1m fibre, -23 dBm tones, 10 dB gain, -10 dBm RF o/p total power.)	850 - 2150MHz	Typ. 107 dB/Hz2/3, min. 102 dB/Hz2/3
	500 - 3150MHz	Typ. 103 dB/Hz/2/3, min. 98 dB/Hz2/3
CNR (in any 36MHz) (Test condition: 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power.)	Typ.	-50 dB
	Worst Case	-45 dB
OIP3 (Test condition: 1m fibre, -23 dBm tones, 10 dB gain, -10 dBm RF o/p total power.)	850 - 2150MHz	Typ. 23 dBm, min. 20 dBm
	500 - 3150MHz	Typ. 18 dBm, min. 15 dBm
Spurious (Test condition: 1m fibre, -20 dBm input tone, 10 dB gain, -10 dBm RF o/p total power.)		<60 dBc

RF Parameters			
Tx Parameters			
RF Tx Input Power Range		Input: -60 to -10 dBm (Total Power) Operational i/p range	Can be used up to 0dBm with limited performance
Max. RF Input		16d dBm total power	Damage level, NOT operational
RF Input P1dB		3 dBm min.	Link set for -10dBm input, 10dB gain
RF Input Return Loss		18 dB typ., 14 dB min.	50 ohm SMA/ N-Type female
10MHz Output Level		-10 dBm to 5 dBm	At RF input port
Rx Parameters			
RF Rx Output Power Range		Output: -30dBm to -10dBm (Total Power)	o/p range under all i/p conditions
RF Output Return Loss		18 dB typ., 14 dB min.	50 ohm SMA/ N-Type female
10MHz Output Level		-10 dBm to 5 dBm	At RF output port
10MHz Parameters			
Output Power		-10dBm to 0dBm	Operational input range
Phase Noise		Typ.	Max.
	@10Hz	-140 dBc/Hz	-120 dBc/Hz
	@100Hz	-147 dBc/Hz	-140 dBc/Hz
	@1kHz	-150 dBc/Hz	-145 dBc/Hz
	@10kHz	-150 dBc/Hz	-145 dBc/Hz
	@100kHz	-150 dBc/Hz	-145 dBc/Hz
	@1MHz	-150 dBc/Hz	-145 dBc/Hz
Optical Parameters			
Optical Wavelength		1100 to 1650nm	Optimised for 1310nm and 1550nm
Optical Power In		0 to 6 dBmo	Condition for specified performance, max. input 10 dBmo
Optical Power Out		4.5 dBm	
Optical Connectors		Neutrik Quad (APC) or Expanded Beam Mini, both 4 channel bulkhead or Senko IP-SC (APC) connectors or SC/APC. See optical connectors on page above.	Single mode fibre

Non-RF Parameters		
	ODU	IDU
Power Input	11 to 25V DC	100-240VAC, 50/60Hz. Fused 2A, single IEC
Power Consumption	<100W (all channels fitted, including LBC powering)	<100W (all channels fitted, total AC)
MTBF	>200,000 hours (module MTBF)	
LNB Power	13/18V, 500 mA (Tx only)	
Control, Monitoring & Alarms		
Control	Remote control & monitor via Ethernet. 10/100Base T. TCP/IP, SNMP, web browser	
Temperature Monitors	All modules independently monitored and reported.	
Monitoring	Optical input power - in each Rx channel Optical output power - in each Tx channel Power supply rails RF output power - in each Tx channel RF input power - in each Rx channel	
AGC/Manual Gain	Settable output power level - once AGC level set, gain can be fixed	
Environmental		
Operating Temperature	-40°C to +60°C	0°C to +50°C
StorageTemperature	-55°C to +85°C	-20°C to +75°C
Location	Outdoor	Indoor
Humidity	20 - 90% non-condensing, relative humidity	
Altitude	10,000ft AMSL operational 30,000ft AMSL storage/transport	
IP Rating	IP65	-
Weight	6.2kg	4.2kg
Dimensions	330 x 237 x 54mm (L x W x H)	300mm x 19" x 1U (L x W x H)
Colour	White	

Note 1: 10MHz Phase Noise values may increase above 0dBm output level.
Note 2: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.
Note 3: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.