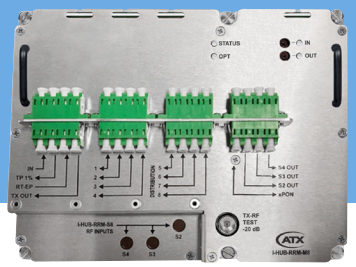
I-HUB



RFoG Repeater Module (RRM):

Applications:

- OBI-free RFoG with or without PON overlay
- Hub collapse/consolidation

Features:

- Scalable solution for 8, 16, 24 or 32 outputs
- Uses express port to combine upstream & downstream on a single fiber, or user can remove the optical jumper to do separate fibers
- Compatible with any downstream transmitter & analog upstream receiver

ATX's RFoG repeater module (RRM) is an addition to the outdoor hardened I-HUB platform. It is a highly integrated module that contains all downstream & upstream RFoG repeater functionality. It also supports xPON OLT insertion.

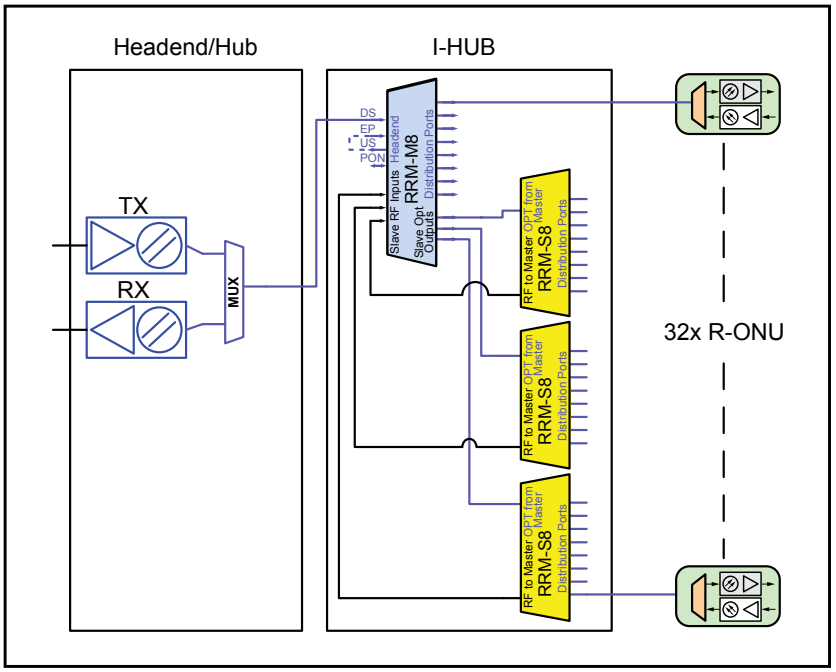
The RRM eliminates OBI in the upstream.

It is a cost & power-effective scalable solution that offers either a fixed 8-port module or a master/slave configuration. The master module has eight direct optical outputs, but also optional connections to up to three slaves modules that can be added or removed at any time. Each slave module supports another eight outputs for a total full population of 32 outputs. This can be 32 ONUs with no OBI, or add optical passives on outputs to support more ONUs.

RRM-M8 Master Module (front view)

RRM-S8 Slave Module (front view)

Functional Schematic



RFoG Repeater Module (RRM):

RFoG Repeater Module Specifications

SPECIFICATIONS		RRM-M8, MASTER
OPTICAL INTERFACES	CONNECTOR	LC/APC
IN PORT	OPERATING WAVELENGTH	1260-1620nm
	RFoG DOWNSTREAM WAVELENGTH(1)	1550-1560nm (ITU Channel 21-34)
	RFoG DOWNSTREAM INPUT LEVEL	-6 to +10 dBm
TP 1%	TEST POINT	1% of Optical Applied to IN Port (dB)
RT-EP (Return Expansion Port)(2)	OPERATING WAVELENGTH	1260-1620nm
	INSERTION LOSS RT-EP TO IN PORT	0.5 dB
TX OUT	DWDM OUTPUT POWER	+7 .25 ± 0.25 dBm
	DWDM WAVELENGTH	1530-1562nm (ITU Channel 20-59)
	CWDM OUTPUT POWER	+7 .25 ± 0.25 dBm
	CWDM WAVELENGTH	1310nm, 1430-1610nm
DISTRIBUTION PORTS 1-8	DOWNSTREAM(1)	1550-1560nm (ITU Channel 21-34)
	DOWNSTREAM OUTPUT POWER	0 ± 0.5 dBm
	UPSTREAM WAVELENGTH	1611 ± 10nm
	UPSTREAM OPTICAL INPUT POWER	-3 to +3 dBm
	EIN	5-7 pA/√Hz
	PORT-TO-PORT ISOLATION	> 50 dB
xPON (PON OLT Interface Port)	OPERATING WAVELENGTH	1260-1360nm, 1480-1500nm, 1575-1580nm
	INSERTION LOSS xPON PORT TO RFoG PORTS 1-8	< 18 dB
S2, S3, S4 OUT (Downstream to Slave Module)	RFoG DOWNSTREAM WAVELENGTH(1)	1550-1560nm (ITU Channel 21-34)
	OUTPUT POWER	10-10.5 dBm
RF INTERFACES		
S2, S3, S4 (Slave Module Return Input Ports)	PASSBAND	5-85 MHz
	RF INPUT LEVEL RANGE AT TP(3)	TBD (dBmV)
RF PARAMETER		
ATTENUATOR RANGE(4)		0-31.5 dB in 0.5 dB Steps
PERFORMANCE		
NPR		TBD (dB)
DYNAMIC RANGE		10 dB
MANAGEMENT		
LOCAL		Hand-held Display, CLI, GUI
REMOTE		SNMP v2c, Web GUI, Telnet
ELECTRICAL & OPERATIONAL		
POWER CONSUMPTION		12W Master, 6.75W Slave
OPERATING TEMPERATURE		-40ºC to +65ºC (-40ºF to +149ºF)
STORAGE TEMPERATURE		-40ºC to +85ºC (-40ºF to +185ºF)
DIMENSIONS		I-HUB Housing Three-slot Module 5.8”H x 7.6”W x 2.1”D (14.7H x 19.3W x 5.3D cm)
WEIGHT		2.0 lbs (0.91 kg)

NOTES:

(1) Suggested for PON compatibility.

(2) Unit ships with fiber jumper connecting upstream transmitter to express port. Remove jumper if using separate fiber for upstream.

(3) As measured at test point, for 20%OMI, could be different for different US loads.

(4) Use to adjust until test point level indicates desired OMI. See manual for further details.

RFoG Repeater Module (RRM):

RFoG Repeater Module Specifications (cont'd)

SPECIFICATIONS		RRM-S8, SLAVE
OPTICAL INTERFACES	CONNECTOR	LC/APC
IN PORT	OPERATING WAVELENGTH	1260-1620nm
	RFoG DOWNSTREAM WAVELENGTH(1)	1550-1560nm (ITU Channel 21-34)
	RFoG DOWNSTREAM INPUT LEVEL	-6 to +10 dBm
DISTRIBUTION PORTS 1-8	DOWNSTREAM(1)	1550-1560nm (ITU Channel 21-34)
	DOWNSTREAM OUTPUT POWER	0 ± 0.5 dBm
	UPSTREAM WAVELENGTH	1611 ± 10nm
	UPSTREAM OPTICAL INPUT POWER	-3 to +3 dBm
	EIN	5-7 pA/√Hz
	PORT-TO-PORT ISOLATION	> 50 dB
RF UPSTREAM OUTPUT TO MASTER(2)		
PASSBAND		5-85 MHz
RF INPUT LEVEL RANGE AT TP		TBD (dBmV)
ATTENUATOR RANGE		0-31.5 dB in 0.5 dB Steps
NPR PERFORMANCE		TBD (dB)
ELECTRICAL & OPERATIONAL		
POWER CONSUMPTION		6.75W
OPERATING TEMPERATURE(3)		-40ºC to +65ºC (-40ºF to +149ºF)
STORAGE TEMPERATURE		-40ºC to +65ºC (-40ºF to +149ºF)
DIMENSIONS		I-HUB Housing Two-slot Module 5.8"H x 5.0"W x 2.1"D (14.7H x 12.7W x 5.3D cm)
WEIGHT		1.3 lbs (0.6 kg)

NOTES:
(1) Suggested for PON compatibility.
(2) RF jumper included with each slave module.
(3) Ambient external temperature of I-HUB housing.

Ordering Information

Part Number Format: RR-_ _ _ _ - _ - _ _ _ - _
a b c d e f g h i

ab = Base Model	c = Distribution Port U/S RX Wavelength	e = Port Options (Not Applicable for Slave Module)	f = Upstream TX Type
M8 = 8-port Master	R = 1611nm	0 = Express & PON Ports	D = DWDM
S8 = 8-port Slave	d = Distribution Port D/S Launch Power	1 = Express Port	C = CWDM
	0 = 0 dBm		gh = Channel (ITU or CWDM)
			i = Optical Connector
			L = LC/APC

Examples:

RR-M8R0-1-D24-L	8-port Master RFoG Repeater Module for I-HUB, 0 dBm Downstream, 1611nm Upstream Receivers, ITU24 Upstream Transmitter, No PON Port. Includes Optical Jumper to EP. LC/APC Connectors.
RR-S8R0-L	8-port Slave RFoG Repeater Module for I-HUB, 0 dBm Downstream, 1611nm Upstream Receiver, LC/APC Connectors.

Specifications subject to change without notice.

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