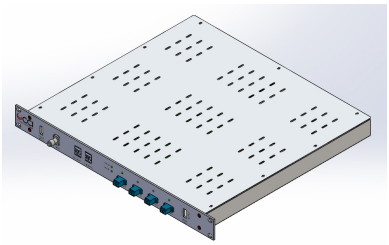
Fiberoptics

DATA SHEET

Fiber Distribution Unit

SER-FDU-xS



- Built-in RF to Fiber Converters to distribute the SXM signals for up to four tower mounted Remote Fiber Units (RFU's) for power amplification and transmission over the AT&T network.
- High Dynamic Range RF to Fiber Convewrter
- Dual Ethernet Ports for Monitoring and Control by AT&T and Monitoring for SXM
- High Linearity
- -48 VDC input power capable
- IP based Management and Control (M&C) via LAN and SNMP
- Local Alarm Output and Monitoring
- 1 RU 19" rack mountable
- Four LC/UC Fiber Outputs

Overview

The Fiber Distribution Unit (FDU) provides the means to convert the RF input signal from the SXM Dual band exciter (DBE) into optical outputs that are used to distribute the SXM transmission to multiple Remote Fiber Units (RFU's). The FDU also provides bi-directional digital fiber connections to the individual RFU's to provide remote monitoring and control and reporting of real time signal quality metrics. An Automatic Leveling Control (ALC) and signal conditioning loop adjusts the gain of the FDU to ensure the optimal RF signal level to the input RF to Fiber Converter. Up to four optical fiber outputs are provided to distribute the SXM signal to multiple Remote Fiber Units.
The FDU provides a constant communication link with the built-in ERMS modules in the RFU's. The ERMS provides health monitoring and alarming for the LB and HB SXM waveform. SXM Signal quality metrics such as RSSI, SINR, and RS Errors are reported to the FDU and can be monitored remotely. Remote Monitor and Control is supported via Ethernet/SNMP. Local Maintenance and Control functionality is supported via the front panel. A second Ethernet port and a second set of dry contact relays are provided for alarm notification and real time monitoring of signal quality metrics of each remote repeater.

Technical Description:

The CCI Fiber IP Repeater is a cost effective and easy to implement solution to provide high power distribution of the SXM LB and HB transmission over the existing AT&T network. The CCI Dual Band Fiber Repeater is specifically designed to work with the SXM Dual Band Exciter (DBE) which accepts both High Band and Low Band UDP Stream inputs.
The Fiber IP Repeater consists of a single Fiber Distribution Unit (FDU) which supports up to four Remote Fiber Units (RFU's) and contains an integrated RF to Fiber converter which converts the RF output from the DBE to four Fiber outputs that are used to distribute the SXM signals to multiple tower mounted Remote Fiber Units (RFU's). The Remote Fiber Units (RFU's) contain an integrated Fiber to RF converter and pre-amplification and power amplification for power transmission of the SXM LB and HB RF outputs over the AT&T network. The integrated WCS/SXM Diplexer eliminates the need for any other hardware on the tower or rooftop.
Remote Monitor and Control functionality of the Fiber IP Repeater is supported via Ethernet/SNMP. The NRCC can remotely access the FDU and its support peripherals. Local Maintenance and Control functionality is supported via the front panel. A second Ethernet port and a second set of dry contact relays are provided for alarm notification and to allow SXM to monitor the performance of the repeater system including real time monitoring of signal quality metrics of each remote repeater.

SPECIFICATIONS

Fiber Distribution Unit

SER-FDU-xS

Electrical

RF Parameters	Specification
Frequency Range	2324 - 2341.5 MHz
VSWR (Return Loss)	1.2:1 max. (20.8 dB min.)
Composite Input Power Nominal	0 dBm
Composite Input Power	+15 dBm maximum, -10 dBm minimum
Group Delay	1ns @ center frequency and 1 m fiber length

Optical Parameters	Specification
Optical Return Loss	45 dB min.
Optial Link Budget	0 to 10 dB
Composite Input Power Nominal	0 dBm
Composite Input Power	+15 dBm maximum, -10 dBm minimum
RF Over Fiber	**Specification**
RF Optical Wavelength	1310 nm
Optical Output Power	2 mW typical
SFDR	≥ 120 dB
Digital Over Fiber	**Specification**
Digital Wavelength	1310 nm (Tx)/1550 nm (Rx)
Communication	RS-232, RS-422, RS-485 Compliant

General Characteristics	
RF Input Impedance	50 ohms
Nominal Voltage	48 to 60 VDC
Operating Voltage	30 to 72 VDC
Power Consumption	8 W Nominal, 10 W Max.

System Supervision and Control	Description
Web Interface	Built-In (Indepndent ethernet ports for AT&T and SXM)
SNMP Interface	Built-In (Indepndent ethernet ports for AT&T and SXM)
Alarms	Summary & Configurable (separate alarm ports for AT&T and SXM)
Supervision	Composite Output Power, Input Level Thresholds, Temperature, Optical Failure, Power Supply, SXM Signal Quality Parameters, Return Loss (VSWR)
Front Panel LED	Status of each tower unit

Environmental

Operating Temperature	-40˚C to +55˚C
Ingress Protection	IP20

SPECIFICATIONS

Fiber Distribution Unit

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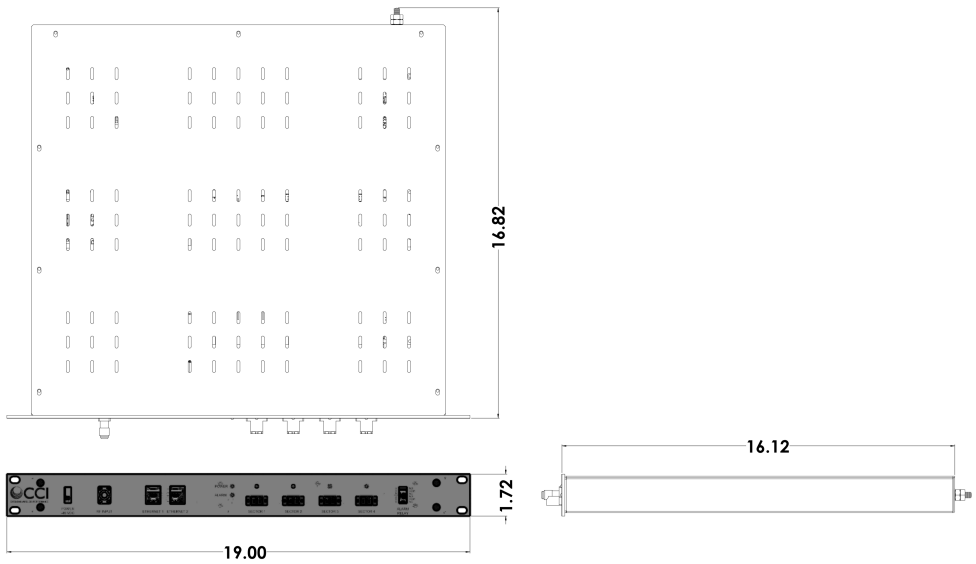
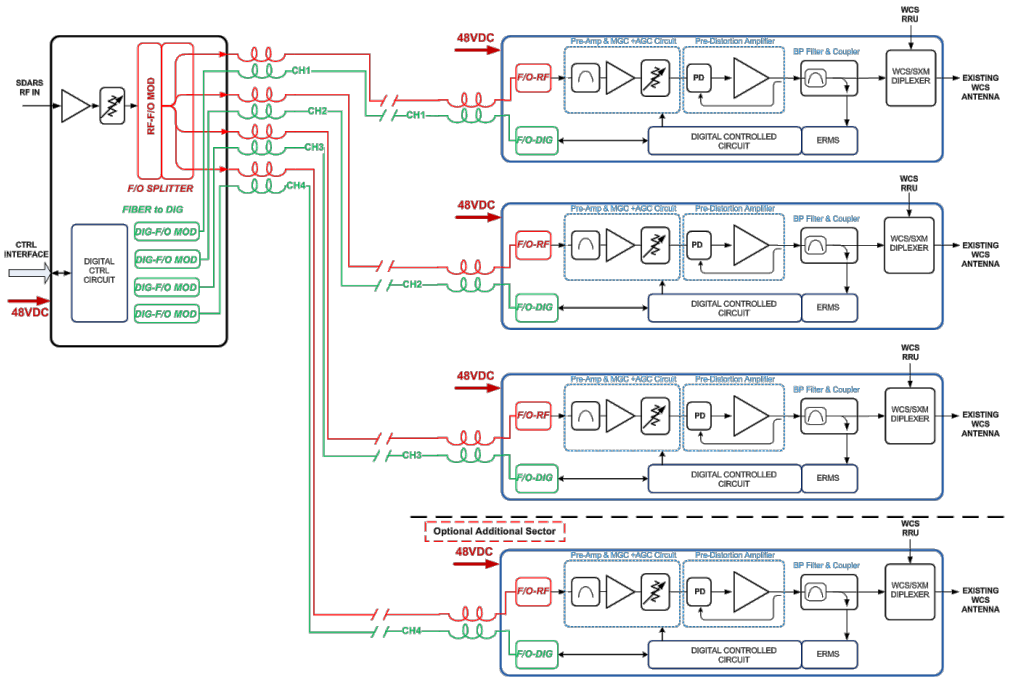
Mechanical

RF Input Connector	1 x NEX10 Female
Optical Link Connectors	4 x LC/UC Duplex
Fiber Type	Single Mode E9/125 m
Power Connector	1 x AMP SL-156 (3 pin male - 0.156 in. pitch)
Ethernet Connector	4 x RJ-45 (Dedicated ports for SXM and AT&T)
Alarm Connector	2 x Terminal Block (Dedicated contacts for SXM and AT&T)
Dimensions (w/Brackets)(H×W×D)	16.12 x 19 x 1.72 in. (409.45 x 482.6 x43.69 mm)
Rack Units	1 RU
Weight	3 lbs (1.36 kg)
Mounting	19" Rack Mount

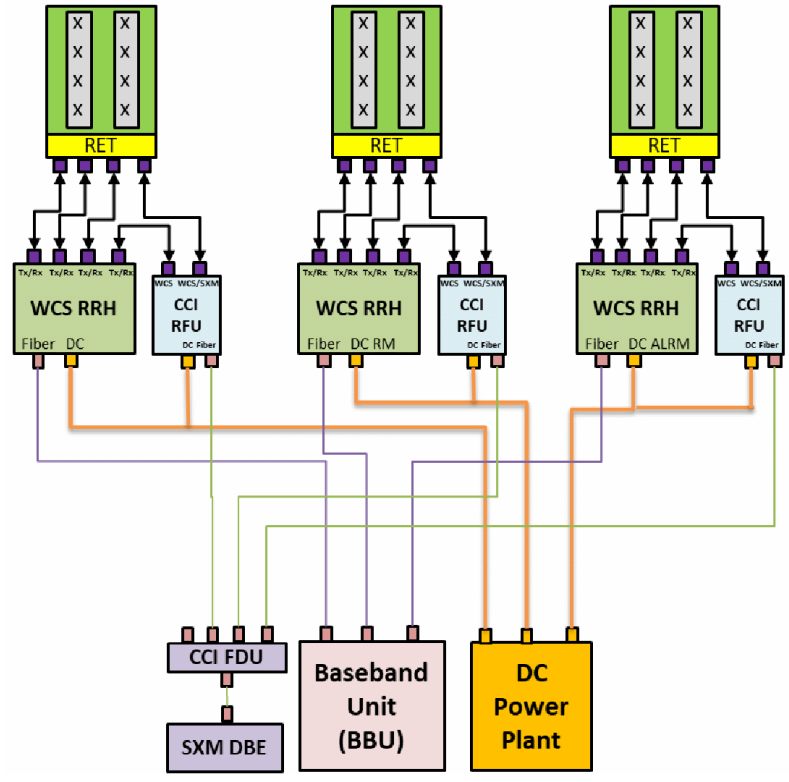


SER-FDU-xS Outline Drawing

Block Diagram

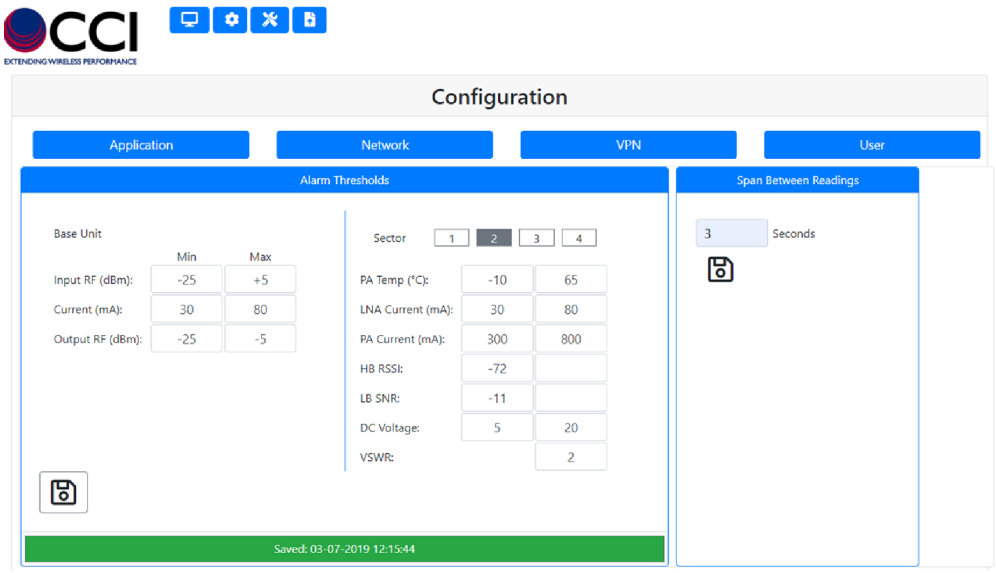


SER-FDU-xS System Block Diagram



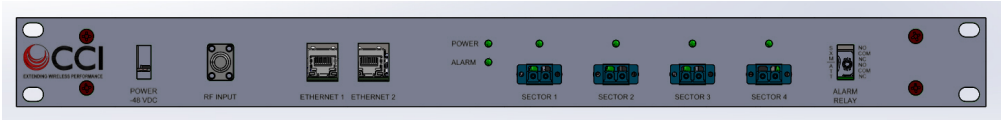
Typical 3-Sector Site Configuration

Simple Operation & Setup Interface



Extensible Alarming/Monitoring

Complete Signal Quality Metrics



SER-FDU-xS Fiber Distribution Unit Front Panel View

STANDARDS & CERTIFICATIONS

Fiber Distribution Unit

Parts & Accessories

SER-FDU-1S	Single Sector Fiber Distribution Unit (FDU)
SER-FDU-2S	Two Sector Fiber Distribution Unit (FDU)
SER-FDU-3S	Three Sector Fiber Distribution Unit (FDU)
SER-FDU-4S	Four Sector Fiber Distribution Unit (FDU)
SER-RFU-2300	Remote Fiber Unit

Standards & Compliance

Safety	UL 60950-1
Environmental	EN 60529 IP20

Certifications

ISO 9001