

data

# SHEET



## EXP — Expansion Modules for MOD HUB Series

You can attain multimedia cabling support for the MOD HUB Series of active hubs by using the EXP Series of expansion modules. Coaxial cable, twisted-pair wire, and glass fibre optic cable can all operate on the same network by selecting the appropriate expansion module.

Each expansion module accommodates from two to four ports with each port designed to support a specific cable technology. Certain expansion modules mix two cable technologies within one module, reducing costs in certain applications.

### Compatible with the baseband 2.5 Mbps ARCNET® network

- Interfaces for single-mode and multimode fibre optics
- Support for coaxial, fibre optic, and twisted-pair cabling
- Activity LEDs on each port help identify network faults
- Compatible with baseband ARCNET networks
- Work with all MOD HUB Series active hubs
- Support for bus, star or distributed star topologies
- CE Mark
- RoHS compliant



## Expansion Modules – Versatile ARCNET Support

With power off, these modules can be inserted into empty slots in any hub within the MOD HUB Series without regard for power consumption. Cabling technologies can be freely mixed for great flexibility in configuring hub, media converter and repeater applications. Expansion modules are fastened using thumb screws and can be installed in the field. Each port has an LED to indicate network activity. These units support star, distributed star and bus topologies.

### -CXS Coaxial Cabling

ARCNET is typically cabled with RG-62/u coaxial cable (with BNC connectors). RG-59/u coaxial cable can be used, but at a cost of reduced distances between a node and a hub. Overall, coaxial cable offers ruggedness, good noise immunity, low signal attenuation, low propagation delay and low cost. The coaxial star configuration provides the longest coaxial distance and simplified troubleshooting.

### -TPS Twisted-Pair Cabling

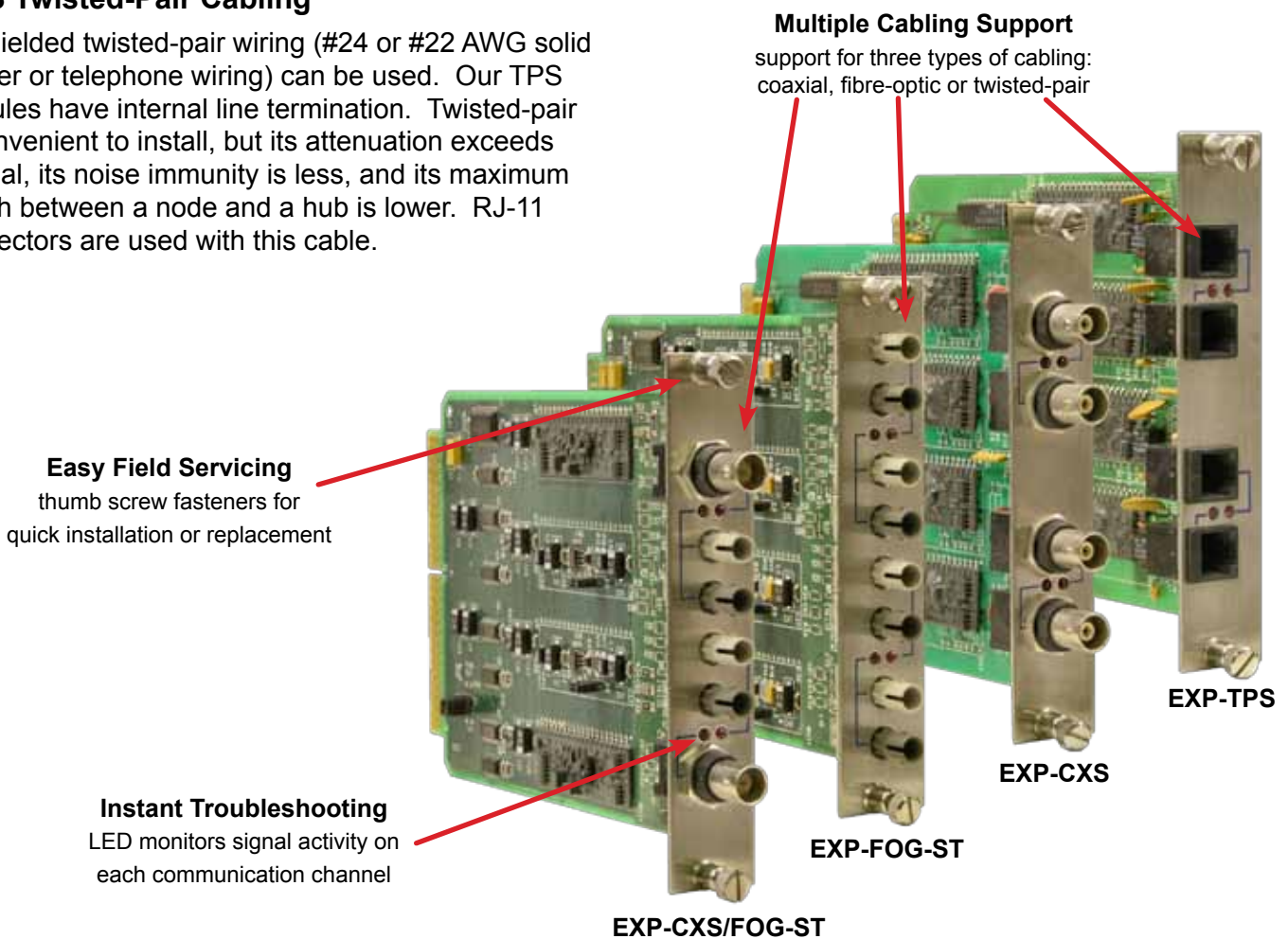
Unshielded twisted-pair wiring (#24 or #22 AWG solid copper or telephone wiring) can be used. Our TPS modules have internal line termination. Twisted-pair is convenient to install, but its attenuation exceeds coaxial, its noise immunity is less, and its maximum length between a node and a hub is lower. RJ-11 connectors are used with this cable.

### -FOG Glass Fibre Optics

Duplex glass, multimode fibre optic cable uses ST™ connectors and is available in three sizes: 50/125, 62.5/125, and 100/140. Larger core sizes launch more energy — allowing longer distances. The industry has selected 62.5/125 as the preferred size for its long distance, immunity to electrical noise, lightning protection and data security. Glass fibre optic cable is used in hazardous areas and whenever metallic connections are undesirable. The ST connector looks like a small BNC connector. The -FOG transceiver utilizes 850 nm technology.

### -FG3 1300 nm Fibre Optics

For long distances using either single-mode or multimode fibre optics, the -FG3 transceiver is used. The 1300 nm technology offers much longer distances — but at a higher cost.



## Specifications

### Environmental/Mechanical

Operating temperature	0°C to 60°C
Storage temperature	-40°C to +85°C
Relative humidity	10–95%, non-condensing

### Functional

Data rate	2.5 Mbps nominal
Compliance	ATA 878.0-1999

### Optical Power Budget (25°C)

Fibre size (Microns)	-FOG 850 nm (dB)	-FG3 1300 nm (dB)
Single-mode	N/A	13
50/125	6.6	21
62.5/125	10.4	22
100/140	15.9	N/A

### Mechanical

Each module occupies one slot in either the MODHUB-16 or the MODHUB-16F.

### Regulatory Compliance

UL 60950 Listed  
 C-UL Listed, CSA 22.2 No. 60950  
 IEC 950 classified  
 CFR 47, Part 15 Class A  
 CE Mark  
 RoHS



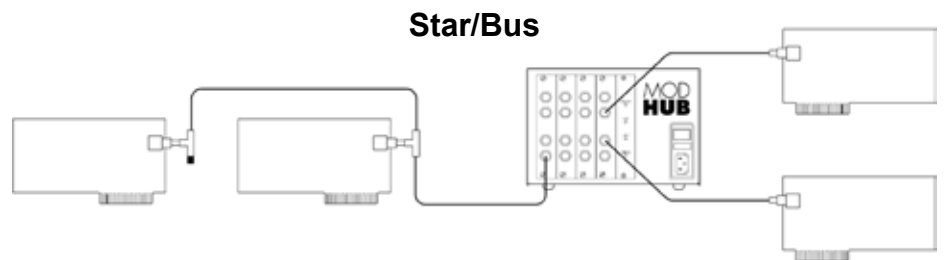
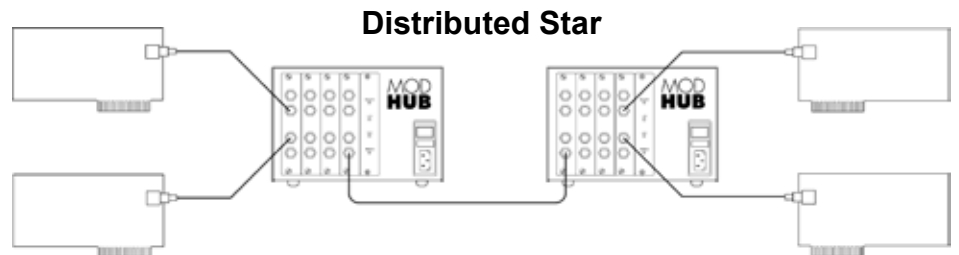
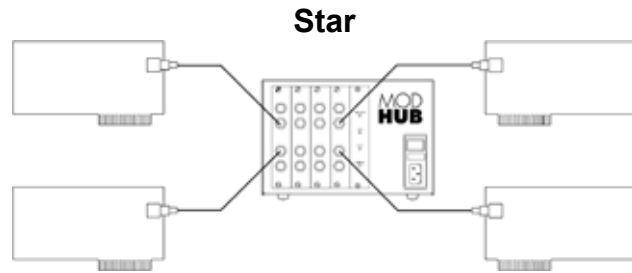
## Permissible Cable Lengths

Transceiver	Description	Cable	Connectors	Cable Length		Notes
				Min	Max	
-CXS	Coaxial star	RG-59/u	BNC	0	1500ft/457m	7.0 dB/1000 ft max
-CXS	Coaxial star	RG-62/u	BNC	0	2000ft/610m	5.5 dB/1000 ft max
-FG3	Duplex fibre optic	50/125	ST	0 <sup>1</sup>	32800ft/10000m	1.5 dB/km max
-FG3	Duplex fibre optic	62.5/125	ST	0 <sup>1</sup>	35000ft/10670m	1.5 dB/km max
-FG3	Duplex fibre optic	single-mode	ST	0	46000ft/14000m	0.5 dB/km max
-FOG	Duplex fibre optic	50/125	ST	0	3000ft/915m	4.3 dB/km max
-FOG	Duplex fibre optic	62.5/125	ST	0	6000ft/1825m	4.3 dB/km max
-FOG	Duplex fibre optic	100/140	ST	0 <sup>1</sup>	9000ft/2740m	4.0 dB/km max
-TPS	Twisted-pair star	IBM type 3	RJ-11	0	330ft/100m	uses internal termination

<sup>1</sup> May require a jumper change on the EXP module to achieve the minimum.

## Extending Bus Segments

Active hubs can be used to extend coaxial and twisted-pair bus segments. For coaxial segments, simply connect one end of the bus to a BNC port on an EXP module — without an external terminator. Do the same for twisted-pair segments — except attach to an RJ-11 port on an EXP module instead.



## Ordering Information

<b>Model</b>	<b>Description</b>
EXP-CXS	4-port coaxial star expansion module
EXP-CXS/FG3-ST	1-port coaxial and 1- port 1300 nm fibre expansion module
EXP-CXS/FOG-ST	2-port coaxial and 2-port 850 nm fibre expansion module
EXP-FOG-ST	4-port 850 nm fibre expansion module
EXP-TPS	4-port twisted-pair expansion module

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