

Channel Multiplexer | sm041

Features

- Sensing applications requiring 8,16 and up to 64 optical fibers with hundreds of static or dynamic sensors.
- ENLIGHT^{Pro} sensing analysis software makes seamless integration easy.
- Switch and coupler based multiplexers can be cascaded for up to 64 channels.

Applications

- Civil Structures/Civionics (bridges, dams, tunnels, buildings, etc.)
- Energy (wind turbines, pipelines, nuclear reactors, etc.)
- Aerospace Vehicles (composite structures, wind tunnels, dynamic tests, etc.)
- Oil & Gas (well reservoir management, platform structural health monitoring, etc.)
- Marine Vessels (hull, mast, rudder, submarine pressure tests, etc.)
- Transportation (railways, roadways, etc.)
- Homeland Security (perimeter intrusion, shipping container integrity, etc.)

Description

The Micron Optics sm041 Channel Multiplexer adds sensor and optical-fiber-connection capacity to the sm125 and sm130 Optical Sensor Interrogators.

There are two basic types of sm041. First is the switch-type (sm041-416 and -408). Robust optical switches are pre-programmed to alternate between multiple banks of sensors. This boosts capacity of the host Interrogator to up to 16 fibers and more than 2000 sensors.

The second type of sm041 Channel Multiplexer is the coupler-type (sm041-016 and -008). Coupler-type extensions provide a tidy way to connect up to four optical fibers to a single optical channel. For many applications this can greatly simplify fiber routing and sensor installation.



ENLIGHT^{Pro} is a free utility included with Micron Optics sensing interrogator systems and provides a single suite of tools for data acquisition, computation, and analysis of optical sensor networks. ENLIGHT^{Pro} combines the useful features of traditional sensor software with the specific needs of the optical sensor system, making it easy to optimize optical properties during the design and implementation phase of an optical sensor system. ENLIGHT^{Pro}'s intuitive data display and additional graphing and data visualization features make it easy to use.

Micron Optics also supplies a LabVIEWTM utility example that provides the user a path to customize the use of the additional channels provided by the switch-type extension. No special software is needed for the coupler-type sm041.

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Specifications	sm041-008	sm041-016	sm041-408	sm041-416
Optical Properties				
Number of Optical Channels	4 In / 8 Out	4 In / 16 Out	4 In / 8 Out	4 In / 16 Out
Wavelength Range	Same as Host Instrument			
Scan Frequency ¹	0.25 Hz to 2KHz			
Insertion Loss (2-way)	8 dB	16 dB	3 dB	4 dB
Optical Connectors	FC/APC			
Mechanical Properties				
Dimensions	114 mm x 234 mm x 132 mm			
Weight	1.4 kg (3 lbs.)			
Environmental Properties				
Operating Temperature	0 to 50°C			
Electrical Properties				
Input Voltage	N/A	Powered via DIN connector from host instrument		
Interfaces	N/A	Ethernet to host instrument		
Protocols	Supplied with host instrument			
Data Management				
Remote Software	Included			
LabVIEW™ Source Code	Included			
ENLIGHT ^{PRO} Compatibility	Yes			
Notes:				
1. Effective scan frequency values scale with host instrument's scan frequency. Examples: The sm041-416 uses four 1x4 optical switches. Therefore, the effective maximum scan frequency of the host device would be divided by 4. A host instrument with a 1 kHz scan frequency coupled with a sm041-416 will in effect present a maximum scan frequency of 250 Hz. A host instrument with 1 Hz scan frequency coupled with the sm041-416 will in effect present a maximum scan frequency of 0.25 Hz.				

sm041-008 (8-Channel Coupler Extension)

Contains four 1x2 couplers to accommodate connection of up to four fibers to each optical input channel from Micron Optics sm125 and sm130 Optical Sensor Interrogators. All fibers are scanned simultaneously. This type of configuration provides no net gain of wavelength range or sensor capacity; it is solely intended to provide more fiber connection flexibility.

sm041-016 (16-Channel Coupler Extension)

Contains four 1x4 couplers to accommodate connection of up to four fibers to each optical input channel from Micron Optics sm125 and sm130 Optical Sensor Interrogators. All fibers are scanned simultaneously. This type of configuration provides no net gain of wavelength range or sensor capacity; it is solely intended to provide more fiber connection flexibility.

sm041-408 (8-Channel Switch Extension)

Expands optical channel I/O from Micron Optics sm125 and sm130 Optical Sensor Interrogators to 8 channels for sensor arrays. Product pricing includes all necessary optical jumpers, custom cable connection to sm125 and sm130 for power and communication, and a LabVIEW™ example (with source code) for managing data on 8 channels.

sm041-416 (16-Channel Switch Extension)

Expands optical channel I/O from Micron Optics sm125 and sm130 Optical Sensor Interrogators to 16 channels for sensor arrays. Product pricing includes all necessary optical jumpers, custom cable connection to sm125 and sm130 for power and communication, and a LabVIEW™ example (with source code) for managing data on 16 channels.