

Channel Multiplexer | sm040

Applications

- Structures requiring hundreds or thousands of fiber-optic sensors.
- Large sensing applications requiring 8 to 16 optical fibers.

Where are Micron Optics Instruments Deployed?

- 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.)
- Research (medical devices, military armor, chemical sensing, etc.)

Description

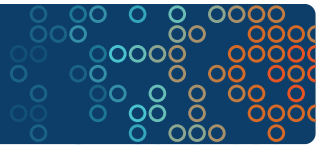
The Micron Optics sm040 Channel Multiplexer adds sensor and optical-fiber-connection capacity to the si425-500 Optical Sensor Interrogator.

There are two basic types of sm040. First is the switch-type (sm040-416 and -408). Robust optical switches can be programmed to alternate between multiple banks of sensors. This boosts capacity of the si425-500 Optical Sensor Interrogator to up to 16 fibers and more than 2000 sensors.

The second type of sm040 Channel Multiplexer is the coupler-type (sm040-016 and -008). Coupler-type extensions provide a tidy way to connect up to four optical fibers to a single optical channel on the si425-500 Optical Sensor Interrogator. For many applications this can greatly simplify fiber routing and sensor installation.



Micron Optics supplies a LabVIEW™ 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 sm040.



Specifications

| | sm040-008 | sm040-016 | sm040-408 | sm040-416 |
|---|--|---------------|----------------------------|---------------|
| Optical Properties | | | | |
| Number of Optical Channels ¹ | 4 In / 8 Out | 4 In / 16 Out | 4 In / 8 Out | 4 In / 16 Out |
| Wavelength Range | Same as si425 | | | |
| Scan Frequency ^{2,3} | 250 Hz | 250 Hz | 125Hz | 62.5 Hz |
| Optical Connectors | FC/APC | | | |
| Mechanical Properties | | | | |
| Dimensions | 45 mm x 432 mm x 330 mm | | | |
| Weight | 3.6 kg (8 lbs.) | | | |
| Environmental Properties | | | | |
| Operating Temperature | 0 to 50°C | | | |
| Electrical Properties | | | | |
| Input Voltage | N/A | | 100 VAC to 240 VAC | |
| Interfaces | N/A | | Ethernet to host si425-500 | |
| Protocols | Supplied with Micron Optics si425-500 Software | | | |
| Data Management | | | | |
| Remote Software | | | Included | |
| LabVIEW™ Source Code | | | Included | |

Notes:

- sm040-416 and sm040-408 compatible only with the si425-500
- sm040-416 uses 4 1x4 optical switches (250 Hz maximum scan rate divided by 4 = 62.5 Hz)
- sm040-408 uses 4 1x2 optical switches (250 Hz maximum scan rate divided by 2 = 125 Hz)

sm040-008 (8-Channel Coupler Extension)

Contains four 1x2 couplers to accommodate connection of up to two fibers to each optical input channel from Micron Optics si425-500. 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 options.

sm040-016 (16-Channel Coupler Extension)

Contains four 1x4 couplers to accommodate connection of up to four fibers to each optical input channel from Micron Optics si425-500. 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 options.

sm040-408 (8-Channel Switch Extension)

Expands optical channel I/O from Micron Optics si425-500 to 8 channels for sensor arrays. Product pricing includes all necessary jumpers, standard 100/220VAC or 5VDC operation, control software and Ethernet command set providing access through LabVIEW™.

sm040-416 (16-Channel Switch Extension)

Expands optical channel I/O from Micron Optics si425-500 to 16 channels for sensor arrays. Product pricing includes all necessary jumpers, standard 100/220VAC or 5VDC operation, control software and Ethernet command set providing access through LabVIEW™.