PS-FMX-I (11-4-16)

FMX Series
Fiber-Optic Multiplexers

Digitally controlled, mono- and bi-directional multiplexers for spectroscopic sample interfacing.
… Near-IR through UV

The FMX Series multiplexers allow a single spectroscopic instrument to be switched between up to sixteen different sampling devices. Now you can monitor multiple process streams with consistent calibrations or provide a single research or QC station with immediate access to multiple fiber-optic coupled sampling devices without the need to purchase, maintain, and calibrate multiple spectrometers.

INNOVATIVE HIGH PERFORMANCE DESIGN[1]

The FMX switches both the transmitted signal from the spectrometer and the signal returning to the optical detector. This bi-directional or "dual pole" capability eliminates the channel matching problems which can occur when the spectrometer output beam is spatially divided between several channels.

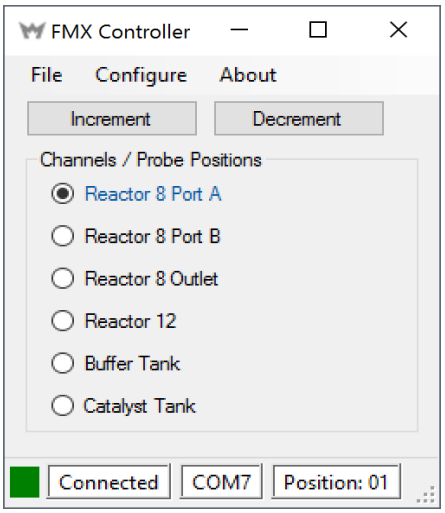
Key to the high performance of the FMX Series is the use of a rotating custom shaped retro-reflector to switch a collimated optical beam. This approach eliminates the frequency shifts between channels that can occur when switching a focused beam.[1,2]

(For a more complete discussion of these features, please see Ref. 2.)

REMOTE OR LOCAL CONTROL

FMX Series multiplexers can be controlled from a remote computer via a choice of RS-232, RS-422, or RS-485 ports. System commands are provided in two forms: a custom ASCII protocol, and a subset of the OPTO-22 instruction protocol.

Hellma Axiom also offers an FMX controller application (SDI-FMX) which operates under any current Windows operating system (from XP to 10). This provides the capability to set up and operate an FMX Series Multiplexer without the need for programming skills. It also offers the optional capability to integrate the FMX with a process control system (DCS) via the MODBUS-TCP protocol.



Typical SDI-FMX Application Display for a 6 Channel FMX

EASY UPGRADES

Modular construction of the FMX multiplexers provides both economy and flexibility. Two basic versions are available: the "A" version supports a maximum of 10 channels, while the "M" version uses smaller steps to accommodate up to 16 channels. Units can be purchased with any number of channels from 2 to 16. To add channels at a later date, simply purchase the appropriate number of add-on channel modules. Field installation is quick and easy.

The FMX family includes both the 200 Series bi-directional models and 100 Series mono-directional models. FMX-100 units can also be easily expanded up to their respective capacity, or factory upgraded to bi-directional form.

FEATURES:

- Electronic switching between up to 16 channels
- Switches both transmitted and received signals
- Excellent channel matching and high transmission
- No frequency shift between Channels
- Choice of popular data processing protocols
- Available PC controller application

REFERENCES:

1. U.S. Patent No. 6,009,219
2. Hellma Axiom Technical Note AN-914

Hellma® Axiom
Analytical Technology

A COMPLETE LINE OF FIBER OPTIC PRODUCTS

Hellma Axiom's family of fiber optic products includes multiplexers, spectrometer sample region interfaces, collimated beam to fiber-optic couplers, and variable attenuators as well as a complete line of probes and flow cells. These products bring high performance, reliable fiber-optic sampling capability to virtually any spectrometer. The interfacing products described at right are especially appropriate for use with FMX Series Multiplexers.

FOI SAMPLE REGION INTERFACE

An FOI Series Sample Interface can be used with any spectrometer having a focused sample region. It both launches the signal into an optical fiber and injects the returned signal back into the sample region.

FAC-100 COLLIMATED BEAM INTERFACE

The FAC-100 provides a transition between an Axiot optical transfer module and a fiber-optic cable. It includes a two axis fiber positioner.

FVA VARIABLE ATTENUATOR

FVA Variable Attenuators can be used to balance the signal level of a reference channel with that of a sample channel so as to maximize a system's photometric accuracy. The FVA's performance is independent of both polarization and beam divergence. The transmission is adjustable from 0 - 40%.

We invite you to inquire further about these and other members of Hellma Axiom's fiber optic product family.

FMX SERIES MODEL NUMBER DESIGNATION:

Monodirectional:	FMX-1XXYR-C
Bidirectional:	FMX-2XXYR-C
Where:	XX = number of channels: XX = 02 (2 channels) through XX = 16 (16 channels) Y = A (10 channels maximum) or Y = M (16 channels maximum) R = Spectral Range: R = N (Near-IR), R = V (Visible), or R = U (UV) C = Connector type: (C = SMA or FC)

FMX SERIES MULTIPLEXER SPECIFICATIONS:

Number of Common Fiber-Optic Lines:	2 (FMX-200 Series), 1 (FMX-100 Series)
Number of Channels (Switch Positions):	Up to 16
Channel Matching – Amplitude:	± 10%
Channel Matching – Frequency:	± 0.05 cm^{-1}
Switching Time	< 1 second between any two channels
Serial Interface Ports:	RS-422, RS-232, RS-485
Command Protocols:	ASCII command set; OPTO-22 subset

CONTROL AND DISPLAY SOFTWARE: *(Runs under any current Windows OS from XP to 10)*

SDI-FMX01 **FMX SERIES MULTIPLEXER SOFTWARE INTERFACE:** Allows and FMX Series Multiplexer to controlled by a PC. Facilitates setup including specification of number of channels and assignment of names to channels. Provides local display and control of standard FMX functions including increment, decrement, reset, and go to channel.

SDI-FMX02 **FMX SERIES MULTIPLEXER INTERFACE AND PROTOCOL BROKER SOFTWARE:** Allows and FMX Series Multiplexer to controlled either locally by a PC or remotely via Modbus-TCP. Provides local display and control of standard FMX functions including increment, decrement, reset, and go to channel. Includes Modbus slave using standard Modbus protocol providing remote control of the above functions as well as access to current position and device status.

Hellma Axiom, Inc. – 1451-A Edinger Ave., Tustin, CA 92780
Tel: (949)757-9300 – Fax: (949)757-9306
Web: **www.hellma-axiom.com** – E-mail: **info.axiom@hellma.com**