EIFFAGE TESEO

Modular optical communication system

MOCS

MOCS is the new modular generation of analog fiber optic based system developed by TESEO for EMC applications. The MOCS system is an innovative development of the AFOM system, which has been unrivalled in the worldwide marketplace for over ten years.
MOCS has embedded improved modularity, leverages on AFOM accumulated experience and the development of enhanced functionalities and features. Nonetheless several AFOM modules are still MOCS compatible in order to protect customer's past investment.
The system overall performance and the design has been improved and optimised in order to have greater features at a cost which is less the AFOM system.

APPLICATIONS

MOCS is designed to acquire analog signals from, and transmit analog stimulus commands to a DUT located in an electrically hostile environment, such as the typical electromagnetic field encountered in an EMC immunity test, high voltage test areas, or wherever the electrical isolation function offered by a fiber optic cable is required.
The modular open architecture design offers the capability to address a large number of fiber optic applications, ensuring the necessary flexibility that a laboratory requires.

CONFIGURATION

A typical MOCS configuration includes:

Modular Mainframe (MOCS-MF) control unit houses one or more plug-in modules.

There are two types of generic plug-in modules.

An (OAM) Optical Acquisition Module receives analog data from a DUT via an EMC shielded Optical Acquisition Satellite transceiver, and an (OSM) Optical Stimulus Module sends analog stimulus signals to a DUT via an EMC shielded Optical Stimulus Satellite transceiver.

The acquired data and the stimulus commands are sent via FA, FB, FC type fiber optic cables. The MOCS-MF would be placed in a benign EMC area such an instrument control room, whereas the satellites would be in the electrical hostile area near the DUT.

A plug-in module plus a satellite comprise an optical link (one or more channels, depending on the link).

The MOCS-MF can accommodate different types of links (acquisition or stimulus) to perform application specific functions. Each link type is described in a separate datasheet.

The MOCS-MF is the common component of every MOCS and is described in further detail below.

Complex applications can be accommodated by daisy chaining more than one MOCS-MF via the GPIB-RS232 bus.

MAIN FEATURES

The main characteristics of the MOCS are:

- OAM and OSM satellites shielded against high E- field levels over a very broad frequency range.
- Data exchanged between satellites and plug-ins over fiber optic cables which have an intrinsic immunity to EM coupling via radiated fields.
- Can mix OAM and OSM plug-ins as well as satellites for maximum system flexibility
- The modular MOCS-MF mainframe can hold up to 12 plug-ins.
- Up to 4 MOCS-MF mainframes can be connected in daisy chain.

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MOCS-MF/MFD/MFR
MODULAR MAINFRAME

The MOCS-MF is the central unit and the heart of the any MOCS system.

It is intended to be operated in a control room attended by the test operator and thus, it does not require electrical shielding. It can hold up to twelve plug-in modules and comes in a 19”, 3 U high, rack mountable chassis with handles.

Three different types of mainframe are available:

MOCS-MF	12 Channels, without display
MOCS-MFD	12 channels, with display
MOCS-MFR	6 channels without display and GBIP-RS232 bus interface

MOCS-MF DESCRIPTION

The Mainframe is connected to the AC mains and can power up to twelve plug-in modules,compared to the maximum four plug-ins of the previous system.

Power is applied via a back panel Power-on switch and an LED on the front panel confirms that the mainframe is in power-on mode.

The back panel contains GPIB-RS-232 connectors to facilitate interfacing to a personal computer as well as daisy-chaining, as needed, up to four mainframes.

A DIP switch on the back panel sets the GPIBRS232 address of the mainframe.
The RS-232 bus was selected since very little bus traffic exists between the MOCS and the PC and because it is a standard PC’s I/O equipment.

All manual controls and status indicators on the front panel of the plug-in modules can be accessed remotely via the GPIB-RS232 bus.

Another key changes since the previous systems, the computing and the intelligence has been moved from the mainframe to the plug-in modules.

Microprocessors installed in every plug-in constitute a distributed intelligence approach that dramatically enhanced the signal processing capabilities of the system.

MOCS_MF / MFD Rear

MOCS COMPONENTS

MOCS-MF/MFD/MFR	Optical Modular Mainframe, 120 VAC, 60 Hz US or 230 VAC 50 Hz European
OAM/OSMs	Optical Acquisition/Stimulus Satellites - Application dependent, see individual specifications

Each OAM/OSM plug-in module is connected via fiber-optic cables to the associated OAS/OSS satellite.

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MODULES COMPATIBILITY

MODULE	NUMBER OF SLOT	MOCS-MFD			MOCS-MF		MOCS-MFR
		LOCAL	REMOTE	MANUAL	REMOTE	MANUAL	MANUAL
OAM301	2	✔	✔	✘	✔	✘	✘
OAM302	2	✔	✔	✘	✔	✘	✘
OAM303	1	✘	✘	✔	✘	✔	✔
OAM305	1	✘	✘	✔	✘	✔	✔
OSM301	1	✔	✔	✘	✔	✘	✘
OSM303	2	✘	✔	✔	✔	✔	✔
OSM304	2	✘	✔	✔	✔	✔	✔
OSM306	1	✔	✔	✘	✔	✘	✘
ODVM301	1	✔	✔	✘	✔	✘	✘
OTM301	1	✔	✔	✘	✔	✘	✘
OBM31553	1	✘	✘	✔	✘	✔	✔
OBE31553	1	✘	✘	✔	✘	✔	✔
OVCM302	2	✘	✘	✔	✘	✔	✔
OALM302	1	✘	✘	✔	✘	✔	✔

MOCS-MF/MFD/MFR
TECHNICAL CHARACTERISTICS

Number of plug-ins	12 MOCS-MF/MFD *6 MOCS-MFR*
Number of units	4
Remote control interface ***(only MOCS-MF/MFD)***	RS232 and GPIB *2 x DB9 Connectors* *1 x GPIB Connectors*
Power supply	120 VAC, 60 Hz (supplied with US power cord) or 230 VAC, 50Hz (supplied with an European power cord)
Power consumption	100VA max
Fuse	0.5A (230V), 1A (115V)
Size	MOCS-MF/MFD Chassis 19” 3U, 370 Depth MOCS-MFR Chassis ½19” 3U, 370 Depth
Weight	4 Kg
Operating temperature	10° to 40°

MOCS MODULES ON CATALOGUE

Acquisition	OAM301 DC ÷ 1MHz OAM302 10KHz ÷ 1GHz OAM303 DC ÷ 100KHz OAM305 6 Hz ÷ 15MHz
Stimulus	OSM303/04 Relay and actuator commands OSM306 DC ÷ 500KHz
Other modules	ODVM301 Digital Voltmeter OTM301 Telemetry OBM31553 1553 Bus monitor OBE31553 1553 Bus Extender OVCM301 Video Rx/Control Module OALM302 Audio link

Dedicated MOCS modules can be rapidly customised or developed upon request

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