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OAM01

OPTICAL ACQUISITION MODULE - DC ÷ 1 MHz



SYSTEM CHARACTERISTICS

- Two channels plug-in for AFOM-MF mainframe (up to eight independent channels per mainframe)
- DC to 1 MHz operating frequency range
- 1 MOhm input
- 1 to 500 Vpp full scale input in 9 selectable ranges
- ±1 V full scale output on 50 Ohm
- Signal-to-noise ratio better than 50 dB
- Shielded to >200 V/m EM fields, 10 kHz to 18 GHz

GENERAL DESCRIPTION

TESEO DC and low frequency plug-in modules and remote satellites are fiber optic communication links for the transmission of analog signals, including DC, in hostile environments subjected to electromagnetic interferences, noises, or characterized by the presence of high voltages.
A plug-in system consists of a two channels base module fitting in TESEO mainframes, one or two dual fiber optic cables for signal and control, one or two battery powered, shielded transmitters, and one or two battery chargers.
Each plug-in system holds two independent optical channels.
It provides researchers and engineers with an integrated technology solution to the problem of monitoring equipment-under-test functionality in safety conditions in environments characterized by high levels of electromagnetic field or very high voltages.

BASE UNIT PLUG-IN

OAM01 plug-in system will receive an analog signal in the range DC to 1 MHz up to a distance of 1 km via fiber optic link.
OAM01B base unit plug-in is a two optically and electrically independent channels receiver; you can connect to it one or two OAM01S satellite units.
AFOM-MF mainframe can house up to four OAM01B base unit plug-ins for a total of eight independent optical channels.
System setup and status are shown on the mainframe LCD graphic display; all functions are available and manageable by means of AFOM-MF keyboard or built-in IEEE-488 interface.
During startup OAM01 automatically performs a complete calibration in order to compensate possible gain variation due, for instance, to the joining/disjoining of optical connectors.
Furthermore you can perform a calibration using the zero and reference level selectable on the output.
The information relative to the battery status is also available.

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SATELLITE UNIT

The small sized battery powered OAM01S satellite unit can be located close to the signal monitoring points, also in hard to reach zones (e.g. engines, industrial equipment).It can be switched on or off from the mainframe, and you can select nine input ranges, from 1 Vpp to 500 Vpp full scale.
Input is 1 MOhm and coupling can be both AC and DC; the source can be switched from the signal input to zero and reference levels to perform the calibration of the measure setup or to battery to check the remaining charge.
OAM01S withstands more than 200 V/m electro-magnetic field level from 10 kHz to 18 GHz and is designed to operate over an exceptionally wide environmental range without significant change in performance.
It can operate continuously for over eight hours and can be recharged in short time by means of the associated battery charger. The ruggedness of this satellite makes it the ideal choice also for the acquisition of signals from remote transducers placed in extremely hard environments.

APPLICATIONS

- General purpose signal monitoring
- Equipment under test functional monitoring
- Acquisition from remote transducers
- EMC/EMI
- High voltage floating and safe measurements

SYSTEM PARTS

OAM01B	two channels plug-in for AFOM-MF
OAM01S	battery powered satellite unit
CB1	dedicated battery charger
FB*mmm*	duplex zip cord fiber optic cable for signal and control lines (*mmm* = length in meters)
FOBC ST	ST fiber optic cable feedthrough (OPTION)
FORF	fiber optic cable reeling frame (OPTION)

OPTIONS

The fiber optic cable is available in any length up to 1 Km.
A rugged reeling frame (up to eight fibers in one cable) can also be supplied.
Feedthroughs for the fiber optic cables can be supplied too.

TECHNICAL SPECIFICATIONS

Frequency

Bandwidth (3 dB)	DC to 1 MHz
Max harmonic level	- 34 dBc
S/N [20*Log (Vmaxpp/Vrms)]	> 50 dB
Flatness	± 1,5 dB

Amplitude

Input impedance	1 MOhm
Input ranges	±0.51/2.5/5/10/25 50/100/250 V full scale
Output impedance	50 Ohm
Output level	± 1 V full scale
Accuracy	5% typ, 10% max

Features and controlled functions

- satellite unit stand-by
- range selection
- coupling (AC/DC)
- source (input, zero, reference, battery)
- calibration

Mechanical and environmental

Satellite Unit

battery operating time	continuous > 8 hours switch-off > 1000 hours
battery recharging time	2 hours
battery charger connector	LEMO 5 poles circular
electrical input connector	BNC
fiber optic connectors	signal: ST control: ST
dimensions	108 x 69 x 59 mm
operating temperature	-10° - +70°C
storage temperature	-20° - +80°C

Base unit

electrical output connector	BNC
fiber optic connectors	signal: ST control: ST
dimensions	plug-in for AFOM-MF
operating temperature	0° - +50°C
storage temperature	-20° - +70°C

COMPETENT BODY

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CALIBRATION CENTER

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TESEO S.p.A.
technologies and systems on electronics and optics
10040 DRUENTO (TO) (Italy) – Via Meucci, 1/A 1/B
Tel. +39.011.9941911 - Fax +39.011.9941900, e-mail: info@teseo.net - internet: http://www.teseo.net

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