

Optical acquisition module – DC ÷ 100kHz

OAM303



BASE UNIT PLUG-IN

TESEO DC and low frequency plug-in systems 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.

The OAM03 system consists of a two channels base module fitting in a MOCS mainframe, two single fiber optic cables for signal acquisition, 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.

OAM303 plug-in system will receive an analog signal in the range DC to 100 kHz up to a distance of 1 km via fiber optic link.

OAM303P base unit plug-in is a two channel optically and electrically independent receivers to be connected up to two OAM303S satellite units.

MOCS mainframes can house up to twelve OAM303P base unit plug-ins (MOCS-MF or MOCS-MFD) or up to six OAM303P base unit plug-ins (MOCS-MFR) for a total of 24 and 12 independent channels respectively.

When installed in MOCS-MF or MOCS-MFD, system status is available by means of RS232GPIB interfaces or displayed on the LCD of MOCS-MFD; it provides information on linkdown (no carrier on the fiber optical cable) and input voltage over-range.

SYSTEM CHARACTERISTICS

- Two channels plug-in for MOCS mainframe (up to twenty four independent channels per MOCS-MF or MOCS-MFD and up to twelve independent channels for MOCS-MFR)
- DC to 100 kHz operating frequency range
- 1 MOhm differential input
- ± 1 to ± 50 V full scale input in 5 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

SATELLITE UNIT

The very small sized battery powered OAM303S 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 locally switched on or off, and you can select five input ranges, from 1 Vpp to 100 Vpp full scale.

Input is 1 MOhm differential and can use resistive cables in order not to perturbate the equipment under test and not to pick-up electromagnetic field, in a few words to perform a noninvasive measurement.

Resistive cables are available upon request in different lengths and with different terminations; OAM303S withstands more than 200 V/m electromagnetic field strengths 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.

SYSTEM PARTS

- **OAM303P** two channels plug-in for MOCS mainframes
- **OAM303S** battery powered satellite unit
- **CB4** dedicated battery charger
- **FCmmm** fiber optic cable (mmm = length in meters)
- **FOBC ST** ST fiber optic cable feedthrough (OPTION)
- **FORF** fiber optic cable reeling frame (OPTION)
- **RCcc** resistive cable (OPTION)
(cc = length in centimeters, max 30 cm)

ACCESSORIES

In addition to the base unit and satellite unit, each plug-in system is supplied with a dedicated battery charger leading to very short charge times.

The fiber optic cable is supplied in a duplex zip cord cable, any length is available up to 1 Km.

Alternatively, it can be supplied with a rugged reeling frame (up to eight fibers in one cable); Feed throughs for the fiber optic cables can be supplied too.

APPLICATIONS

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

TECHNICAL SPECIFICATIONS

Frequency

- Bandwidth (3 dB) DC to 100 kHz
- Max harmonic level - 30 dBc
- S/N [20*Log (Vmaxpp/Vrms)] > 50 dB
- Flatness $\pm 1,5$ dB

Amplitude

- Input type differential
- Input impedance 1 MOhm
- Input ranges $\pm 0.5/1.5/5/15/50$ V full scale
- Ranges selection local with on/off switch
- Max input voltage ± 50 Vrms
- Output impedance 50 Ohm
- Output ± 1 V full scale
- Accuracy 5% typ, 10% max
- CMRR min 40 dB @ 1 kHz

Mechanical and environmental

Satellite Unit

- battery operating time continuous > 8 hours
switch-off > 1000 hours
- battery recharge time 16 hours
- battery charger connector LEMO 5 poles circ
- electrical input connector HIROSE 4 poles circ
- fiber optic connector ST
- dimensions 125 x 79 x 29 mm
- operating temperature $-10^{\circ} \div +70^{\circ}\text{C}$
- storage temperature $-20^{\circ} \div +80^{\circ}\text{C}$

Base unit

- electrical output connector BNC
- fiber optic connector ST
- dimensions plug-in for MOCS mainframes
- operating temperature $0^{\circ} \div +50^{\circ}\text{C}$
- storage temperature $-20^{\circ} \div +70^{\circ}\text{C}$

Accessories (available by request)

- resistive cables with different lengths and terminations
- resistive cables with dividers