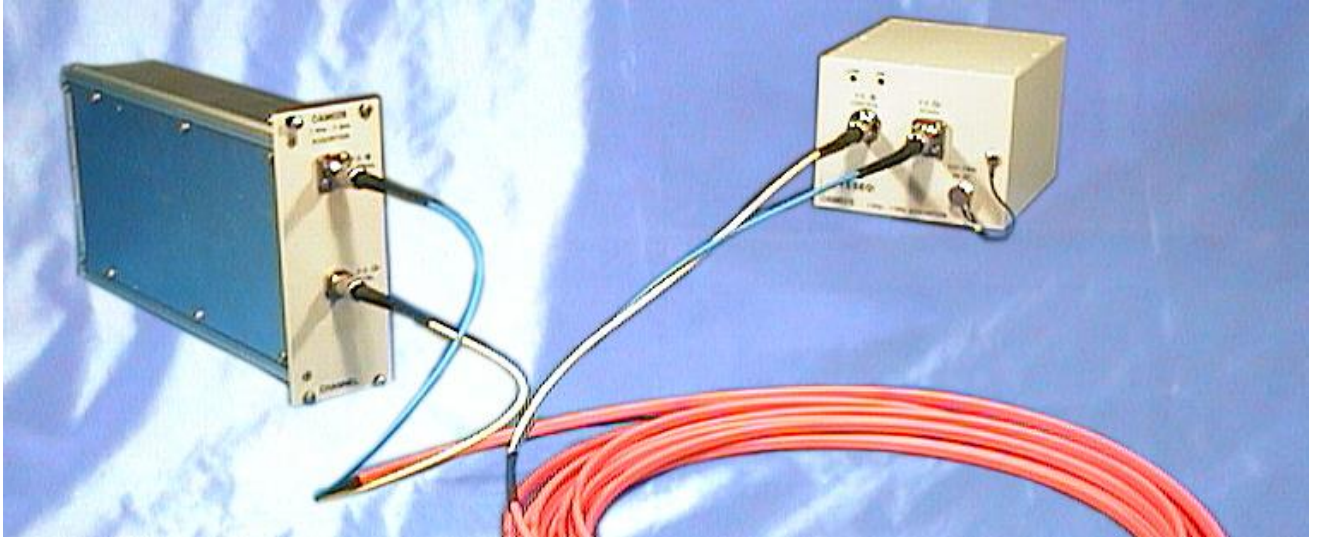


# Optical acquisition module - 1kHz ÷ 1GHz

OAM302



**TESEO** high frequency plug-in modules and remote satellites are fiber optic communication links for the transmission of high bandwidth analog signals in hostile environments subjected to electromagnetic interferences, noises, or characterized by the presence of high voltages.

A plug-in system consists of a base module fitting in MOCS-MF / MFD mainframes, a dual fiber optic cable for signal and control, a battery powered, shielded transmitter, and a battery charger.

Each plug-in system is a single independent optical channel and can be delivered with various frequency bands, up to 1 GHz, which enables it to handle data transmission in the full range of pulse tests.

It provides researchers and engineers with an integrated technology solution to the transmission of uncorrupted data in safety conditions in EMP, EMC and high-voltage experimentation and testing.

Each plug-in can be individually managed by the  $\mu$ processor-control system inside the mainframe.

## BASE UNIT PLUG-IN

OAM302 plug-in system will transmit an analog signal in the range 1 kHz to 1GHz up to a distance of 1 km via fiber optic link.

MOCS-MF / MFD mainframe can house up to six OAM302P base unit plug-ins for a total of six independent optic channels.

System setup and status are displayed on the mainframe MOCS-MFD LCD graphic display; all functions are available and manageable by means of MOCS-MFD keyboard or built-in GPIB-RS232 interfaces.

During start-up, the base unit automatically disjoins satellite input, selects maximum attenuation, and gives to the operator the possibility to check the functionality of the channel.

## SYSTEM CHARACTERISTICS

- Single channel plug-in for MOCS-MF/MFD mainframes (up to six independent channels per mainframe)
- 1 kHz to 1 GHz operating frequency range
- Insertable attenuators and preamplifier
- Signal-to-noise ratio better than 45 dB
- Full scale output level 0 dBm
- System gain without atten./preamp. 20 dB
- Built-in test generator

## SATELLITE UNIT

The small sized battery powered OAM302S satellite unit can be located close to the signal monitoring points and incorporates a preamplifier and a step attenuator, both programmable from the base unit; OAM302S withstands pulsed electromagnetic field strengths of over 100 kV/m with no damage and is designed to operate over a very wide environmental range without significant change in performance. It can operate continuously for over eight hours and can be recharged in short time by the associated battery charger; can also be remotely set in stand-by to conserve battery power; it switches-off when remaining charge is not enough to assure correct operations, and also sends upon request the information of 1 hour autonomy. Each satellite contains an accurate calibration signal generator for periodic check of the system gain, which is maintained by means of an automatic gain control circuit.

## APPLICATIONS

- Signal waveform measurement and monitoring
- Wide band waveform detection (e.g. spikes)
- EMC/EMI
- NEMP & Lightning
- Bulk current injection and CS measurements
- High voltage floating and safe measurements

## SYSTEM PARTS

- **OAM302P** single channel plug-in for MOCS-MF / MFD
- **OAM302S** battery powered satellite unit
- **CB1** dedicated battery charger
- **FAmmm** duplex zip cord fiber optic cable for signal and control line (*mmm* = length in meters)
- **FOBC FC** FC fiber optic cable feedthrough (OPTION)
- **FOBC ST** ST fiber optic cable feedthrough (OPTION)
- **FORF** fiber optic cable reeling frame (OPTION)

## 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.

## TECHNICAL SPECIFICATIONS

### Frequency response

- 3 dB bandwidth 1 kHz - 1 GHz
- 2nd harmonic distortion < -30 dBc (@ -6 dBm out)
- S/N [20\*Log (Vmaxpp/Vrms)] > 45 dB (@ G = 20 dB)  
> 35 dB (@ G = 44 dB)

### Time response (no attenuators, no preamplifier)

- risetime 350 ps typ - 400 ps max
- pulse overshoot < 5% typ - 10% max

### System gain & dynamic range

- full scale signal output 0 dBm
- full scale signal input (max-in) -44dBm/+1dBm 3dB stepx
- Gain accuracy ± 1.5 dB

### In-band ripple

- no atten/preamp (20 dB gain) ± 1.0 dB
- any condition (worst case) ± 2.0 dB

### Over-voltage protection

- maximum continuous DC voltage 50 V
- maximum continuous CW signal maxin + 3 dB

### Features and controlled functions

- satellite unit stand-by
- battery check
- calibration (100 kHz square wave, 40 mVpp)
- full scale input (system gain)
- attenuators/preamplifier switches

### Impedances

- input impedance 50 Ohm
- output impedance 50 Ohm

### Mechanical and environmental

#### Satellite Unit

- battery operating time continuous > 8 h  
stand-by > 1000 h
- battery recharge time 2 hours
- battery charger connector LEMO 5 poles circular
- electrical input connector SMA
- fiber optic connectors signal: FC  
control: ST
- dimensions 108 x 90 x 69 mm
- operating temperature 0° - +55°C
- storage temperature -20° - +70°C

#### Base unit

- electrical output connector SMA
- fiber optic connectors signal: FC  
control: ST
- dimensions SlotBus plug-in
- operating temperature 0° - +50°C
- storage temperature -20° - +70°C