Optical stimulus module DC ÷ 500kHz

OSM306

GENERAL DESCRIPTION

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

A stimulus link consists of a base module fitting in TESEO mainframes, a fiber optic cable for signal transmission, a battery powered, shielded transmitter, and a battery charger.

Each plug-in module holds two independent optical channels.

OSM series of plug-ins perform signal transmission from the mainframe to the satellites.

They provide researchers and engineers with an integrated technology solution to the problems of simulating various signal sources (e.g. sensors) to assure equipment-under-test functionality, of performing dynamical tests in static conditions and of injecting signals into circuits under test. OSM accomplishes these tests in safety conditions in environments characterized by high levels of electromagnetic fields or very high voltages.

SYSTEM CHARACTERISTICS

- Two channels plug-in for MOCS-MF mainframe (up to twelve independent channels per mainframe)
- DC to 500 kHz operating frequency range
- 1 MOhm input
- ± 5 V full scale
- good impulse response
- Signal-to-noise ratio better than 50 dB
- Shielded to >200 V/m EM fields, 10 kHz to 18 GHz

BASE UNIT

OSM306 channels will transmit an analog signal in the range DC to 500 kHz up to a distance of 1 km via fiber optic link.
OSM306P base unit plug-in is a two optical channels transmitter; you can connect to it one or two OSM306S satellite units.
MOCS-MF or MOCS-MFD mainframes can house up to twelve OSM306P base unit plug-ins for a total of twenty-four independent optical channels.
However, as the OSM306S satellite is manually controlled, the OSM306P plug-in module can be housed also in the MOCS-MFR mainframe, for a total of six plug-ins driving up to twelve independent optical channels.
Input is single-ended; input impedance is 1 MOhm; the connector is BNC.

SATELLITE UNIT

The small sized battery powered OSM036S satellite unit can be located close to the signal injection points, also in hard to reach zones (e.g. engines, industrial equipment). It can be switched on or off from the mainframe.
Output impedance is 50 Ohm and the maximum current available is 5 mA @ full scale output ±5 V; if higher current levels are requested, TESEO can study and develop further expansion devices.
Output is single-ended and the connector is BNC.
OSM306S withstands more than 200 V/m electro-magnetic 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 injection of signals in to equipment placed in extremely harsh environments.

ACCESSORIES

In addition to the base unit and satellite units, each plug-in system is supplied with dedicated battery chargers leading to very short charge times.
The fiber optic cable is available in any length up to 1Km.
Alternatively, it can be supplied with a rugged reeling frame Feedthroughs for the fiber optic cables can be supplied too.

APPLICATIONS

- General purpose signal injection
- Equipment under test functional signals injection
- Simulation of remote parameters (e.g. response of remote transducers)
- Simulation of dynamic conditions in static tests
- Phonic wheel simulation

TECHNICAL SPECIFICATIONS

■ Frequency
- Bandwidth: DC to 500 kHz
- Max harmonic level: - 34 dBc
- S/N [20*Log (Vmaxpp/Vrms)]: > 50 dB
- Flatness: ± 1,5 dB

■ Amplitude
- Input impedance: 1 MOhm
- Input ranges: ± 5 V full scale
- Output impedance: 50 Ohm
- Output: ± 5 V full scale, or up to 5 mA
- Gain: Unitary
- Accuracy : 5% typ, 10% max

■ Controlled functions
- satellite unit stand-by for battery saving

■ Mechanical and environmental

Satellite Unit
- battery operating time: continuous > 8 hours
  : switch-off > 1000 hours
- battery charger connector: LEMO 5 poles circular
- battery recharge time: 2 hours
- electrical output connector: BNC
- fiber optic connector: ST
- dimensions: 108 x 69 x 59 mm
- operating temperature: 0° - +50°C
- storage temperature: -20° - +80°C

Base unit
- electrical input connector: BNC
- fiber optic connectors: ST
- dimensions: takes 1 slot in MOCS-MF
- operating temperature: 0° - +50°C
- storage temperature: -20° - +70°C

SYSTEM PARTS

OSM306P	two channels plug-in for MOCS-MF
OSM306S	battery powered satellite unit (1 channel)
CB1	dedicated battery charger
FCmmm	single fiber optic cable 200/230 μm (mmm = length in meters)
FOBCST	ST fiber optic cable feedthrough (OPTION)
FORF	fiber optic cable reeling frame (OPTION)

Electric and aesthetic characteristics may change without notice

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