

— Miniaturized Isotropic Optical Electric Field Sensor

→ Miniaturized Isotropic Optical Electric Field Sensor OEFS-S1B



■ Outline

Miniaturized Isotropic Electric Field Sensor (OEFS-S1B) is developed for measuring 3D Electric Field of localized area with isotropy.

The sensor consists of a limited use of metal such as antenna elements and small mirror to avoid generating electric field noises by metal parts themselves.

This system therefore will not distort the surrounding electric field and is suitable for measuring the near field pattern of an antenna for high frequency.



■ Specifications

Item	Performance	Note
Sensitivity	0.5 to 1000V/m	
Frequency Response	200MHz to 10GHz	
Maximum Input	10000V/m	
Isotropy	±0.5dB	3D(x, y, z) individual output
Sensor Size	φ12 x 70mm	
Output Connector (RF output)	N-J	
Working Temperature Range	0°C to 40°C	

— Isotropic Optical Electric Field Sensor

→ Isotropic Optical Electric Field Sensor OEFS-NS



■ Outline

Optical Electric Field Sensor, OEFS-S1 is 40dB higher sensitivity than OEFS-S1B. The reason is that the antenna length is longer and the electrode structure is improved.



■ Specifications

Item	Performance
Sensitivity	5m to 10V/m
Frequency Response	100kHz to 3GHz
Maximum Input	100V/m
Isotropy	±0.5dB
Sensor Size	φ30mm x 70mm
Output Connector (RF output)	N-J
Working Temperature Range	0°C to 40°C

— Resonance Type Isotropic Optical Electric Field Sensor

➔ Resonance Type Isotropic Optical Electric Field Sensor OEFS-RC



■ Outline

This sensor resonates with a specific frequency and the sensitivity improves. For example key less entry signal (315MHz, 433MHz) of a car is measured with this OEFS-RC and it also check the 3D distribution of inside of the car precisely. Working frequency is the one of 150MHz to 950MHz (3dB bandwidth: 10MHz).



■ Specifications

Item	Performance
Sensitivity	30μ to 100m V/m
Frequency Response	One specific frequency of 300MHz to 950M
Maximum Input	1V/m
Isotropy	±0.5dB
Sensor Size	φ50mm x 190mm

Output Connector (RF output)	N-J
Working Temperature Range	0°C to 40°C

— Optical Electric Field Sensor Probe

→ Optical Electric Field Sensor Probe OEFS-PR



■ Outline

This sensor has a SMA connector. It is good for evaluation of small antenna. An antenna connects this sensor and the electrical signal transforms the optical signal (E/O exchange) at that head. The signal transmits in optical fiber and it can precisely measure because Common mode noise cannot into the fiber. The probe heads are three types depend on frequency range.

■ Specifications

Item	Performance	Note
Sensor size	10 x 10 x 50mm	
Measurement frequency range	300k to 2GHz	OEFS-Probe-2S
	300k to 5GHz	OEFS-Probe-5S
	300k to 6.5GHz	OEFS-Probe-6S
Insertion Loss	5±5 dB	OEFS-Probe-2S
	10±5 dB	OEFS-Probe-5S
	15±5 dB	OEFS-Probe-6S
Stability/td>	±0.3 dB	24°C ,5H

— Optical Remote Antenna

→ Optical Remote Antenna



■ Outline

Optical remote antenna has been commercialized through joint development with NHK and NHK ITEC Inc.

The receiver modulate and transmit non-modulated light sent from a transmitting station to a duplex TV relay station by using radio waves being received. It is epoch-making radio-wave receiver-transmitters where highly sensitive optical modulators



are used.

Optical fibers are used as transmission lines. They eliminate the use of power supplies for the receiving stations, and electrically isolates the transmitting stations from the receiving stations. It brings a substantial benefit in preventing the occurrence of damage due to lightning. Use of passive circuits only in the receiving station improves reliability and serviceability.

■Features

- No need to supply power for the receiving station in a duplex TV relay station
- Reduce risk of damages caused by lightning
- Significant reduction in maintenance work for receiving stations

■Applications

- * Radio-wave transmission systems in FM, VHF and UHF bands

Item		Standard Specifications
Transmission Frequency		Specify one or two channels between channels 1 to12 and channels 13 to 62.
Transmission Distance		2,000m (maximum)
Fibers Used		Single mode
Optical Wavelength		Bandwidth : 1.3μm
Light Source and Optoelectronic Section	Light source	LD-excited YAG laser
	Rated Level of Output Optical Signals	±23dBm
	Optical Connector	FC/PC connector
	RF Output Level	60dBm ±20 (variable by 10dB)
	RF Output Impedance	50Ω TNC-J
	CN Ratio VHF Band	Over 50dB (Receiver RF input level: 60dB μV, Measurement frequency band: 6MHz)
	CN Ratio UHF Band	Over 50dB (Receiver RF input level: 65dB μV, Measurement frequency band: 6MHz)
	DP	±3°
	DG	±3%

	Supervisory Signal Detection	Make contact
	Operating Temperature Range	Operational temperature range where performance is guaranteed -10 to +45 °C (working temperature range)
	Power Supply	AC 100V, 50/60Hz, 130W (room temperature)
	Dimensions	Body: 149(H) x 480(W) x 350(D)mm Fan unit: 49(H) x 480(W) x 350(D)mm (full projections excluded)
	Weight	Body: approx. 10kg, Fan unit: approx. 2kg
Receiving Sensor	Optical Connector	FC/PC connector
	RF Input Level	60±20dBμV
	RF Input Impedance	50Ω (N-J connector)
	Dimensions	49 (H) x 480 (W) x 250 (D)mm (full projection excluded)
	Weight	Approx. 4kg

