Free space field Sensors

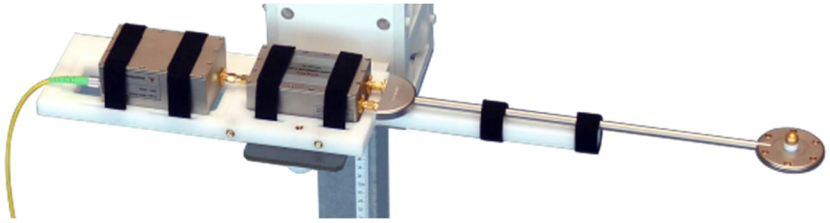
Our range of derivative free space electromagnetic field sensors is designed for the measurement of fast pulsed fields. Different models are available: for electric field (D-dot) and for magnetic fields (B-dot).

Because those sensors are passive, no external power source is required. Baluns, passive integrators and a mounting kit are proposed as accessories. Free space field sensors might be connected through a fibre optic link to the measurement equipment.

REFERENCE	SFE1G	SFE3-5G	SFE10G	SFM2G
Type	D-Dot (electric)	D-Dot (electric)	D-Dot (electric)	B-Dot (magnetic)
Equivalent area (Aeq,tot)	2 x 10^{-2} m2	2 x 10^{-3} m2	2 x 10^{-4} m2	2.2 x 10^{-4} m2
Frequency response (-3 dB)	1 GHz	3.5 GHz	10 GHz	2 GHz
Risetime (10 – 90 %)	320 ps	110 ps	32 ps	160 ps
Maximum output (peak)	1 kV	1 kV	1 kV	1 kV
Output connectors	2 x SMA (male)	2 x SMA (male)	2 x SMA (male)	2 x SMA (male)
Weight	800 g	350 g	200 g	375 g
Dimensions (L x W x H)	406 x 60 x 100.5 mm	406 x 60 x 35.4 mm	406 x 60 x 16.4 mm	406 x 60 x 44 mm
Recommended balun	BL3-5G	BL3-5G	BL10G	BL3-5G
Recommended fibre optic link	MOL2000T	MOL2000T	n/a	MOL2000T

Mounting kit

The SFMK mounting kit allows the installation of a montena free field measurement chain on an antenna mast. One sensor with its balun and an optional fibre optic transmitter can be fastened onto the stand. Four M6 & 1/4" x 20 UNC threads enables the installation on different supports and orientations.

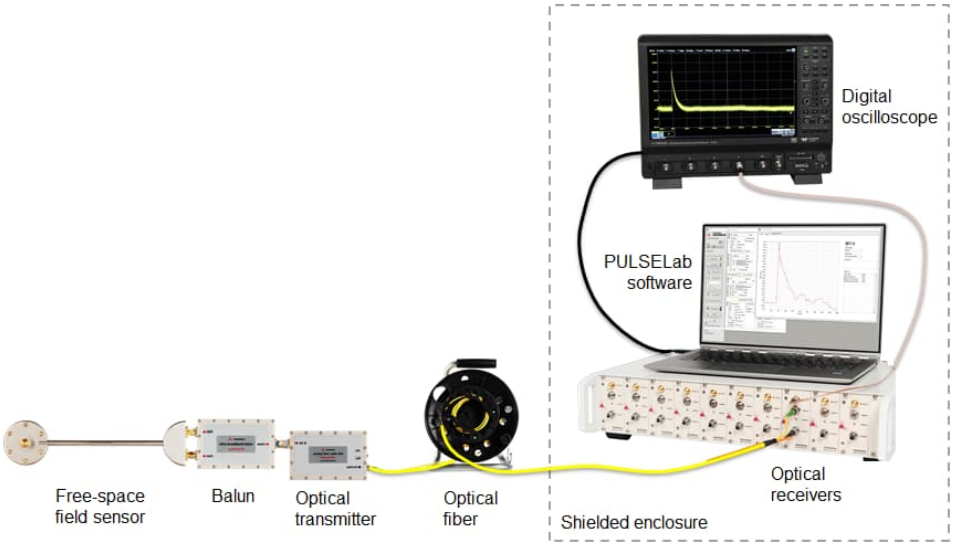


Example of measurement setup

A free space derivative electromagnetic field sensor delivers two balanced pulse signals to the balun which converts them to an unbalanced signal.

In order to ensure noise-free measurement over long distance, the balun is connected through a fibre optic link to the measurement equipment installed in a shielded enclosure.

Montena PULSELab software application automatically configures the oscilloscope for pulse acquisition, display and storage in the control PC.



Ordering information

REFERENCE	DESCRIPTION
SFE1G	Free space D-dot field sensor (E-field), Aeq 2 x 10^{-2} m^2, up to 1 GHz, 2 x SMA(m) connectors
SFE3-5G	Free space D-dot field sensor (E-field), Aeq 2 x 10^{-3} m^2, up to 3.5 GHz, 2 x SMA(m) connectors
SFE10G	Free space D-dot field sensor (E-field), Aeq 2 x 10^{-4} m^2, up to 10 GHz, 2 x SMA(m) connectors
SFM2G	Free space B-dot field sensor (B-field), Aeq 2.2 x 10^{-4} m^2, up to 2 GHz, 2 x SMA(m) connectors

Related products / accessories

TYPE	DESCRIPTION
BL3-5G	Balun for free space field sensors, 500 Hz - 3.5 GHz, 3 x SMA(f) conn.
BL10G	Balun for free space field sensors, 100 kHz - 10 GHz, 3 x SMA(f) conn.
SFMK	Mounting kit for free field sensor, balun and fibre optic transmitter, for antenna mast and tripod, four M6 & 1/4" x 20 UNC threads
MOL3000	Point-to-point optical link, 80 Hz – 3.5 GHz, fixed 0 dB gain, including one optical transmitter on battery, one optical receiver on battery, two battery chargers and one carrying case
MOL2000T2	Point-to-point optical link, 80 Hz – 3.5 GHz, -62dB to +24dB remote controlled gain through USB, including one optical transmitter on battery, one optical receiver on battery, two battery chargers, one USB OTG cable, one FibREmote software for PC and Android and one carrying case
MOL2000T2-M	Single channel optical link for chassis MOL-MF-xx, 80 Hz – 3.5 GHz, -62dB to +24dB remote controlled gain, including one optical transmitter on battery, one optical plug-in receiver module and one battery charger
ITR1U2-A	Passive integrator, T = 1.2 us, up to 1 GHz, connectors: N(f) - BNC(m) Note: an alternative to this integrator device is to perform the signal integration numerically using the Montena PULSELab software
PULSELab	Pulse measurement and processing software application, Life time license for installation on one PC
SB3G	Shielded enclosure, 10 kHz to 3 GHz, 61 x 52 x 73 cm