

1.3 GHz RF Field Sensor with Current Loop Interface

Features

- RF dynamic 45 dB typ.
- including monopole antenna
- suppression for cellular phones
- suppression for DECT phones
- analogue current loop

Applications

- personal security
- radio monitoring



Overview

RFS-1G3 is a RF field sensor for frequencies in the range of 1.3 GHz. The module measures the field strength and provides the measured data via an analogue current loop.

The integrated monopole antenna makes RFS-1G3 a compact solution for RF field measurements.

The RFS-1G3 module is used e.g. for leak detection in electron accelerators to guarantee personal security.

Suppression of Unwanted Signals

Unwanted adjacent signals like GSM or DECT are effectively suppressed. This way, the field sensor is not influenced by devices like mobile phones.

RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
center frequency	f_c		1300		MHz	
bandwidth	BW		40		MHz	
GSM900 suppression	a		-50	-25	dB	$880 \text{ MHz} \leq f \leq 960 \text{ MHz}$
GSM1800 suppression	a		-45	-25	dB	$1710 \text{ MHz} \leq f \leq 1785 \text{ MHz}$
DECT suppression	a		-45	25	dB	$1880 \text{ MHz} \leq f \leq 1900 \text{ MHz}$
minimum RF level	P_{\min}		0		dBm^1	3 m distance from RF field sensor
dynamic range			45		dB	
type of antenna						bended $\lambda/4$ monopole
video output						D-SUB, 9 pole, male (DE-9)
loop current	I_L	4		20	mA	typ., logarithmic proportional to RF field strength
lower loop current	$I_{L \text{ low}}$	3.5	4.0	4.5	mA	loop current without stimulus
loop voltage	U_L	5	15	18	V	voltage drop across device
bandwidth	VBW	5	65		kHz	

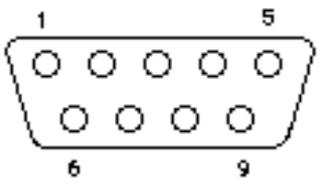
Note 1: radiated with $\lambda/4$ monopole vertical orientation (antenna gain < 2.5 dBi)

Common Specifications

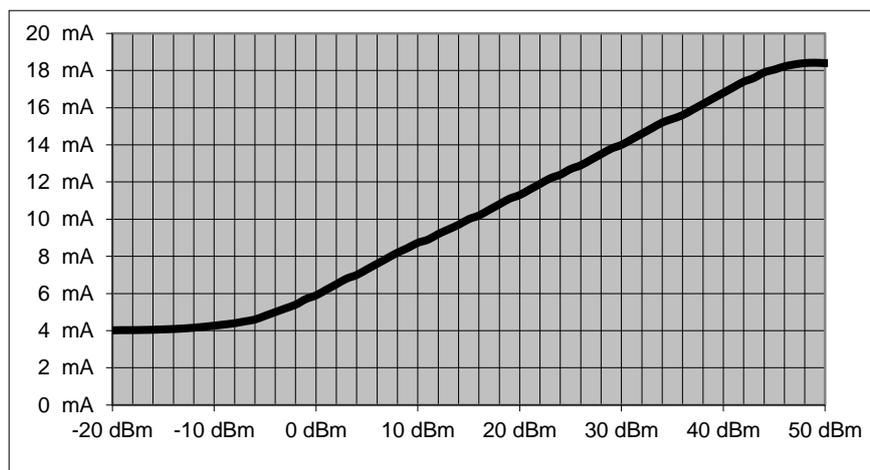
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply						same connector as video out
supply voltage	U	9	15	18	V	DC
supply current	I	12	14 ²	30	mA	quiescent current
dimensions	L x W x H	approx. 95 x 90 x 23			mm	including antenna, excl. connector
weight	m		145		g	
operating temperature	T_o	+5		+40	°C	
storage temperature	T_s	-40		+70	°C	
ordering information		RFS-1G3		1106.8001.1		

Note 2: quiescent current

Connector

	1	+Vb
	2	
	3	N.C.
	4	I_OUT
	5	I_IN
	6	GND
	7	
	8	
	9	

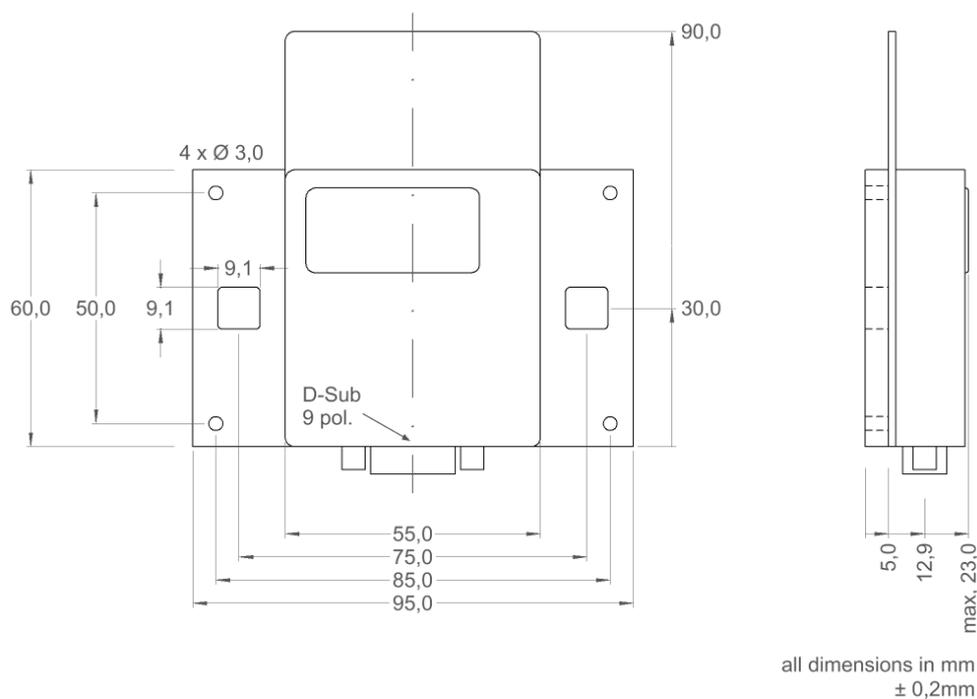
Response¹ (typical)



Note 1: 3 m distance from RF field sensor, radiated with $\lambda/4$ monopole vertical orientation (antenna gain < 2.5 dBi)

recommended linear approximation: $P[\text{dBm}] = -22 \text{ dBm} + I_{\text{LOOP}} * 3.7 \text{ dBm/mA}$

Dimensions



Related Products

Product	Description	P/N
RFS-3G	3.0 GHz RF Field Sensor with Current Loop Interface	1414.8001.1