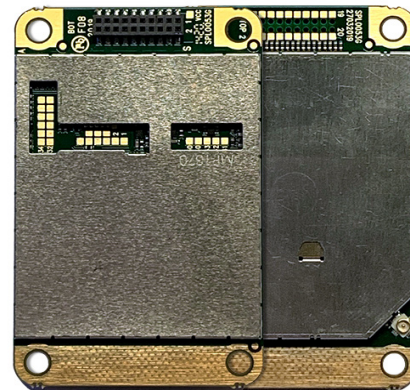


SATEL RADIO COMPARISON

SATEL radio modules are supplied without a housing in PCB format with RF-shielding, facilitating installation into the customer's own housing or into a host device. To ease up the installation, SATEL offers motherboards either with or without a housing.

The radio module configuration can be done with SATEL SL-commands or SATEL SW tools (SATEL NETCO DEVICE or SATEL Configuration Manager).



SATEL-TR4+		SATEL-TR49		SATEL-TR489		
Frequency	403...473 MHz	410...475 MHz	902...928 MHz	403...473 MHz	856...876 MHz **) 869.4...869.65 MHz *)	902...928 MHz
Channel spacing	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz	FHSS	12.5 / 20 / 25 kHz	25 / 50 kHz	FHSS
Tuning range	70 MHz	65 MHz	7 hopping bands, each has 15 hopping patterns (totally 105). 50-112 user selectable hopping channels.	70 MHz	20 MHz	7 hopping bands, each has 15 hopping patterns (totally 105). 50-112 user selectable hopping channels.
Minimum RF frequency step	6.25 kHz (10 kHz @ 20 kHz spacing)	6.25 kHz (10 kHz @ 20 kHz spacing)		6.25 kHz (10 kHz @ 20 kHz spacing)	6.25 kHz	
Modulation	4FSK, 8FSK, 16FSK, GMSK	4FSK, GMSK	2-GFSK	4FSK, 8FSK, 16FSK, GMSK	4FSK	2-GFSK
TX power	0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1 W			0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1 W (856...876 MHz max. 0.5 W)		
Input voltage	+3.8 ... +5.5 Vdc					
Power consumption, typical	0.89 W (RX) 4.8 W (TX 1 W) 0.3 W (Sleep)	0.44 W (RX) 4.8 W (TX 1 W) 0.22 W (Sleep)	0.44 W (RX) 4.1 W (TX)	0.94 W (RX) 6.8 W (TX 1 W)	0.96 W (RX) 5.6 W (TX 0.5 W)	0.42 W (RX) 4.3 W (TX)
Data speed of serial interface	9600 ... 115200 bps					
Vibration	20 G (20 Hz ... 2 kHz sinusoidal/random)	≤ 25 G, up to 2 kHz sinusoidal				
Air interface encryption	AES128 default, AES256 order option	AES128	-	AES128 default, AES256 order option		-
Electrical interface	CMOS-UART / 8 x GPIO (3 x IN / 5 x OUT, configurable)					
Antenna connector	HIROSE U.FL compatible type (Adapter cables available for TNC, SMA, MCX, MMCX, BNC)					
Interface connector	1.27 mm pitch socket (20-pin through hole, CLP-110-02-L-D-K-TR)					
Size / Weight	57 x 36 x 6.9 mm / 20 g					
Temperature range	-30 +70 °C (operational TR4+ and TR489) / -40 +70 °C (operational TR49) / -20 ... +55 °C (complies with the standards)					

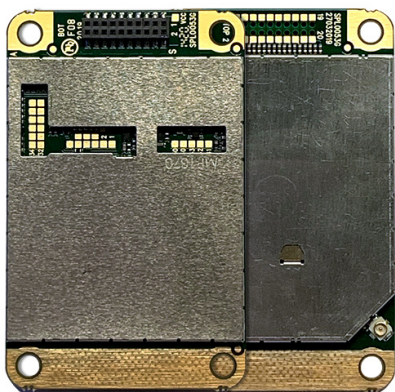
RECEIVER SPECIFICATIONS

		SATEL-TR4+	SATEL-TR49 410 ... 475 MHz	SATEL-TR489 403 ... 473 MHz	SATEL-TR489 869.4 ... 869.65 MHz
Blocking typ. FEC ON, BER 10E-2	4FSK, 50 kHz	-	-	-	-22 dBm
	4FSK, 25 kHz	-17 dBm	-32 dBm	-17 dBm	-21 dBm
	4FSK, 12.5 kHz	-20 dBm	-37 dBm	-18 dBm	-
	8FSK, 25 kHz	-18 dBm	-	-18 dBm	-
	8FSK, 12.5 kHz	-17 dBm	-	-17 dBm	-
	16FSK, 25 kHz	-29 dBm	-	-29 dBm	-
	16FSK, 12.5 kHz	-25 dBm	-	-25 dBm	-
Adjacent channel selectivity typ. FEC ON, BER 10E-2	4FSK, 50 kHz	-	-	-	-40 dBm
	4FSK, 25 kHz	-33 dBm	-52 dBm	-33 dBm	-38 dBm
	4FSK, 12.5 kHz	-36 dBm	-57 dBm	-45 dBm	-
	8FSK, 25 kHz	-34 dBm	-	-34 dBm	-
	8FSK, 12.5 kHz	-34 dBm	-	-34 dBm	-
	16FSK, 25 kHz	-43 dBm	-	-43 dBm	-
	16FSK, 12.5 kHz	-40 dBm	-	-40 dBm	-

*) Tested acc. to EN 300 220-2 v3.2.1 and EN 300 220-1 v3.1.1 **) Ask availability

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SATELGO
Mission-Critical Connectivity



SATEL-TR4+
SATEL-TR49
SATEL-TR489

RADIO INTERFACE CHARACTERISTICS

				SATEL-TR4+	SATEL-TR49 410 ... 475 MHz	SATEL-TR49 902 ... 928 MHz	SATEL-TR489 403 ... 473 MHz	SATEL-TR489 869.4 ... 869.65 MHz	SATEL-TR489 902 ... 928 MHz
Radio compatibility	Error Correction	Channel Width	Data speed of radio interface	Sensitivity BER < 10 E-2 (typically)					
SATEL-4FSK	FEC OFF	12.5 kHz	9600 bps	-112 dBm	-116 dBm	-	-112 dBm	-	-
		25 kHz	19200 bps	-109 dBm	-103 dBm	-	-109 dBm	-110 dBm	-
		50 kHz	38400 bps	-	-	-	-	-105 dBm	-
	FEC ON (3/4 coding)	12.5 kHz	7200 bps	-115 dBm	-120 dBm	-	-115 dBm	-	-
		25 kHz	14400 bps	-113 dBm	-116 dBm	-	-113 dBm	-113 dBm	-
		50 kHz	28800 bps	-	-	-	-	-109 dBm	-
SATEL-8FSK	FEC OFF	12.5 kHz	14400 bps	-105 dBm	-	-	-	-	-
		25 kHz	28800 bps	-103 dBm	-	-	-	-	-
	FEC ON (2/3 coding)	12.5 kHz	9600 bps	-112 dBm	-	-	-113 dBm	-	-
		25 kHz	19200 bps	-111 dBm	-	-	-112 dBm	-	-
SATEL-16FSK	FEC ON (3/4 coding)	12.5 kHz	14400 bps	-104 dBm	-	-	-106 dBm	-	-
		25 kHz	28800 bps	-102 dBm	-	-	-104 dBm	-	-
2-GFSK	-	-	115200 bps	-	-	-109 dBm	-	-	-108 dBm

STANDARD COMPLIANCE

	SATEL-TR4+	SATEL-TR49 410 ... 475 MHz	SATEL-TR49 902 ... 928 MHz	SATEL-TR489 403 ... 473 MHz	SATEL-TR489 869.4 ... 869.65 MHz	SATEL-TR489 902 ... 928 MHz
EN 300 113	OK	Partially (complies with RED)	-	OK	-	-
EN 300 220	-	-	-	-	OK	-
EN 301 489-1, -5	OK	OK	OK	OK	OK	OK
FCC Part 90	OK	OK	-	OK	-	-
FCC Part 15	-	-	OK	-	-	OK
IEC 62368-1	OK	OK	OK	OK	OK	OK

Values are subject to change without a notice.

TYPE APPROVALS / COMPLIES WITH THE REQUIREMENTS:

SATEL-TR4+: AU, EU RED, CA, CH, IS, LI, NO, NZ, US

SATEL-TR49: AU, EU RED, BR, CA, CH, IS, NO, US

SATEL-TR489: AU, EU RED, CA, CH, IS, LI, NO, NZ, US