

TRX 3100

1kW HF Transceiver



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TRX 3100
with optional 19" rack

FEATURES

Output power	1kW PEP and average
Software defined	Easy upgrade of waveforms
Operation	Combined transmit/receive antenna or separate transmit and receive antennas
Frequency hopping	ECCM capability acc. to STANAG 4444
GMDSS	With optional DSC watch receiver / controller
Built-in test	Comprehensive built-in test
Optional HF messaging suite for	<ul style="list-style-type: none">■ E-mail acc. to STANAG 5066■ X400 e-mail acc. to STANAG 4406 Annex E■ Military Messaging ACP 127■ MIL-Chat XMPP■ Offline encryption

GENERAL

The TRX 3100 is a software-based transceiver rated at 1kW PEP/average output power for communication in the short wave (HF) frequency band, particularly suitable for:

- Operation on board of all kinds of naval ships
- Military and civilian land based installations
- Mobile stations, e.g. vehicle cabins for special applications
- Stations for border control, police and other security organisations
- Embassy nets
- Stations for international organisations



Hagenuk Marinekommunikation

A company of the ATLAS ELEKTRONIK Group

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The equipment is designed for voice and data transmission and reception. Optionally, it can be equipped with adaptive and ECCM functions. The TRX 3100 is composed of the basic exciter / receiver unit ERX 3000, the 1kW final power stage PA 3100 and the power supply unit PS 3100.

TECHNICAL DATA

Frequency range	1.5 MHz – 30 MHz transmit, 10 kHz – 30 MHz receive	Passband tuning	± 50 % of selected bandwidth in 10 Hz steps
Frequency resolution	1 Hz	BFO	± 5 kHz in 10 Hz steps
Frequency tuning	Via keyboard and/or single knob flywheel	Sensitivity	Without HF-preselection (10 dB, SINAD with CCITT-Filter) A3E at m=0.5, B=6 kHz 40 kHz – 200 kHz < 2 µV 0.2 MHz – 30 MHz < 1.5 µV A1A at B=300 Hz 10 kHz – 40 kHz typ. 0.5 µV 0.04 MHz – 30 MHz < 0.2 µV J3E at B=0.3 kHz – 2.7 kHz 10 kHz – 40 kHz typ. 1.5 µV 0.04 MHz – 30 MHz < 0.5 µV
RF output power	1 kW ± 1 dB, PEP/average at 50 Ω	Scan functions	Scan by channel, frequency sweep
Reducing of output power in steps of	-3 dB (nom. 250 W), -6 dB (nom. 125 W), -10 dB (nom. 50 W), -20 dB (nom. 5 W)	IF-bandwidths	0.1, 0.15, 0.3, 0.6, 1.5, 2.4, 2.7, 3.2, 3.4, 6.0, 7.0 kHz, others on request
Adjustment of maximum power	in 0.1 dB steps down to -9.9 dB	AGC	Selectable 25, 200, 500, 1000 ms. Output is maintained within 3 dB for a change in input of 134 dB for input levels between 0.4 µV _{EMF} and 2 V _{EMF}
Channel memory	1000	Intercept point	(3 rd order) > 30 dBm (1 MHz – 30 MHz)
Frequency stability	< 1 x 10 ⁻⁸ per day, options on request	Suppression of unwanted sideband	> 60 dB/PEP
Frequency changing time	≤ 10ms	Carrier suppression	J3E, ISB, Link 11: > 50 dB/PEP H3E, H3W: 4.5 dB to 6 dB / PEP R3E: 18 dB ± 2 dB / PEP
Modes of operation		Suppression of intermodulation products 3. order:	> 36 dB / PEP (two-tone signal with power amp.)
Standard	AM (A3E), SSB (J3E USB/LSB), Data USB/LSB/ISB, ISB (B9W), CW (A1A), FSK (F1 B), AME (R3E, H3E, H3W)	Harmonics suppression	> 56 dB / PEP
Optional	Link 11 with external L11 modem, acc. to MIL-STD-188-203-1A Frequency hopping: (with optional FH controller), acc. to STANAG 4444 L22 with external L22 equipment acc. to STANAG 5522		
Input for external frequency standard	10 MHz, 0 dBm ± 10dB, 50 Ω, BNC connector Optionally 1 MHz, 5 MHz and 10 MHz, 0 dBm +10 dB / -4 dB, 50 Ω		
Control interface	RS 232, RS 422, RS 485 and RS 422 Bus 1200, 2400, 4800, 9600, 19200, 38400 Baud		



Detached front panel DFP 3000 (option)



Internal 40 dB pre/interselector PSI 3000 (option)

All units are designed as 19" rack-mountable units. Please note that the individual configuration and implementation of selected options depends on the customer's application.

Noise suppression (inband)	80 dBc / Hz
Noise suppression	$\Delta f = >50$ kHz: >138 dBc / Hz without interselector $\Delta f = >500$ kHz: >145 dBc / Hz without interselector
Power supply	
AC single phase version	195 VAC – 264 VAC
AC 3-phase version	340 VAC – 484 VAC without neutral conductor, 47 Hz to 63 Hz
Power consumption	Approx. 4.5 kVA
Operating temp.	-15 °C to +55 °C
Humidity	Max. 95 % up to 40 °C
Shock	Acc. to BV 0430, sheet 16 (without shockmounts), 30 g / 11 ms resp. 15 g / 20 ms all directions
Vibration	Acc. to BV 0440, diagram 1 and 6 (-10 dB)
EMI/EMC	Acc. to VG 95373/IEC 945 and MIL-STD-461 C/462
Dimensions	
Height	947 mm (10U without rack)
Depth	650 mm (525 mm without handles)
Width	485 mm (19" without rack)
Weight	Approx. 155 kg incl. rack

INTERNAL OPTIONS

PSI 3000	HF pre- / interselector, 1.5 MHz - 30 MHz band pass filter, selectivity: min. 40 dB at 10 % frequency deviation, autom. tuning within < 10 ms, < 1.5 MHz low pass filter
FS 3000 M	1 MHz freq. reference output interface for VLF-MSK demodulator MSK 1001M
Crossfox / Fost mode	Receive only
ALE 3000	2G ALE controller
MDM 3003	High speed modem with 2G and / or 3G ALE, up to 19.2 kbps
STR 3000	Link 11 / 22 side tone receiver
IB 3000	Interface board, BCD frequency output (TTL-level 100 Hz steps), NMEA interface for GMDSS functions
DLP 3002	Data link processor plug-in board for automatic link establishment ALE 3002 and/or high speed multi-waveform data modem MDM 3002, up to 19200 bps



High speed antenna coupler ATU 3100 (option)



High speed antenna coupler ATU 3100 HVST (option)

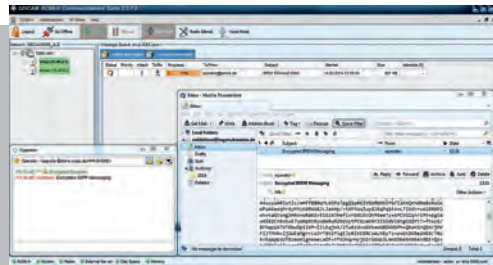
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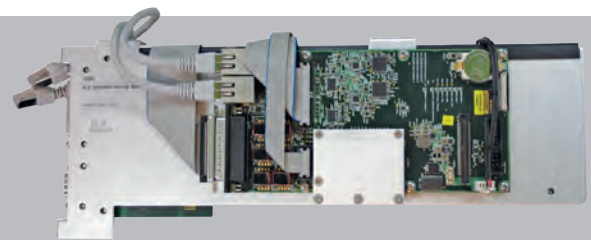
OPTIONAL ACCESSORIES

ATU 3100/3100 HVST	Antenna coupler tuning time typ. 1s, 25 ms from memory
RS 1010	Rubidium frequency standard for up to 6 transceivers
DFP 3000	Detached front panel
SEICAM 5066	MS Windows based messaging suite for E-mail acc. to STANAG 5066, X400 e-mail acc. to STANAG 4406 Annex E, MIL-Chat XMPP, ACP 127
RCS 3000	Windows remote control software
19" rack	With internal cabling
Headset	Dynamic headset with PTT switch

The title page shows TRX 3100 with optional 19" rack.



STANAG 5066 communication suite (screenshot)



Built-in modem MDM 3003 (option)

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