TRX 3100 T

1 kW HF Transceiver

TRX 3100 T
with optional 19“ rack

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FEATURES	
Output power	1 kW PEP and average
Software defined	Easy upgrade of waveforms
Touch screen control	Usable with gloves
Operation	Combined transmit/receive antenna or separate transmit and receive antennas
LAN interface	For remote control and voice over IP
ALE	Optional 2nd and/or 3rd generation ALE
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	■ 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 T is a software-based transceiver rated at 1 kW 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 T is composed of the basic exciter / receiver unit ERX 3000 T, the 1 kW 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
Frequency resolution	1 Hz
Frequency tuning	Via touchscreen and / or single knob flywheel
RF output power	1 kW ± 1 dB, PEP/average at 50 Ω
Reducing of output power in steps of	-3 dB (nom. 75 W), -6 dB (nom. 35 W), -10 dB (nom. 15 W), -20 dB (nom. 1 W)
Adjustment of maximum power	in 0.1 dB steps down to -9.9 dB
Channel memory	1000
Frequency stability	< 1 x 10^{-8} per day, options on request
Frequency changing time	≤ 10ms
Modes of operation	
Standard	AM (A3E), SSB (J3E USB/LSB), Data USB/LSB/ISB, ISB (B9W), CW (A1A), FSK (F1 B), AME (R3E, H3E, H3W)
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 LAN interface

Passband tuning	± 50 % of selected bandwidth in 10 Hz steps
BFO	± 5 kHz in 10 Hz steps
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
Scan functions	Scan by channel, frequency sweep
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
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}
Intercept point	(3^{rd} order) > 30 dBm (1 MHz – 30 MHz)
Suppression of unwanted sideband	> 60 dB/PEP
Carrier suppression	J3E, ISB, Link 11: > 50 dB/PEP H3E, H3W: 4.5 dB to 6 dB / PEP R3E: 18 dB ± 2 dB / PEP
Suppression of intermodulation products 3. order:	> 36 dB / PEP (two-tone signal with power amp.)
Harmonics suppression	> 56 dB / PEP

Remote control unit UT 3002 (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	Δf = >50 kHz: >138 dBc / Hz without interselector Δf = >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 (19 U 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 1001 M
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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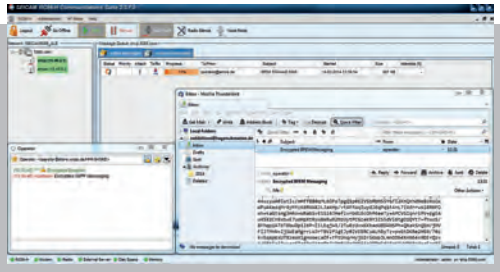
OPTIONAL ACCESSORIES

ATU 3100/3100 HVST	Antenna coupler tuning time typ. 1 s, 25 ms from memory
RS 1010	Rubidium frequency standard for up to 6 tranceivers
UT 3002	Remote control unit
SEICAM 5066	MS Windows based messaging suite for e-mail acc. to STANAG 5066, X400 e-mail 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 T with optional 19" rack.



STANAG 5066 communication suite (screenshot)

Built-in modem MDM 3003 (option)

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