

TRX 3050

500 W HF Transceiver



TRX 3050 500 W HF Transceiver

TRX 3050
with optional 19" rack



FEATURES

Output power	500 W 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 3050 is a software defined transceiver rated at 500 W 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

TRX 3050

500W HF Transceiver

The equipment is designed for voice and data transmission and reception.

The TRX 3050 is composed of the exciter/receiver unit ERX 3000, THE HF power amplifier PA 3050 and the power supply PS 3050 .

TECHNICAL DATA

Frequency range	1.5 MHz – 30 MHz transmit, 10 kHz – 30 MHz receive
Frequency resolution	1 Hz
Frequency tuning	Via keyboard and/or single knob flywheel
RF output power	500 W \pm 1 dB, PEP/average at 50 Ω
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)
Adjustment of maximum power	in 0.1 dB steps down to -9.9 dB
Channel memory	1000
Frequency stability	$< 1 \times 10^{-8}$ per day, options on request
Frequency changing time	≤ 10 ms
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 \pm 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

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 μ V 0.2 MHz – 30 MHz < 1.5 μ V A1A at B=300 Hz 10 kHz – 40 kHz typ. 0.5 μ V 0.04 MHz – 30 MHz < 0.2 μ V J3E at B=0.3 kHz – 2.7 kHz 10 kHz – 40 kHz typ. 1.5 μ V 0.04 MHz – 30 MHz < 0.5 μ V
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 μ V _{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



Detached front panel DFP3000 (option)



Internal 40 dB pre/interselector PSI 3000 (option)

A broad range of built-in and external options are available to enhance its capabilities which includes adaptive high speed modems for data communication, automatic link establishment, antenna tuning, GMDSS operation, etc. The external power supplies PS 3050 and PS 3050 DC are provided as 19" units. The TRX 3050 can optionally be supplied with a suitable and rugged cabinet.

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 PS 3050 ACL	100 VAC – 265 VAC, 47 Hz – 500 Hz, or 200 VDC – 300 VDC
PS 3050 DC (option)	Nom. 24 VDC (19 VDC – 36 VDC), floating, automatic switch-over
Power consumption	Typ. 1.8 kVA, max. 2.5 kVA
Operating temperature	-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	450 mm (10U without rack)
Depth	Max. 490 mm (without handles)
Width	483 mm (19" without rack)
Weight (without options)	Approx. 117 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
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
FS 3000 M	1 MHz freq. reference output interface for VLF-MSK demodulator MSK 1001M
FS 3000	1.5 MHz and 10 MHz reference input interface with 1 MHz ref. output for VLF MSK demodulator MSK 1001M



High speed antenna coupler ATU 3050 (option)



High speed antenna coupler ATU 3050 A (option)

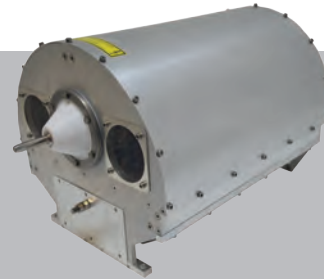
TRX 3050

500 W HF Transceiver

OPTIONAL ACCESSORIES

ATU 3050 A	Automatic antenna tuner unit (ATU), with silent tuning capability, 500 W
ATU 3050 C	ATU for installation in submarine antenna mast, 500 W
ATU 3050 E	ATU for installation in submarine antenna mast, 500 W
DSC 3002	GMDSS watch receiver / controller
DFP 3000	Detached front panel
RS 1010	Rubidium frequency standard for up to 6 transceivers
SEICAM 5066	MS Windows based messaging suite for e-mail 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

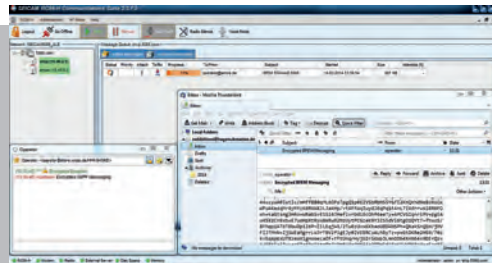
The title page shows TRX 3050 with optional 19" rack.



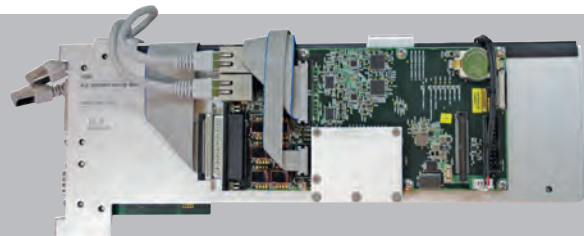
High speed antenna coupler ATU 3050 C for submarines (option)



High speed antenna coupler ATU 3050 E for submarines (option)



STANAG 5066 communication suite (screenshot)



Built-in modem MDM 3003 (option)

Hagenuk
Marinekommunikation GmbH
Hamburger Chaussee 25
24220 Flintbek | Germany

Phone: +49 4347 714-101
Telefax: +49 4347 714-110
info@hmk.atlas-elektronik.com
www.hmk.atlas-elektronik.com

 **Hagenuk Marinekommunikation**
A company of the ATLAS ELEKTRONIK Group