KEY FEATURES:

- Low cost installation (Hardware)
- Activation keys unlock software
- Fast Link Setup (FLSU)
- Packet Data (xDL)
- Linking Protection
- Link Quality Assessment
- Radio Control
- Multiple Channel Operation
- STANAG compliance
- Low power consumption (1 W)
- Compact size (33 x 55 x 8 mm)
- Single 100-way connector
- Evaluation kit available
- LF & HF Modem Option (Datasheet Avail.)

THIRD GENERATION HF

3G ALE is the best choice for interoperating advanced HF data and voice services, especially in adverse channel conditions.

3G ALE software options offers Fast Link Setup (FLSU) and Packet Data (xDL) which can be combined with LF & HF Modem Options (M1 – M4).

PACKET DATA

The xDL option offers a very adaptive robust packet data modem with very effective ARQ, especially for penetration of noisy and congested channels.

LINK SETUP

In a single channel environment, 3G ALE offers very robust selective calling in support of data applications and voice. The 3G engine is even more effective in a multi-channel environment with increased effective bandwidth. 3G ALE offer more robust link setup compared with 2G ALE.
### STANAG 4538B Fast Link Setup (FLSU)

**FSLU Protocol**
- Excellent performance in degraded HF channels by means of robust burst waveforms.
- Automatic channel selection.
- Synchronous and asynchronous link setup.
- Point-to-point, multicast and broadcast calls.
- Combined or separate calling and traffic channels.
- Combined and simultaneous link setup and traffic setup.
- Channel quality estimation by means of LQA sounds and LQA exchanges.
- Handover to circuit data waveform or voice.

**Linking Protection**
- SoDark 3 and 6
- Time-of-day distribution by HF means, as a backup to GPS time-of-day distribution.

**Waveforms**
- BW1, BW2, BW3, BW4, BW5, BW6 and BW7 according to STANAG 4538.
- Doppler lock and track (capture range up to +/- 100 Hz, configurable)
- Adaptive multi-path tracking (up to 10 ms spread, for FLSU & LDL)
- Linking probability performance 2:3:8 better than MIL-STD-188-141C specification

**Occupancy Detection**
- Occupancy detection (listen before transmit) in accordance with STANAG 4538
- MS 110A/I, STANAG 4539 / MS 110B, MS 110A, S4415 S4285, FSX, ALE 2G (B-FSK), SSB voice

### STANAG 4538 xDL Packet Modem

**General**
- Integrated with STANAG 4538 FLSU (Required)

**LDL**
- Low-Latency Data Link, reliable packet transfer

**HDL**
- High-rate Data Link, reliable packet transfer
- HDL-3, HDL-6, HDL-12, HDL-24

**Standard**
- STANAG 4538 Compliant

**Interoperability**
- Tested

**Configuration & Control**
- Protocol: RAPI/RIPC (RapidM Proprietary).
- Persistent configuration (via EEPROM (last MIB), via FLASH (MIB preset)).

**Radio Control**
- Protocol: RAPI/RIPC (integrated with modem control), or Transceiver Protocol (custom implementation possible)

**Installation**
- Size: 33 x 55 x 88mm (w x d x h)
- Power: 3.3V DC, <= 1W (typ.)

**Environmental**
- Temperature: ~40°C to +85°C (operating)
- ~40°C to +90°C (storage)

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**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>T4C Hardware</th>
<th>Stock Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4C-5A-M-M0-5.3</td>
<td>Module: MO V5A (B/loader only)</td>
<td>V5.3</td>
</tr>
<tr>
<td>T4C-5A-M-MK-KEY</td>
<td>Key: TC4/5/6 Activation (Required)</td>
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<tr>
<td>T4C-SW-O-3G-5.3</td>
<td>SW MDL-3G ALE 4538 FLSU, Rad. Ctrl</td>
<td>V5.3</td>
</tr>
<tr>
<td>T4C-SW-O-3D-5.3</td>
<td>SW MDL-3G ALE 4538 xDL Pkt Modem</td>
<td>V5.3</td>
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</tbody>
</table>

**Other T4C Software Options**

<table>
<thead>
<tr>
<th>Stock Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4C-SW-O-M1-5.3</td>
<td>SW MDL-M1 (RF 110B, F ISB 2x9600)</td>
</tr>
<tr>
<td>T4C-SW-O-M2-5.3</td>
<td>SW MDL-M2 (RF 84285, 84539 9600)</td>
</tr>
<tr>
<td>T4C-SW-O-M3-5.3</td>
<td>SW MDL-M3 (RF 110A, 4415 2400 )</td>
</tr>
<tr>
<td>T4C-SW-O-M4-5.3</td>
<td>SW MDL-M4 (RF MDM 84539 9600 bps)</td>
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<tr>
<td>T4C-SW-O-2G-5.3</td>
<td>SW MDL-2G ALE / MS 141B, App. A, B</td>
</tr>
<tr>
<td>T4C-SW-O-V1-5.3</td>
<td>SW MDL-V1 (VHF B524kHz 596000 bps)</td>
</tr>
<tr>
<td>T4C-SW-O-V2-5.3</td>
<td>SW MDL-V2 (VHF B512kHz 548000 bps)</td>
</tr>
</tbody>
</table>

* Contact RapidM for.datasheets

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Revision: TC4_ALE3G_EN_02A