
2G ALE
AES-256
SCANNING
SCS
Worldwide
Wireless
Communications

2G Automatic Link Establishment (ALE)

2G ALE, the de facto standard for optimal frequency / band selection, is now available as an integral firmware update to our P4dragon **DR-7X00** HF modems. 2G ALE provides a complete automatic analysis of current propagation conditions on the shortwave bands, which relieves the user from having to guess the best channel when seeking to connect to a distant station. The user does not need the basic propogation knowledge typically required for shortwave operation, but can instead rely on the system. This saves a considerable amount of time and mimnimizes the risk of operating errors. The 2G ALE function has primarily been implemented for ease of use of PACTOR operation, i.e. as an automatic frontend for PACTOR connections. The switchover between the two protocols, 2G ALE and PACTOR, is carried out automatically by the modem. The user benefits from 2G

Technical data www.p4dragon.com

Standards:	**MIL-STD 188-144**A, MIL-STD 188-141D (no Alternate Call)
Channels:	**100**
***Other* Addresses:**	**100**
Supported Transceivers (for remote scanning):	Generic **ICOM, KENWOOD, YAESU**, advanced support for: Icom IC-F8101, IC-7200, IC-7700, IC-7300, IC-7610, **R&S** XK-2000/2100, XK-852, **MOTOROLA** Micom-2E, Kenwood TK-90, **HARRIS** RF-350, Yaesu FT-890, FT-990/1000, FT-1000 MP, FT-100, FT-920, FT-847, FT817, FT-897, FT-950, FT-2000, FT-9000, FT991(A), VX-1700
Scan Dwell Times:	**5, 2, 1, 0.5** channels per second
Quiet Scanning/Sounding:	**YES**, special split scan mode support for Icom IC-7300, IC-7610
Automatic Sounding:	**YES**
Automatic Scanning:	**YES**
Auto-ALE on PACTOR:	**YES**, full support of PACTOR legacy software. ALE frontend can be configured once and parameters stored permanently.
ALE Timeout Reset:	Automatic **external PTT detection** on all ICOM transceivers, i.e. voice transmission retrigger external ALE controller timeout. External PTT input available on DR-7800.
Listen Before Transmit:	**YES**, adjustable, detecting a wide variety of digital waveforms as well as analog SSB voice transmissions.
Trial License:	**YES,** 100 free ALE trial links

ALE's optimal automatic frequency selection in addition to the proven, highly-robust PACTOR waveform for follow on connections. The 2G ALE functionality can also be used independently, allowing the DR-7X00 to serve as an external standalone ALE controller, enabling linking, voice communication, and Automatic Message Display (AMD) message functions on radios that do not have built-in ALE. The **SCS** 2G ALE functionality is compatible with a wide range of other hardware and software 2G ALE implementations, allowing seamless interoperability with exisiting 2G ALE networks.
To add the 2G ALE function to your modem, please load the ALE modem firmware and obtain an ALE license from your authorized vendor or **SCS**. The ALE firmware provides **100 free ALE trial links** before an ALE license is required.

AES-256

The **Advanced Encryption Standard** (AES) option allows state-of-the-art data encryption, now embedded directly in the **SCS** HF modems - i.e. native encryption of PACTOR connections at the modem level. The application software thus no longer has to provide encryption when passing secure/classified data over an HF link. The AES-256 option can be added in addition to the ALE firmware for DR-7X00 modems. The key entered by the user is always translated to a 256-bit encryption key by a hash algorithm. Thus, the encryption is always based on a pseudo-random **256-bit encryption** key even if the actual user key is short.

To add the AES function to your modem, please load the ALE modem firmware and obtain an AES license from your authorized vendor or **SCS**.

Technical data

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Standards:	**AES-256**
Key:	Alpha-Numeric, 1...80 characters, or dynamic session key
Actual Encryption Key:	Always **256 bit**, generated by Hash Algorithm**, fixed key** and Elliptic Curve Diffie Hellman**dynamic session key**, ECDH, supported
Supported Modes:	**PACTOR-4...PACTOR-1**
End-To-End Encryption:	**YES**
AES Mode:	**Cipher Block Chaining Mode,** and advanced

Further Information / Software

ALE Firmware:
https://www.p4dragon.com/download/dragon_fw_2_41_00_ALE_dr7.zip

ALE Manual:
https://www.p4dragon.com/download/SCS_Manual_ALE_2.40.pdf

AES Manual:
https://www.p4dragon.com/download/SCS_Manual_AES_2.41.pdf

How-To License:
https://www.p4dragon.com/download/SCS_Feature_Licenses_How_To_1.0.pdf

SCSchat_ALE:

- **Manual:**
  https://www.p4dragon.com/download/SCS_Manual_SCSchat_ALE_1.40.pdf

- **Complete Package including Software:**
  https://www.p4dragon.com/download/SCSchat_ALE%201.40.zip

SCS P4dragon ALE supporting Group:
https://groups.io/g/SCSP4dragonALE

License Fees

Item:	Retail Price:
ALE (2G, MS-188-141A):	189.00 EUR
AES-256 Encryption Option, V2, for DR-7X00 modems:	168.00 EUR
ALE/AES in Combination as a Package:	269.00 EUR
SCSchat_ALE PC-Software-License (per Modem):	148.00 EUR

All licenses are perpetual licenses linked to the serial number of the modem.
For orders inside the EU, 19% of VAT will have to be added.

SCS

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