KAntrak™

THE KAntrak™ 2700 SERIES DISPLAY

INSTALLATION MANUAL

KONGSBERG
AUTOMOTIVE

Instructions for Installing the KAntrak™ 2700 Series of Displays

KAntrak™

Before you start - what you should have

What you should have (clockwise from top left):

- Mounting template/Packing list
- The KAntrak™ installation guide
- Blank front label and Kongsberg Automotive label ready to fit to front of display
- Front mounting kit (4 x studs/nuts)
- KAntrak™ display with demo software preloaded

  plus

Other KAntrak™ accessories optionally available (clockwise from top left):

- Trunnion Mounting Bracket (Part No. 930293)
- Protective Push on Front Cover (Part No.165271)
- Behind Dash Mounting Kit (Part No. 900061)
- Power/CAN Harness (Part No. 510623)
- Power/CAN/ GPS harness (Part No. 510626) (not shown)

1. Installation guide

Thank you for choosing the KAntrak™ display. These pages provide a brief introduction to KAntrak™ displays but more importantly the recommended installation instructions. Please read through the guide before use.

We hope you will be very happy with this KAntrak™ product and have many years of trouble-free operation.
If you have any problems or ideas for improvement then we would like to hear from you.

For more information please contact us at: kantrak.info@ka-group.com
web site:
www.kongsbergautomotive.com

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2. The KAntrak™ Platform

Kongsberg Automotive KAntrak™ LCD displays are rugged 110x110mm DIN-format modules with 5 soft keys, and offer a 160 x 128 pixel display area. This is large enough to provide great flexibility for managing the rich data available from modern electronically controlled systems. KAntrak™ is now in its fifth generation: the latest KAntrak™ 2700 family employs design-for-manufacture techniques including chip-on-tab to minimise component count and assembly operations. The KAntrak™ 2700 series of displays employ film supertwist nematic LCDs for visibility in direct sunlight - with backlighting.

They offer a Deutsch connector interface, and protection to IP67 which covers immersion in water up to 1 meter. Units come with 3 serial interfaces: RS-232, RS-485 (J1708), and a CAN 2.0B port compatible with the J1939 protocol used by many manufacturers. There are 2 variants: KAntrak™ 2700 operates over a range of -25 to +75°C; 2710 incorporates a heating element, supporting automotive industry requirements of -40°C. The KAntrak™ 2710 also includes a programmable 500mA digital Output Driver. Datasheets via: www.kongsbergautomotive.com

3. Software Development Options for the KAntrak™

Customers have a range of options for creating user interfaces on KAntrak™: Like a PC, a KAntrak™ needs application software to provide a useful function. One example of application software written by Kongsberg Automotive is the GEM (Generic Engine Monitoring) software written to display electronically controlled diesel engines and transmission performance parameters and faults/ alarm using the SAE J1939 and J1587 protocol. KAntrak™ may be programmed to perform an infinite number of display, control and data logging tasks. To help modify existing software or write new application software Kongsberg Automotive has developed a software development kit (SDK). This is available for programming the microcontroller used in KAntrak™ - allowing complete control of the display hardware. Purchasers of an SDK and suitable compiler are given a number of hours of free technical support from Kongsberg Automotive's application engineering team - which may be used to write some or all of the customer-specified application software; alternatively the time may be used for training, trouble-shooting and advice.

As well as supplying and supporting the SDK, Kongsberg Automotive offers a fast-turnaround and cost effective software development service for KAntrak™ using the same SDK. These projects can range from something as simple as placing a customer's logo on the splash screen, through additional pages of data on a branded version of GEM, to a full application with custom user interfaces, control programs, communication protocols, etc.

If you would like to discuss the purchase of an SDK, or obtain a quote for custom application software, please contact us at kantrak.info@ka-group.com
More information is available via www.kongsbergautomotive.com

4. KAntrak™ Connection Data

The KAntrak™ interfaces to data via the Deutsch DT0412PA connector on the rear of the display - wired as shown. Kongsberg Automotive can supply 2 harnesses for this purpose:

- A Power/CAN/Output* harness - part No. 510623
- A Power/CAN/GPS** harness - part No. 510626

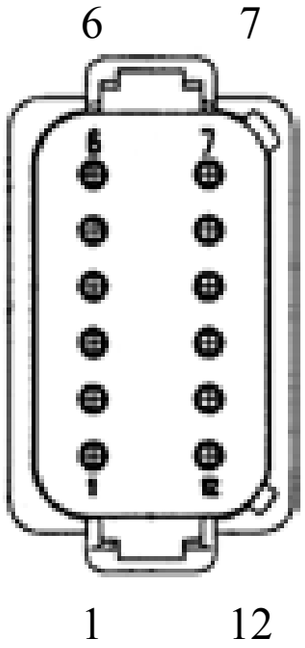
(*If supported by the hardware platform)
(**If supported by the software platform)

Alternatively, Kongsberg Automotive can supply the mating connector parts in kit form (Part No. 531006). Similarly you can source them from Deutsch (www.deutschecd.com):

- DT0612SA, mating connector
- W12S, Wedgelock (one per connector)
- 0462-201-1631, pin sockets (note that different finishes and termination methods may be selected)
- 114017, sealing plug (one per unused pin location)

Note. A ferrite clamp must be placed over the harness to meet EMC radiation emission requirements of BSEN60945 (Maritime navigation & radio communication equipment & systems). We recommend that the clamp should be a TDK ZCAT2032-0930, a Multicomp 33RH17 5X28 5X10 7: core, 10.7MM ID or equivalent.

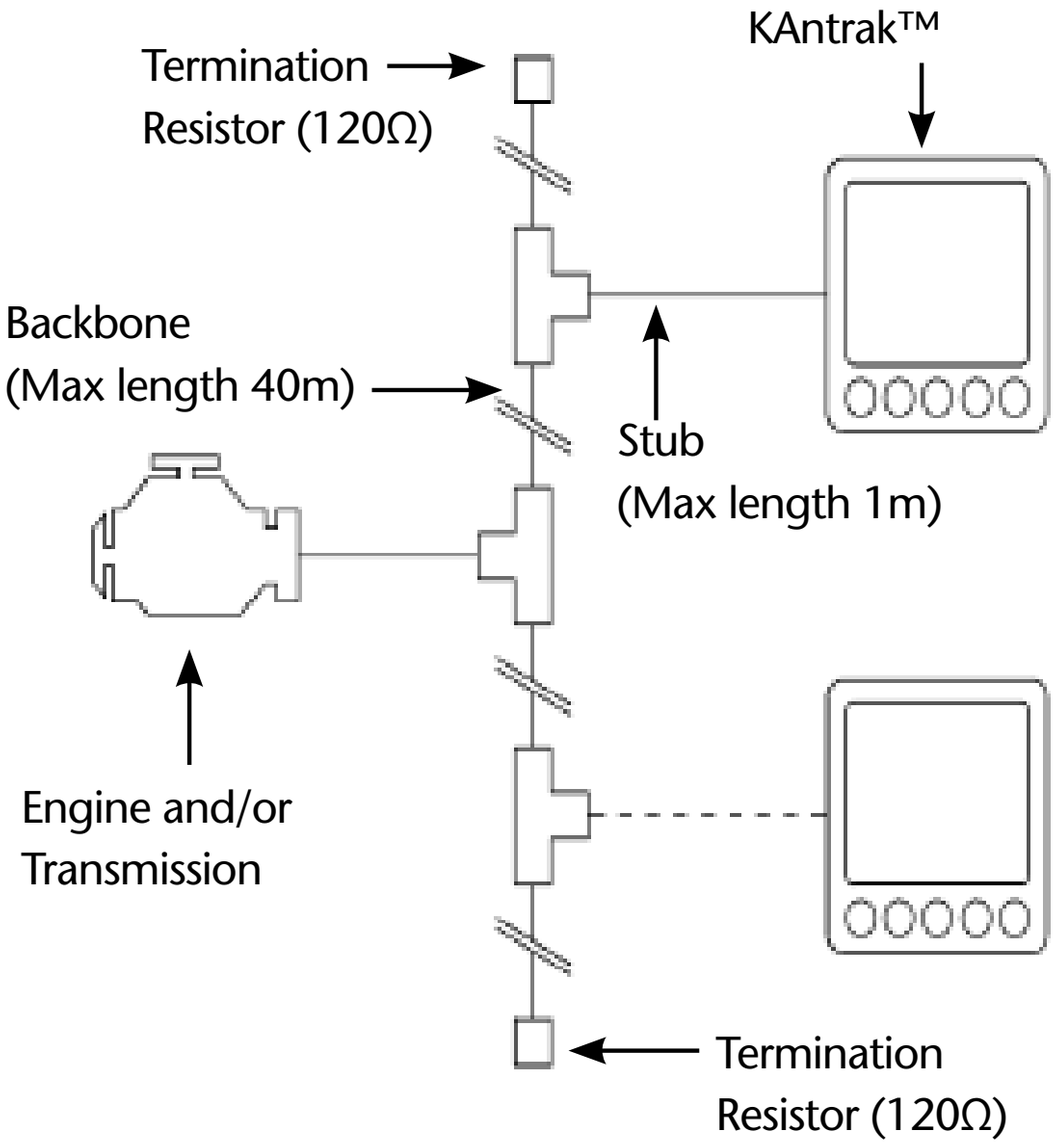
4. KAntrak™ Connection Data - continued

Connector pin out		Signal	Notes
	1	Power -	Ground & power (10-30VDC). Supply should be protected by 500mA-rated circuit breaker/fuse
	2	Power +	
	3	TX (+)	RS-232 serial port
	4	TX (-)	
	5	RX (-)	
	6	RX (+)	
	7	CAN LO (J1939 LO)	CAN2.0B port
	8	CAN HI (J1939 HI)	
	9	RS485A (J1587+)	Serial port
	10	RS485B (J1587-)	
	11	Output	Programmable digital output for activating alarm*
	12	Not used	

* Not available on all KAntrak™ models - refer to the KAntrak™ datasheet for your display.

5. Typical J1939 Wiring Topology

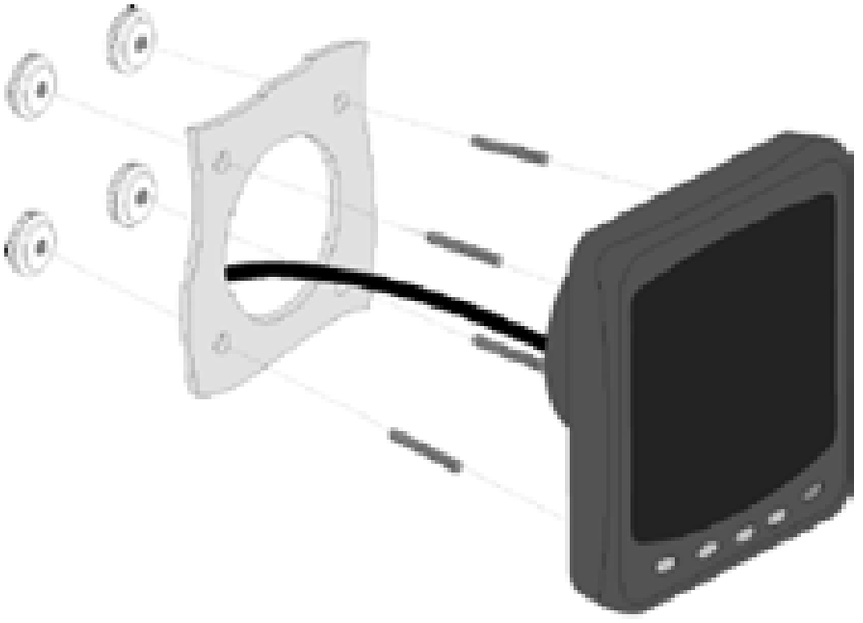
Most Modern engine installations include a harness with built in J1939 backbone (Check engine manufacturer's documentation). If not, it is critical to use twisted shielded pair with a drain wire (max length 40m) terminated with 120Ω resistors at each end. In addition, all stubs should not exceed 1m in length.



6. KAntrak™ Installation

Front mounting instructions
Most units will be mounted onto a bulkhead, dashboard or panel - a method described below; the components required
(4 x M4 studs and thumbnuts) are supplied with every KAntrak™.
Instructions:

- Decide on a location.
- Allow adequate clearance behind the display for cable connections, to ensure that the cables are not unduly stressed, and for ventilation. Leave sufficient cable so that the unit may be removed for servicing.
- Using the template supplied with the display as a guide, cut out the mounting hole, and drill four ø4.3mm (0.170inch) holes for the M4 studs.
- Screw the studs into the rear case; longer studs can be used (not supplied).
- Connect the cable (not supplied).
- Place the KAntrak™ in position, secure by screwing thumbnuts onto the studs.



The front mounting kit (M4 studs and thumbnuts) supplied with KAntrak™, which allows the display to be mounted onto a panel or vehicle dashboard.

Warning: Take care not to over tighten the studs/ thumbnuts as this may damage the unit.

6. KAntrak™ Installation - continued

Front mounting template
A paper mounting template for marking drill holes etc, is supplied loose with the KAntrak™. After marking out, Kongsberg Automotive advises that dimensions are verified by measurement, due to the limitations of the printing process. This is especially important if the template has been photocopied.

Other mounting options
Rear mounting KAntrak™ **2700 and 2710 displays.** Users can also mount most KAntrak™ displays from the rear of a panel. Users can either fabricate their own mounting arrangements or use Kongsberg Automotive's Rear Mounting Bracket: part number 900061 (see datasheet at www.kongsbergautomotive.com for details). Take the same precautions as when front mounting.

Contact Kongsberg Automotive if you require a mounting template.

Trunnion mounting
All KAntrak™ displays may, optionally, be attached to a surface using a Trunnion Mounting Bracket (see left).

A datasheet on this Kongsberg Automotive part (No. 930293) is available via: www.kongsbergautomotive.com

7. Maintenance and Troubleshooting

No regular maintenance is required, except for cleaning the KAntrak™ lens as required using a soft, damp cloth. Do not use abrasive materials or solvents, specifically white spirit, petrol and acetone. Should any further attention be necessary, please contact your supplier.

If you are experiencing operating problems with the KAntrak™, check these diagnostics:

Problem	Possible solution
Unit does not power up	Ensure connections to unit are correct. Ensure power source is present.
Display is blank or black	Adjust/ reset lighting and contrast settings. Ensure temperature is within operating range of the unit.
Unit fails to display any data	Ensure connections to unit are correct. Ensure data source is broadcasting data.

8. Glossary

CAN	Controller Area Network (also referred to as CANbus); serial communications protocol for automotive use
KAntrak™	Intelligent CAN-compatible LCD display module
GEM	Generic Engine Monitor
ISO	International Standard Organisation
J1939	SAE engine data protocol using CAN 2.0B
J1587	Electronic Data Interchange between Microcomputer Systems in Heavy-Duty Vehicle Applications
LCD	Liquid Crystal Display
RS-232	Standard electrical interface for serial communications
RS-485	Standard differential electrical interface for serial communications
SAE	Society of Automotive Engineers Inc.
Soft keys	Push-button keys whose function changes according to use

9. Important Safety and Legal Information

Under no circumstances shall Kongsberg Automotive or any of its subsidiary companies accept liability for any loss of data, income, incidental damage or consequential losses incurred as a result of the use of the product howsoever caused when used as a monitor for electronically-controlled engines/ transmissions or other systems.

- Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without written permission of Kongsberg Automotive is prohibited.
- Kongsberg Automotive operates a policy of continuous improvement. Kongsberg Automotive reserves the right to alter and improve the KAntrak™ displays and software without prior notice.

Liquid crystal safety

If the liquid crystal display (LCD) is broken, particular care must be taken with any leaking fluid. Urgent action must be taken:

- If the LCD fluid gets onto your skin wipe immediately with a suitable cloth and wash the area well with mild soap and water.
- If the LCD fluid gets into your eye thoroughly rinse your eye with clean water for several minutes and then gain immediate medical assistance.
- If the LCD fluid is swallowed rinse your mouth thoroughly with clean water then drink a substantial volume of water and make yourself vomit. Then gain immediate medical assistance.

CE EMC Directive 89/336/EE

This product has been designed to be compliant with this directive. Compliance can only be ensured by correct installation.

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