KONGSBERG
AUTOMOTIVE

INSTALLATION MANUAL

KAntrak™ 1700

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Before you start - what you should have:

- KAntrak™ 1700 unit (1)
- Locking ring (2)
- KAntrak™ 1700 Brand Sticker (3)
- Installation Manual (4)
- GEM Application User's Guide (5)

Installation guide

Thank you for choosing the KAntrak™ 1700 display.

These pages provide a brief introduction to the KAntrak™ 1700 display but more importantly the recommended installation instructions. Please read through this 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 see the web site:

http://www.kongsbergautomotive.com/

Section/Contents **Page**

1. The KAntrak™ Platform

Kongsberg Automotive KAntrak™ 1700 LCD display is a rugged 75x75mm DIN-format module with 3 soft keys, and offers a 128 x 64 pixel display area. This is large enough to support monitoring and diagnostic data available on the latest generation of electronically controlled systems.

It offers a Deutsch connector interface, and protection to IP67 which covers immersion in water up to 1 meter. Units come with standard CAN 2.0B interface compatible with J1939 protocol used by many manufacturers. Moreover it incorporates a heating element to support reading ability at low temperature up to (-30^{o}C)

2. Software Development Options

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* protocol. KAntrak™ may be programmed to perform an extensive number of display, control and data logging tasks.

Kongsberg Automotive offers a fast-turnaround and cost effective software development service for KAntrak™. 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 program, communication protocols, etc.

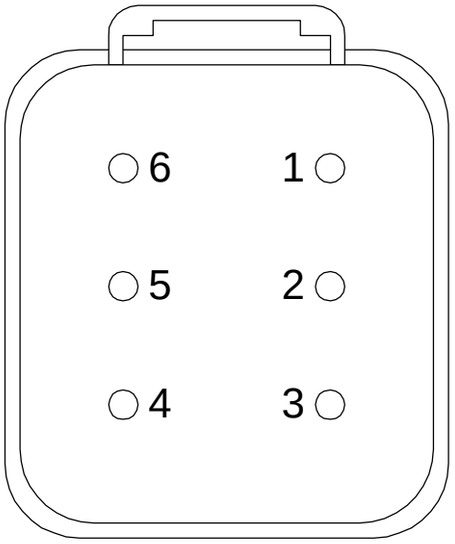
Finally for customers who wish to develop their own application, Kongsberg Automotive has developped a software development kit (SDK) compatible with common embedded tools.

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

More information is available via
http://www.kongsbergautomotive.com/

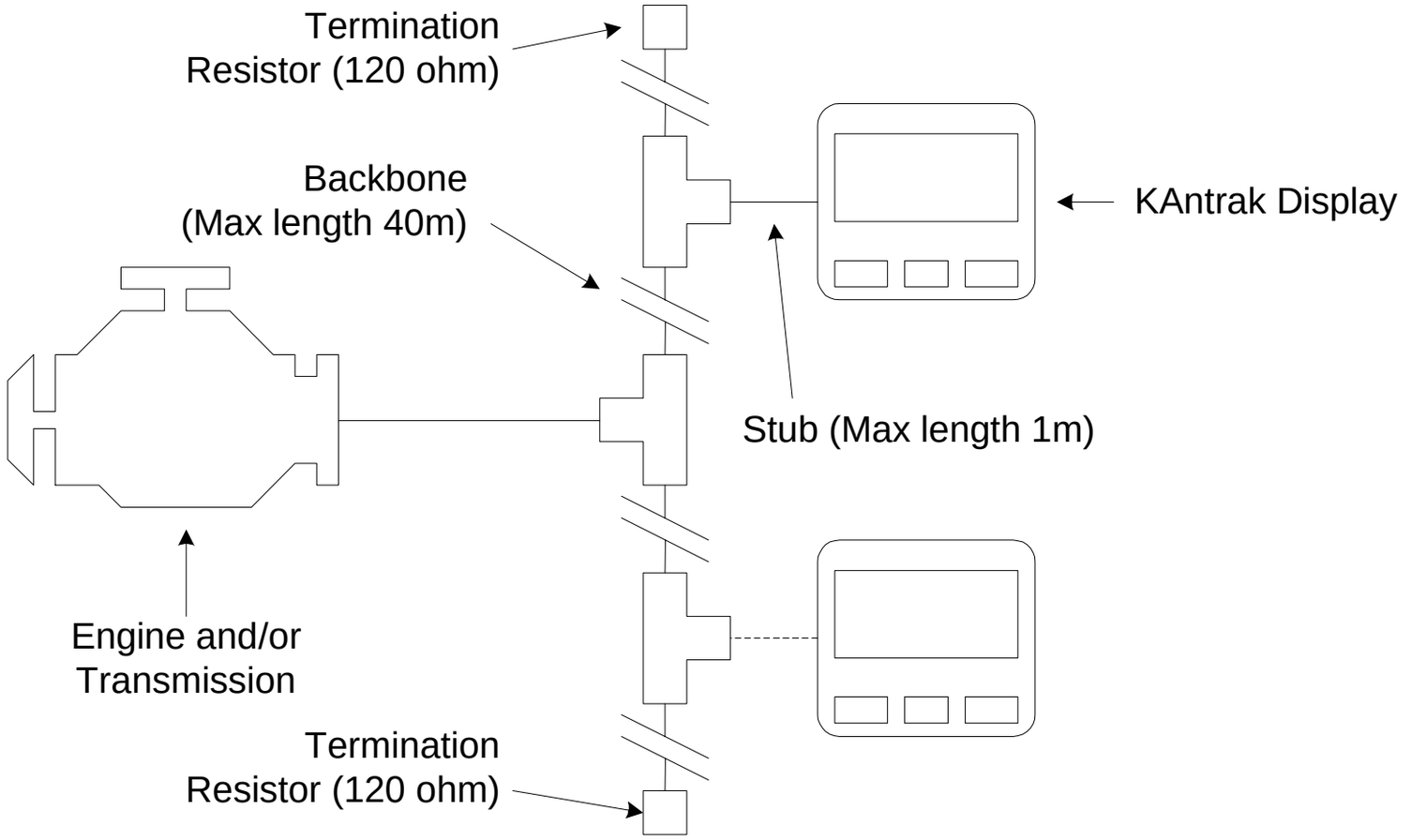
3. KAntrak™ Connection Data

The KAntrak™ interfaces to data via the Deutsch DT04-6P connector on the rear of the display - wired as shown (see pinout diagram). The rear connector can be wired to the vehicle electric system using the Deutsch DT06-6S mating part.

Connector pin out		Signal	Notes
	1	Power (-)	Ground and power (10 - 32Vdc). Supply should be protected by 500mA-rated circuit breaker /fuse
	2	Power (+)	
	3	CAN HI (J1939 HI)	CAN 2.0B port
	4	CAN LO (J1939 LO)	
	5	Alarm Output	Programmable digital output for activating alarm
	6	Fuel Input	Fuel sender signal.

4. 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 120 ohm resistors at each end. In addition, all stubs shoud not exceed 1m in length.

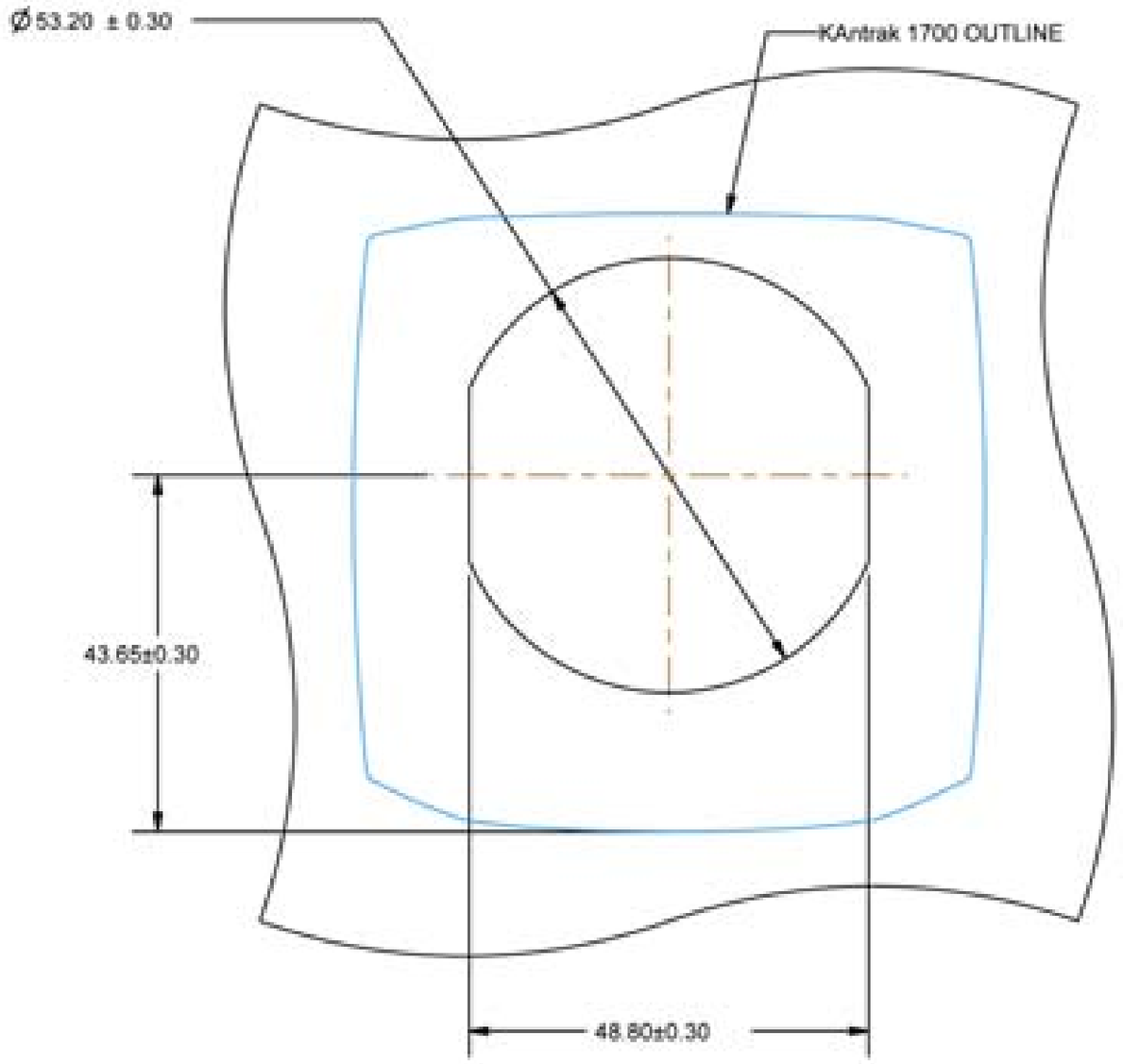


5. KAntrak™ Installation

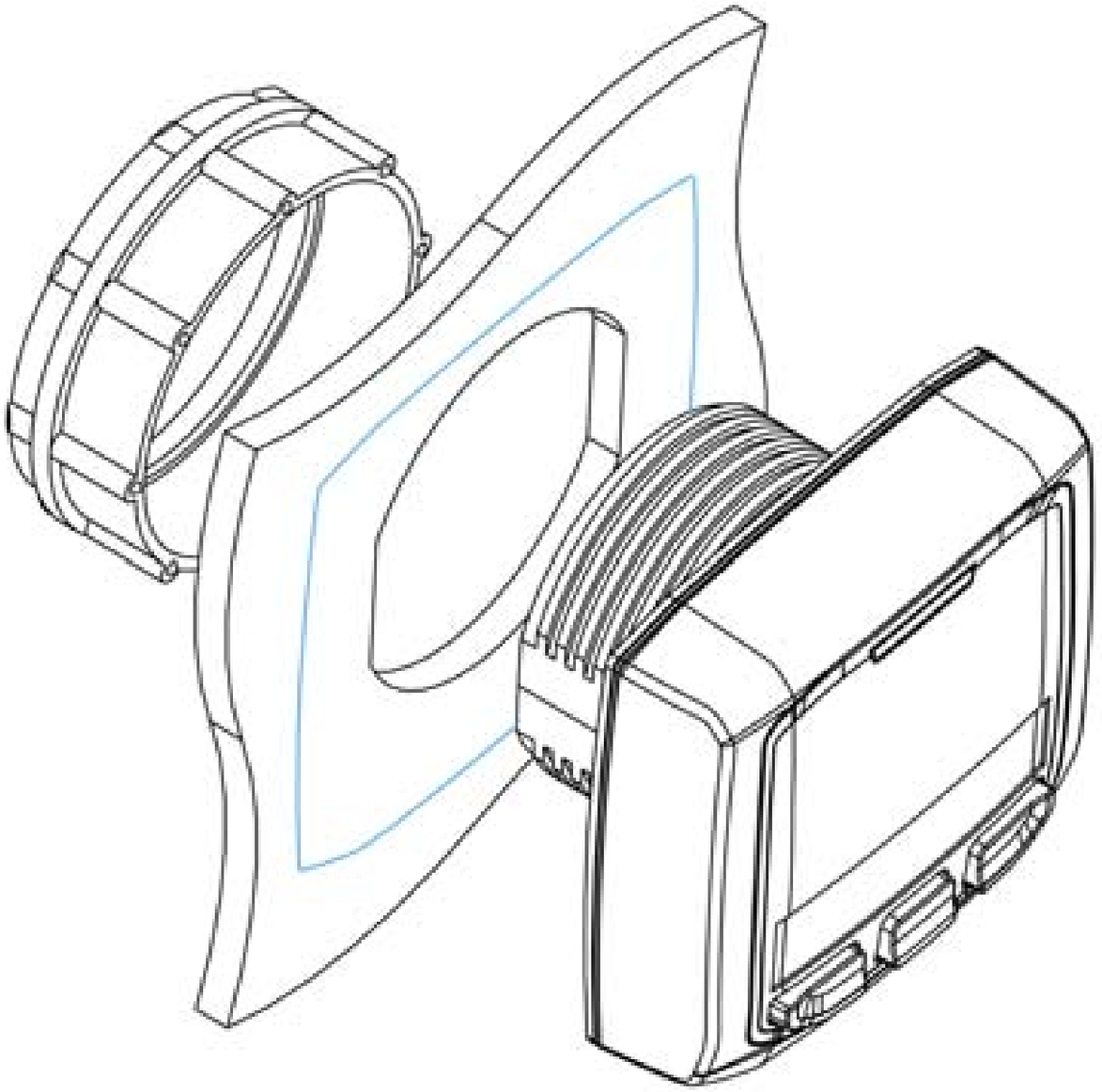
Units are designed to be mounted onto a bulkhead, dashboard or panel. The method is described below. The only required component is the plastic locking ring (PF0709) supplied with every KAntrak™.

Instructions:

- Decide on a location
- Allow adequate clearance behind the display for cable connection, to ensure that the cables are not unduly stressed, and for ventilation. Leave sufficient cable so that the unit may be removed for servicing.
- Cut out the 53mm mounting hole.
- Connect the Deutsch mating part into the housing.
- Place the KAntrak™ in position, secure by screwing the locking ring onto the thread on the rear of the unit.



Panel cut out dimensions



Unit mounting method

6. 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 material 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 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.

7. Glossary

CAN	Controller Area Network (also referred to as CANbus); serial communication 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
LCD	Liquid Crystal Display
Soft keys	Push-button keys whose function change according to use

8. 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 eyes thoroughly rinse your eyes with clean water for several minutes and then immediately seek medical assistance.
- If the LCD fluid is swallowed rinse your mouth thoroughly with clean water then drink a substantial volume of water and induce vomiting. Then immediately seek medical assistance.

CE EMC Directive 2004/108/EC

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

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