CANtrak

intelligent monitoring solutions

CANtrak CONFIGURABLE INPUT MODULE (CCIM)
INSTALLATION MANUAL

Teleflex®

CANtrak
Configurable Input
Module

CCIM

Before you start - what you should have

What you should have:
• CCIM (Part No. 931925)

Optional extras:

• CCIM Development Harness set (Part No. 510627)
• CCIM PC Config Tool (Part No. 340006) for Windows 98 or later.
• CCIM Complete Starter Kit including everything above (Part No. 922002)
• CCIM Deutsch Conector Mating Half Kit (Part No. 531007)

1. Installation guide

Thank you for choosing the CANtrak Configurable Input Module (CCIM). These pages provide a brief introduction to the CCIM unit, but more importantly the recommended installation instructions. Please read through the guide before use.

We hope you will be very happy with this CCIM 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 www.cantrak-int.com or to contact us at: **eurosales@teleflex.com** or in the USA at: **cantraksales@tflx.com**

2. The CCIM Platform

The Teleflex CCIM is a rugged, waterproof module that will operate in a harsh environment as typically encountered in automotive and marine markets. The unit is designed to sample data from analogue sensors (voltage and resistive) and from digital switching sensors and then transmit the resultant data in SAE J1939 or NMEA 2000 serial format via the CAN bus. Each of the sensor inputs and resultant serial messages can be configured independently by use of the CCIM PC Config Tool. Multiple CCIMs may be interconnected on the CAN bus if more sensors are present than one CCIM module can accommodate, or if the CCIM is to be in a distributed I/O system where sensors are positioned far apart from each other.

Two serial interfaces are provided by the hardware: CAN 2.0B and RS232. The CCIM operates over a wide temperature range of -15°C to +70°C (5°F to 158°F). A detailed datasheet is available at: **www.cantrak-int.com**

3. Hardware Features

Input

The CCIM provides seven user defined analogue inputs, supporting 2 types of analogue signals – Voltage [0-10V] and Resistive [0-500Ω]. Switch type sensors can also be supported by using the analogue sensors in Resistive mode. Also provided are three inputs that can read pulsed inputs from sensors such as a tachometer, rotational speed sensor or paddle wheel fuel flow devices. There are 2 types of pulse inputs supported - either standard square wave or magnetic coil pick-up. There is one dedicated analogue input for system/battery voltage monitoring [8-32V].

Output

An open drain FET digital switched output can be used to control an external device such as relay or an alarm, this output can supply up to 1Amp.

Communication Links

The serial CANbus connection is provided to transmit the resultant message. This requires a screened twisted pair cable, terminated at each end with 120Ω resistors. The cable itself should be no more than 40m in length for reliable operation.
The RS232 connection is provided primarily for connection to a PC to allow configuration of the module using the CCIM PC Config Tool.

4. CCIM Set-up & Configuration

The unit is designed to operate from a 10 to 28V DC source, such as a lead-acid battery or a power supply. Before use, the CCIM must be configured using the CCIM PC Config Tool, this is a PC based program that allows all the CCIM inputs and CAN bus outputs to be specified. Additional help on using the CCIM PC Config Tool is provided via a Tutorial or the Tool's built in help system .
In order to configure the CCIM the CCIM PC Config Tool must be installed onto the PC and connected to the CCIM via the RS232 serial port. The CCIM must also be powered to enable configuration.

5. CCIM Connection Data

All connections to the CCIM are provided via two Deutsch DTM range connectors which are integral to the CCIM module. Teleflex can supply the mating connectors and associated components as 1.5 metre long harnesses (Part No. 510627).
It may help to terminate these two harnesses with screw terminal connectors for development purposes.
Alternatively, Teleflex can supply the parts in kit form (Part No. 531007). Similarly you can source them from Deutsch (www.deutschecd.com):
   DTM0612SA-E007, mating connector (Grey)
   DTM0612SB-E007, mating connector (Black)
   WM12S, wedgelock (one per connector)
   0462-201-20141, pin sockets (note that different finishes and termination methods may be selected)
   0413-204-2005, sealing plug (one per unused pin location)

5. CCIM Connection Data - continued

Connector A (Grey)			Connector B (Black)		
Pin No.	Wire Colour on harness 510627	Signal	Pin No.	Wire Colour on harness 510627	Signal
1	Black	Ground	1	Black	Ground
2	Brown	Switched Input 1	2	Brown	Digital Output
3	Red	Analogue Input 7	3	Orange	Tachometer High Input
4	Orange	Analogue Input 5	4	Yellow	RS232 Tx
5	Yellow	Analogue Input 3	5	Green	CAN Power Input +
6	Green	Analogue Input 1	6	Blue	CAN Bus High
7	Blue	Analogue Input 2	7	Violet	CAN Bus Low
8	Violet	Analogue Input 4	8	Grey	CAN Power Input -
9	Grey	Analogue Input 6	9	White	RS232 Rx
10	White	Switched Input 2	10	Turquoise	Tachometer Low Input
11	Turquoise	Fused +5V Supply Output	11	Pink	High Voltage Input
12	Pink	4.096V Reference Supply Output	12	Red	Power Supply Input +

6. 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.
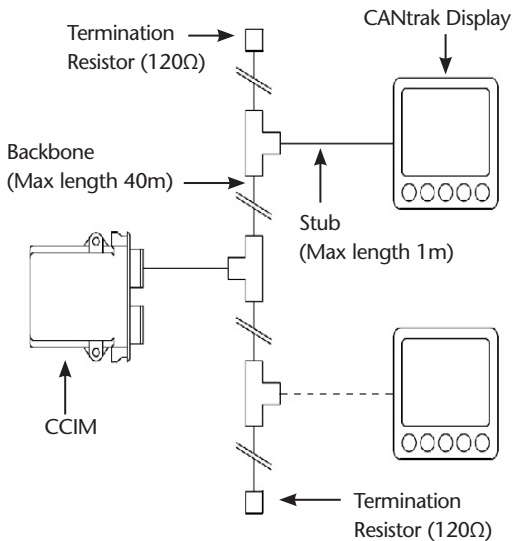
7. CCIM Installation

Mounting Instructions

- Decide on a location near the sensors that are to be connected to the CCIM (ideally within 3m).
- Allow adequate clearance at the front of the unit 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.
- Drill two Ø6mm (0.25 inch) holes to accept mounting bolts that pass through the holes in the CCIM case at centres of 101.6mm (4 inches).
- Fix the CCIM in position.
- Connect the cables (not supplied).

Warning: Take care not to over tighten the mounting bolts.

9
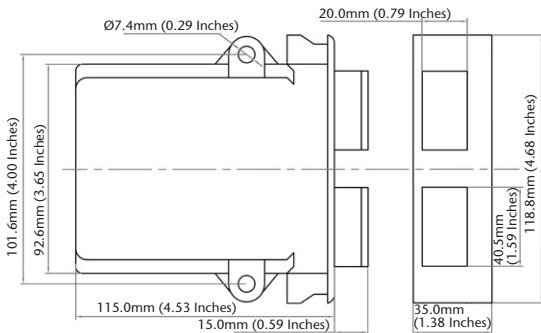
8. Maintenance & Troubleshooting

No regular maintenance is required. Do not use abrasive materials or solvents. Should any further attention be necessary, please contact your supplier.

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

Problem	Possible solution
Unit does not power up	* Ensure connections to unit are correct. * Ensure power source is present.
Unit fails to output any data	* Ensure connections to unit are correct. * Ensure configuration of unit is correct using the query function on CCIM PC Config Tool. * Ensure that the connection to the CAN bus meets with requirements of the SAE J1939 standard. Specifically the inclusion of terminating resistors at each end of the bus.

Verification of data inputs and outputs can be achieved using a J1939 viewer, such as a Teleflex CANtrak 2600/2610 Display with GEM software loaded and in Db viewer mode.

9. Glossary

CAN	Controller Area Network (also referred to as CANbus); serial communications protocol
CCIM	CANtrak Configurable Input Module
CCIM PC Config Tool	CANtrak Configurable Input Module PC Configuration Tool
ISO	International Standard Organisation
J1939	SAE engine data protocol using CAN 2.0B
NMEA	National Marine Electronics Association; serial communications protocol for marine use
RS232	Standard electrical interface for serial communications
SAE	Society of Automotive Engineers Inc.

10. Important Safety & Legal Information

Under no circumstances shall Teleflex 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 an interface 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 Teleflex is prohibited.

• Teleflex operates a policy of continuous improvement. Teleflex reserves the right to alter and improve the CCIM and CCIM PC Config Tool software without prior notice.

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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