

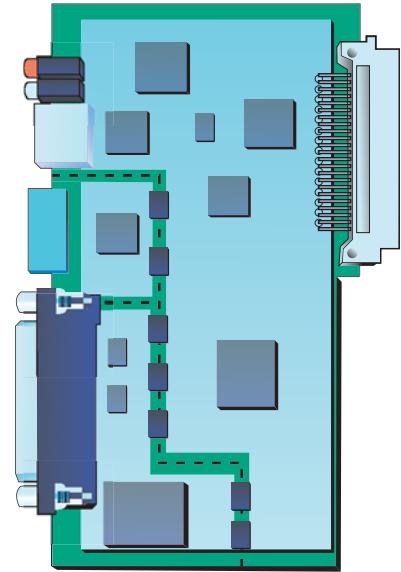
CHAPTER

# 2

## HARDWARE OVERVIEW

## Motion Coordinator MC302-K

**Overview** The MC302-K is an easy to use *Motion Coordinator* designed to fit into the expansion slot of a Kollmorgen S300, S600 and S700 drive. It can control the drive motor, allows for synchronisation functions using the drive's auxiliary encoder port and has an additional "virtual" axis to ease programming. There are 12 opto-isolated inputs and 8 opto-isolated outputs built-in. In addition the MC302-K can directly address the I/O built-in to the drive and the I/O can be expanded using the CAN channel. The MC302-K is designed to provide a powerful yet easy to use control solution for OEM machine builders who are building part of a machine centred around a Kollmorgen drive.



**Programming** The Multi-tasking ability of the MC302-K allows parts of a complex application to be developed, tested and run independently, although the tasks can share data and motion control hardware. On the MC302-K up to 3 Trio BASIC programs can be run simultaneously.

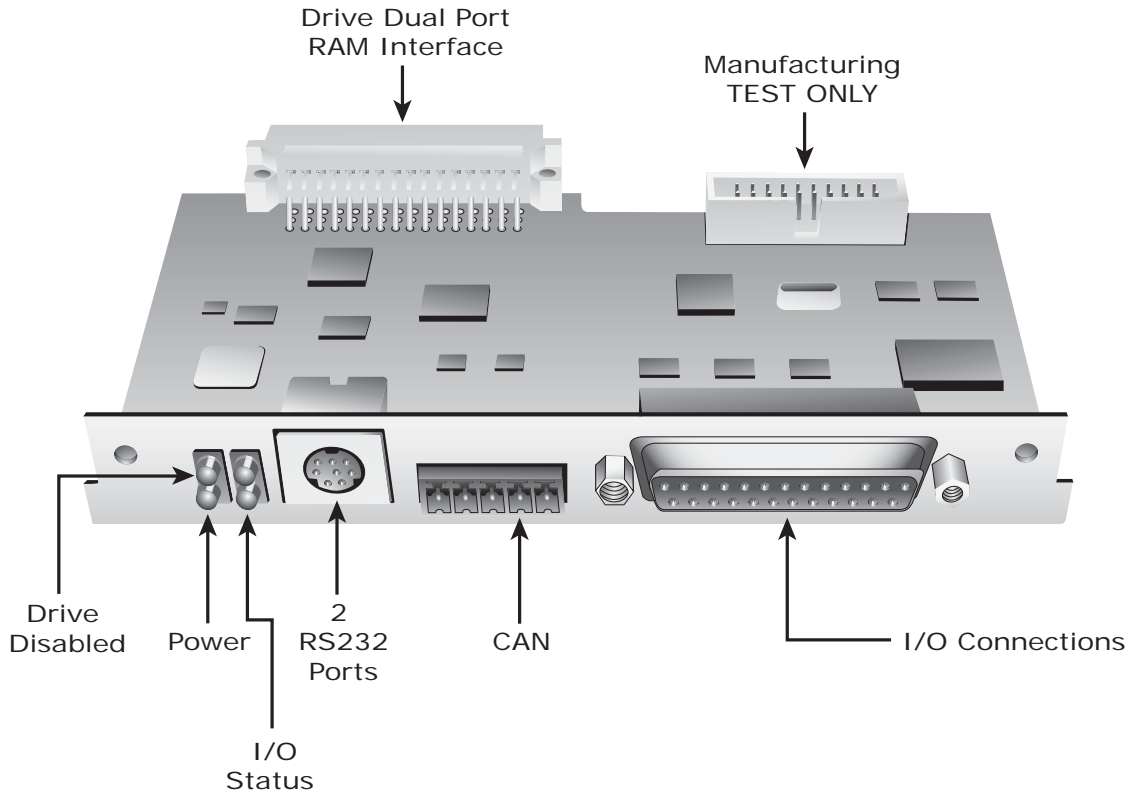
**I/O Capability** The MC302-K has 12 built in 24V inputs and 8 built-in 24V sourcing output channels. These may be used for system interaction or may be defined to be used by the controller for end of travel limits, datuming and feedhold functions if required. The MC302-K can have up to 256 external Input/Output channels and up to 32 analog input channels connected using DIN rail mounted I/O modules. These units connect to the built-in CAN channel of the MC302-K

**Communications** The MC302-K has two built-in RS-232 ports. One of the ports is normally used for programming via a PC. The second serial port can be used to connect an operator interface.

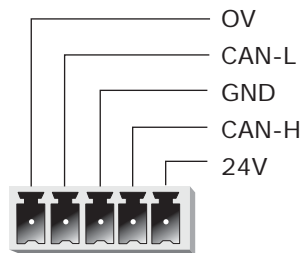
If the built-in CAN connection is not being used for I/O modules it may be used for CAN communications.

## Connections to the MC302K

**Wiring** All wires and cables should be of suitable size and type for the signals carried and the operating environment.



### Connectors 5-Way CAN Connector X13



This is a 5 way 3.81mm pitch connector. The connector is used both to provide the 24 volt power to the isolated CAN port and provide connections for I/O expansion via Trio's P315 and P325 CAN I/O expanders. If the CAN port is unused no 24 Volt power connection is required

The CAN 24 Volt input is internally isolated from the I/O 24 Volts and the processor electronics. This supply should be isolated and independent from the I/O 24V.

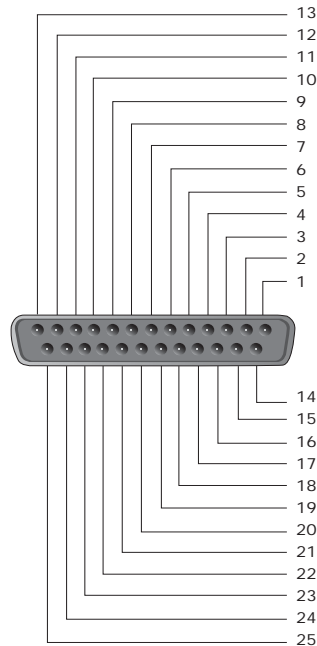
**Note:** The CAN connections are optional.

The V+(24V) and V- are NOT required to power the MC302-K

Power supply: 24V dc, Class 2 transformer or power source.

## 25 Way I/O Connector: X12

This is a standard 25 way D connector. The connector provides the I/O connections.

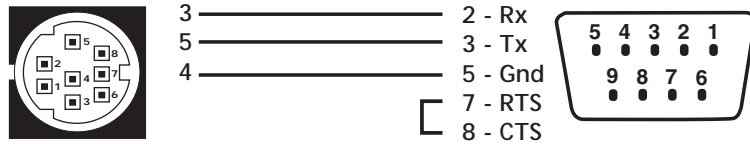


Pin	Use
1	24V I/O (Powers Outputs)
2	0v I/O
3	Out 8
4	Out 9
5	Out 10
6	Out 11
7	0v I/O
8	Out 12
9	Out 13
10	Out 14
11	Out 15
12	24V I/O (Powers Outputs)
13	0V I/O
14	In 19
15	In 18
16	In 17
17	In 16
18	In 7
19	In 6
20	In 5
21	In 4
22	In 3
23	In 2
24	In 1
25	In 0

### I/O Power Inputs

The I/O 0 Volts and I/O 24 Volts are used to power the 24 Volt inputs and outputs. The I/O connections are isolated from the module power inputs on the 5-way CAN connector. The I/O 0 Volts connection must be made if any inputs or outputs are used. The I/O 24 Volts is only required to power outputs and may be omitted if none are used. The output channels are numbered from 8 to 15 for greater compatibility with other *Trio Motion Coordinators*.

## MC302-K Serial Port Connections - X14



Motion Coordinator to 'AT' style PC with 9pin serial connector

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Pin	Function
1	Internal 5V
2	Internal 0V
3	RS232 Transmit A, Port #0
4	Internal 0V
5	RS232 Receive A, Port#0
6	Internal 5V
7	RS232 Transmit B, Port #1
8	RS232 Receive B, Port #1

### Serial Cables

Trio recommend the use of their pre-made serial cables for programming connection to a PC (product code P350). A second RS232 port is available on the X14 Mini-DIN connector for operator interfaces or PLC connection.

## MC302-K - Feature Summary

Size	139 mm x 90 mm x 20mm Overall to suit Kollmorgen drive
Weight	100 g
Operating Temperature	0 - 45 degrees C
Control Inputs	Forward Limit, Reverse Limit, Datum Input, Feedhold Input.
Communication Ports	2 RS232 Channel: 38400 baud, 1 CAN channel built on to board
Position Resolution	32 bit position count
Interpolation modes	Linear 1-3 axes, circular, helical, CAM Profiles, speed control, electronic gearboxes.
Programming	Multi-tasking Trio BASIC system, maximum 3 simultaneous Trio BASIC programs.
Speed Resolution	32 bit. Speed may be changed at any time. Moves may be merged.
Servo Cycle	250 us
Memory	120 Kbytes flash user application memory.
Power Input	Powered from drive. Requires 120mA at 5V.
Drive Enable Output	Via drive dual port ram interface
Encoder Inputs	Drive auxiliary encoder input is mapped into axis 1 of MC302-K
Digital Inputs	12 Opto-isolated 24V inputs + drive inputs, 2 drive inputs may be used for high speed registration
Digital Outputs	8 Opto-isolated 24V 250 mA current sourcing outputs
Size	139 mm x 90 mm x 20mm Overall to suit Kollmorgen drive
Weight	100 g