

# High-speed counter I/O module

MC

M3-40F

6 single-ended counters, 10 digital inputs, 8 digital outputs

- ▶ Six high-speed (1.8 MHz, SE 5V) counters
- ▶ Ten high-speed inputs (24V)
- ▶ Eight high-speed outputs (24V)
- ▶ 32-bit counters
- ▶ On-board processor ensures fast execution

## General specifications

Counter operating modes (channels by mode)	6 count UP
Configurable digital inputs	10 (80 nSec latch time)
Configurable digital outputs	10
Counters per system	128 (32 modules)
Event or PLS zones per output	unlimited
Connection	Removable terminal block
Connection type	Tension clamp
Terminal block part number	069-622210
Terminal wire size (UL 1059)	18 - 22 AWG
Test point	All connections
Module size	1 rack slot (0.75"/19 mm)
Bus power required (5 VDC)	0.26 mA
Isolation rating	500 VDC



Minimum hardware revision	0, A
Minimum firmware revision	1.02
Minimum operating system revision	5.00.90
Documentation number: 950-534006-001	

## High-speed counter I/O module

MC

M3-40F

### Performance specifications

Parameter	Value
Counter range	signed 32-bit
Counter resolution	1 count
Max single channel rate	1.8 MHz
Input reaction time:	
General purpose mode	125µSec
Gate mode	80 nSec
Capture mode	80 nSec
Output activation time (general purpose mode)	125 µSec
Timed output resolution	1mSec

### Electrical specifications

Parameter	Value
<b>SE 5V counter inputs</b>	
Max input voltage	6 V
Turn ON threshold	3.0 VDC
Turn OFF threshold	0.125 VDC
Termination resistor	470 Ω
<b>24V Inputs</b>	
Max input voltage	32 V
Min input current	2.6 mA @ 24 VDC
Turn ON threshold	0.46 * VS
Turn OFF threshold	0.12 * VS
Nominal voltage	24 VDC
Min ON current	1.6 mA
Max OFF current	0.3 mA

### Electrical specifications (cont'd)

Parameter	Value
<b>Outputs</b>	
Nominal voltage	VS
Max ON voltage at:	
50 mA	0.9 * VS
500 mA	1.4 * VS
Max channel current	375 mA
Max module current	3 A
Max leak current/channel	100 µADC

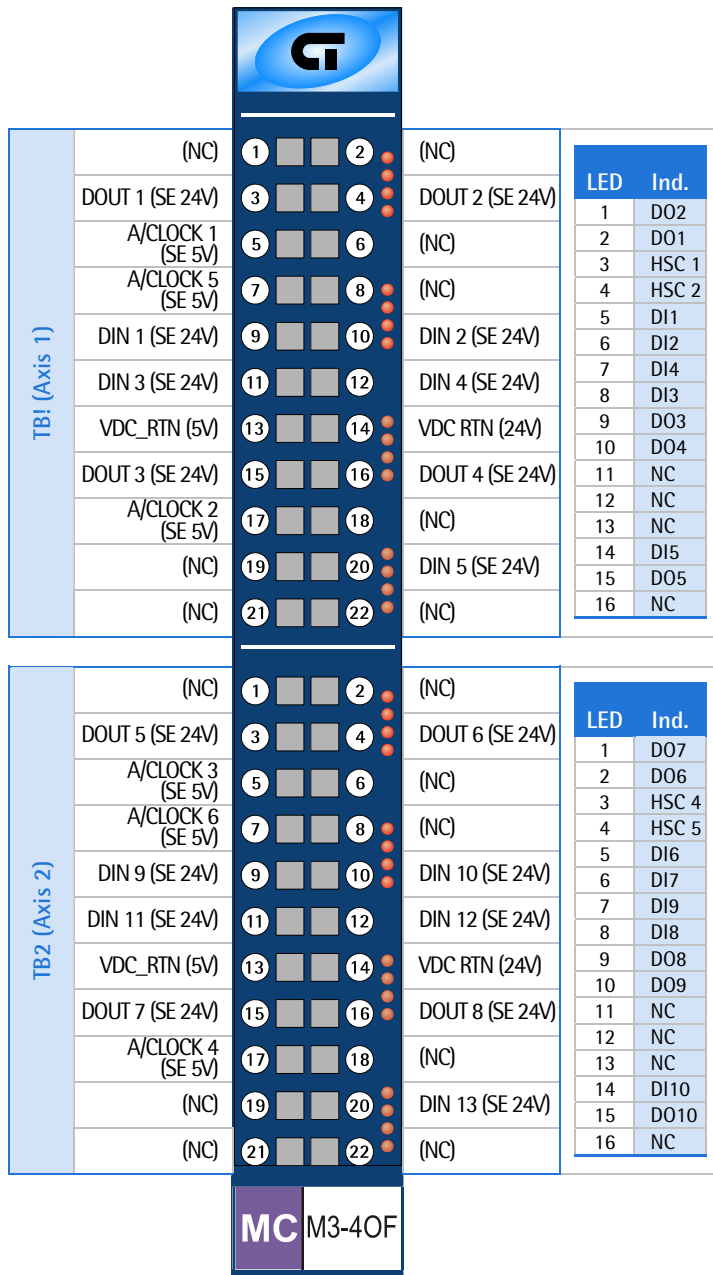
# High-speed counter I/O module

MC

M3-40F

6 single-ended counters, 10 digital inputs, 8 digital outputs

## Terminal block connections



- DIN 6 – DIN 8 and DIN 14 – DIN 16 are not physically present in the M3-40F module but consume allocated I/O in the QuickBuilder program.

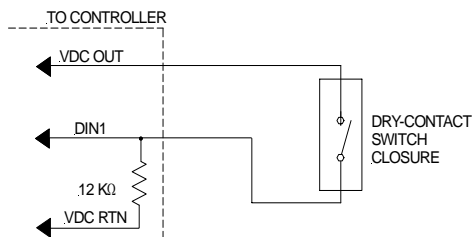
## High-speed counter I/O module

MC

M3-40F

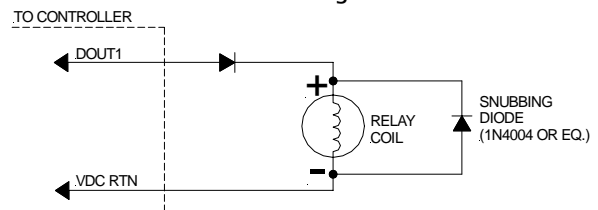
### Application Information

#### All Single-ended Inputs Application



#### Digital Output Applications

##### Sourcing



#### Notes

1. Shields must be terminated on the controller side of the cable.
2. External power supply commons must be tied to the controller's supply voltage return (VDC RTN).
3. The information and illustrations contained herein are the property of Control Technology Corporation and are subject to change without notice. Data based on VS = 24 VDC @ 25°C unless otherwise noted. For additional information and/or updates, visit [www.ctc-control.com](http://www.ctc-control.com). Copyright © 2007 Control Technology Corporation. All Rights Reserved.
4. VS refers to the voltage supply of the controller. VDC OUT = VS(DC voltage supplied to controller's power supply).