



25 South Street  
 Hopkinton, MA 01748  
 Phone: 508.435.9595  
 Fax: 508.435.2373  
[www.ctc-control.com](http://www.ctc-control.com)

## Data Sheet

# M1-21A Digital Output Module

### Eight VDC Sinking Outputs



Data Sheet: M1-21A Digital Output Module

### Description

- ▶ Eight +24 VDC sinking digital outputs (open collector)
- ▶ Open collector NPN transistor to controller's voltage supply return
- ▶ High current: 350 mA per output/1.8 A per module
- ▶ Individual LED status indicator for each output

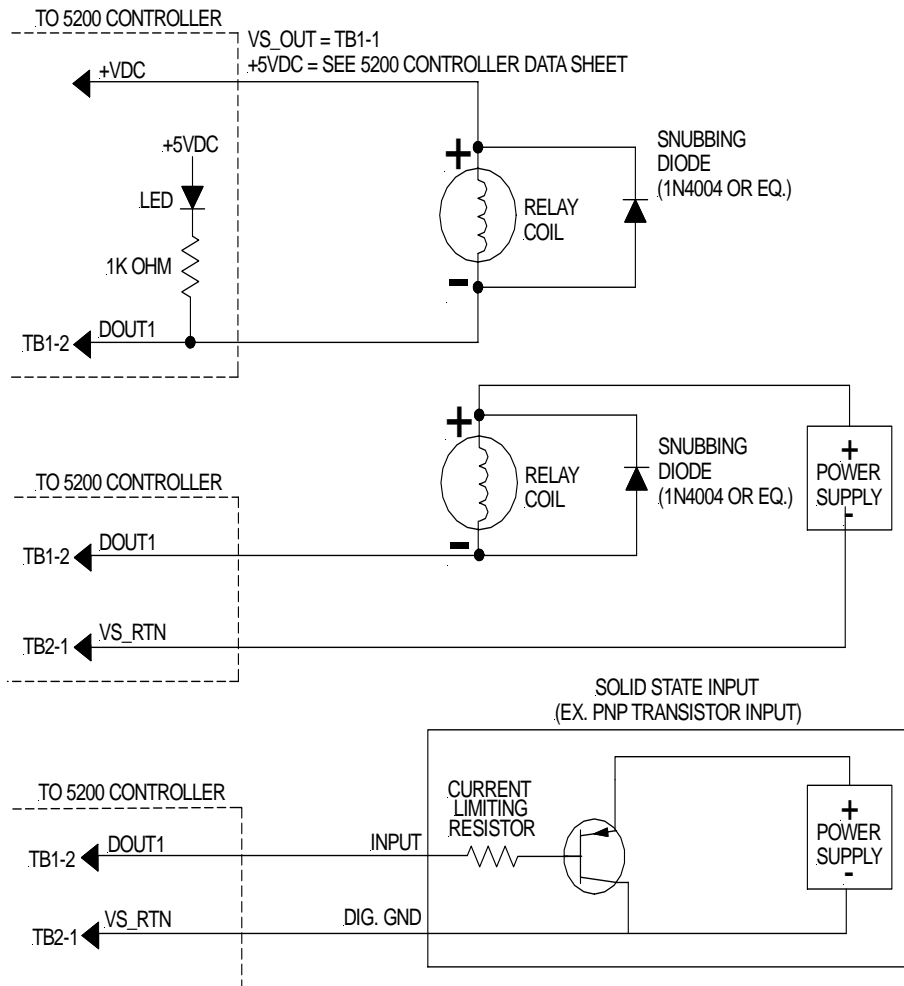
### M1-21A Specifications

Parameter	Value	Description
<b>General</b>		
Number of outputs	8	
Output type	Sinking	Outputs are active low. NPN transistor to controller's voltage supply return (VS_RTN).
Connection type	Screw terminal	Screw terminal spring clamp accepts #14-22 AWG wire. Terminated connector may also be unplugged.
Status indicator	1 LED per output	Each output has a red LED indicator.
Isolation rating	500 VDC	Isolation voltage between any output and other sensitive 5200 circuitry
<b>Performance</b>		
Output current - Note 1		
$I_{OH}$ / channel	350 mA	The maximum 'ON' current that any given output can sink
$I_{OH}$ / module @ 25°C	1 A	The maximum current that all the outputs on a module can sink at a given time (25°C)
$I_{OH}$ / module @ 50°C	1.8 A	The maximum current that all the outputs on a module can sink at a given time (50°C)
$I_{OH}$ / controller	3 A	The maximum current that all the outputs on the controller can sink at a given time
$I_{LEAK}$ per channel	200 $\mu$ A	The maximum leakage current when the output is in the 'OFF' state
Output voltage		
Max $V_{OH}$	+5VDC	The voltage on an output terminal with nothing connected (internal LED and 1K $\Omega$ series resistor to +5VDC)
Max $V_{OL}$ @ 350 mA	1.4 VDC	The maximum output 'ON' voltage (350 mA)
Max $V_{OL}$ @ 50 mA	0.9 VDC	The maximum output 'ON' voltage (50 mA)
Maximum $V_{CE}$	32 VDC	The maximum output 'OFF' voltage
Output response time	0.100 mSec	The maximum application response time to output transition
<b>Environmental</b>		
Temperature	Operating Storage	0 to 50°C -25 to 85°C
Refer to the Model 5200 Controller Data Sheet for proper mounting instructions.		

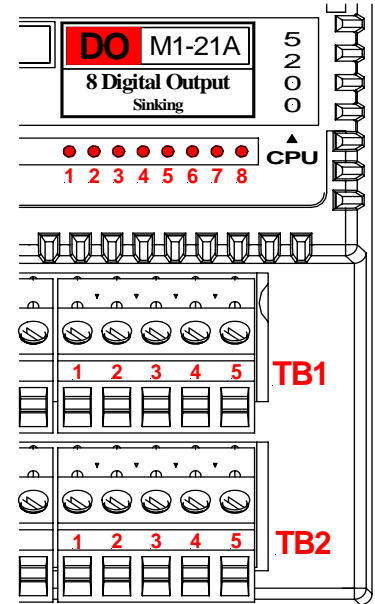
1. With proper mounting as described in the Model 5200 Controller Data Sheet.

**Application Information**

**Typical Application**



**Module Identification**



**I/O Terminations**

TB1-1	VS_OUT
TB1-2	LED1
TB1-3	LED3
TB1-4	LED5
TB1-5	LED7
TB2-1	VS_RTN
TB2-2	LED2
TB2-3	LED4
TB2-4	LED6
TB2-5	LED8

**Notes**



1. If an output is used to drive transistor loads, proper current limiting must be observed.
2. If an output is used to drive inductive loads, inductive kicks must be limited via high-speed diodes and/or equivalent devices. Diodes should be mounted as close to the load as possible.
3. When a digital device is powered via an external power source, it may be necessary to tie the ground of this power source to the controller voltage supply return (VS\_RTN).
4. The total combined output current for the module must not exceed 300 mA (assuming proper mounting as described in the Model 5200 Controller Data Sheet).
5. For register and programming information, refer to the Model 5200 Applications Guide.

The information in this document is subject to change without notice. Any software described in this document is provided under license agreement and may be used or copied only in accordance with the terms of the license agreement.

The information, drawings, and illustrations contained herein are the property of Control Technology Corporation. No part of this manual may be reproduced or distributed by any means, electronic or mechanical, for any purpose other than the purchaser's personal use, without the express written consent of Control Technology Corporation.