VersaMax 24VDC Positive Logic Input, Relay Output Modules

## Product Description

Discrete input/output module IC200MDD843 provides 10 discrete inputs and 6 relay outputs. The inputs form one group of 10 points.

Discrete input/output module IC200MDD840 (shown below) provides 20 discrete inputs and 12 relay outputs. The inputs form two groups of 10 points.

Inputs are positive logic or sourcing-type inputs; they receive current from devices and return the current on the common. The relay outputs form two groups of 6 points. Each output group can drive a maximum of 8 Amps.
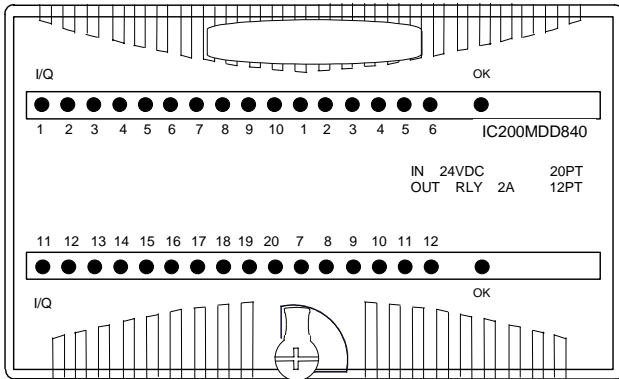
Power for module operation comes from the backplane. Output loads must be powered by an external source.

Intelligent processing for the module is performed by the CPU or NIU.

LED Indicators

Individual green LEDs indicate the on/off state of the output points and input points.

The output LEDs are logic-driven and independent of the load conditions.

The green OK LED is on when backplane power is present to the module.

Configuration Parameters

The module's basic input on/off response time is 0.5ms.

For some applications, it may be preferable to add additional filtering to compensate for conditions such as noise spikes or switch bounce. Input filter times of 0ms, 1.0ms, or 7.0ms are selectable via software configuration, for total response times of 0.5ms, 1.5ms, and 7.5ms respectively. The default is 1.0ms filter time (total response time is 1.5ms).

Preinstallation Check

Carefully inspect all shipping containers for damage. If any equipment is damaged, notify the delivery service immediately. Save the damaged shipping container for inspection by the delivery service. After unpacking the equipment, record all serial numbers. Save the shipping containers and packing material in case it is necessary to transport or ship any part of the system.

Module Characteristics

Points	IC200MDD843: 10 Positive DC Inputs, one group, 6 Form A Relay Outputs, one group
	IC200MDD840: 20 positive DC inputs, two groups of 10 12 Form A relay outputs, two groups of 6
Module ID	IC200MDD843: FFFF8035 IC200MDD840: 80358035
Isolation:	User input to logic (optical) and frame ground 250VAC continuous; 1500VAC for 1 minute
	Group to group: User input to logic (optical) and frame ground 250VAC continuous; 1500VAC for 1 minute
	Point to point: not applicable
LED indicators	One LED per point shows individual point ON/OFF status OK LED indicates backplane power is present
Backplane current consumption	IC200MDD843: 5V output: 190mA maximum
	IC200MDD840: 5V output: 375mA maximum
External power supply	0 to 125VDC, 5/24/125VDC nominal 0 to 265VAC (47 to 63Hz), 120/240VAC nominal
Thermal derating	None
Configuration parameters	Input response time

Input Characteristics

Input voltage	0 to +30VDC, +24VDC nominal
On state voltage Off state voltage	+15 to +30VDC 0 to +5VDC
On state current Off state current	2.0 to 5.5mA 0 to 0.5mA
On, Off response time	0.5ms maximum
Configurable filter time	0ms, 1.0ms (default), or 7.0ms
Input impedance	10kOhms, maximum

Output Characteristics

Output voltage	0 to 125VDC, 5/24/125VDC nominal 0 or 265VAC (47 to 63Hz), 120/240VAC nominal
Output voltage drop	0.3V maximum
Load current	10mA per point minimum, 8.0A maximum per module 2.0 Amps for 5 to 265VAC maximum (resistive) 2.0 Amps for 5 to 30 VDC maximum (resistive) 0.2 Amp for 31 to 125 VDC maximum (resistive)
	10mA per point minimum 2.0A for 5 to 265VAC max. (resistive), 8.0A max. per group 2.0A for 5 to 30VDC max. (resistive), 8.0A max. per group 0.2 A for 31 to 125VDC maximum (resistive)
Output leakage current	Not applicable (open contact)
On, Off response time	10ms maximum
Protection	No internal fuses or snubbers
Switching frequency	20 cycles per minute (inductive load)
Relay type	Fixed coil, moving armature
Contact type	Silver alloy

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Product Revision History

| Rev	Date	Description
IC200MDD840G IC200MDD843G	October 2008	Updated Power Supply OK signal circuitry.
IC200MDD840F IC200MDD843F	April 2005	Improvement to latching mechanism
IC200MDD840E IC200MDD843E	April 2004	Changed to V0 plastic for module housing.
IC200MDD840D IC200MDD843D	January 2004	ATEX approval for Group 2 Category 3 applications.
IC200MDD840C IC200MDD843C	August 2002	Improved noise suppression and rejection.
IC200MDD840A IC200MDD843A	September 2000	Initial product release.

Installation in Hazardous Locations

- EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C & D, DIV. 2 HAZARDOUS LOCATIONS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS LOCATIONS ONLY

- WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;

- WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND

- WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

Backplane Power Drain per Point

The module's backplane 5 volt power requirement increases as the number of points that are simultaneously on increases. The chart below shows the relationship between the number of points on and the maximum current required.

$$mA = 40 + (28 \times \text{number of output points on})$$

Maximum Current Drawn from Backplane (mA)

Number of Output Points On
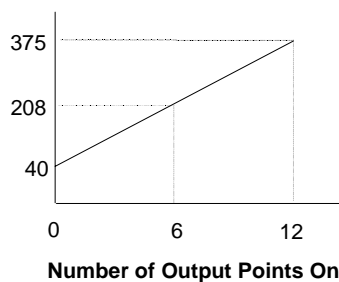
Operating Note

If hot insertion of a module is done improperly, the operation of other modules on the same backplane may be disrupted. See *Installing a Module on a Carrier* in the *VersaMax Modules Manual,* GFK-1504.

Field Wiring Terminals

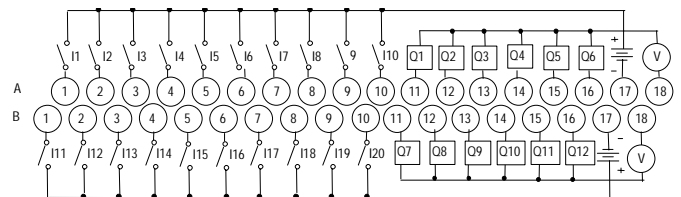| Terminal	Connection	Terminal	Connection
A1	Input 1	B1	Input 11 *
A2	Input 2	B2	Input 12 *
A3	Input 3	B3	Input 13 *
A4	Input 4	B4	Input 14 *
A5	Input 5	B5	Input 15 *
A6	Input 6	B6	Input 16 *
A7	Input 7	B7	Input 17 *
A8	Input 8	B8	Input 18 *
A9	Input 9	B9	Input 19 *
A10	Input 10	B10	Input 20 *
A11	Output 1	B11	Output 7 *
A12	Output 2	B12	Output 8 *
A13	Output 3	B13	Output 9 *
A14	Output 4	B14	Output 10 *
A15	Output 5	B15	Output 11 *
A16	Output 6	B16	Output 12 *
A17	Inputs 1-10 Common	B17	Inputs 11-20 Common *
A18	Outputs 1-6 Common	B18	Outputs 7-12 Common *

* Module IC200MDD840 only.

When wiring outputs to inductive loads, use of external suppression circuits is recommended. See chapter 2, "Installing Wiring for I/O Devices-Wiring to Inductive Loads" in the *VersaMax Modules User Manual*, GFK-1504, for more information.

For module IC200MDD843, if additional bussed terminals are needed, the B terminals can be made available by using a shorting bar. The shorting bar has a maximum current-carrying capacity of 2 Amps per point. See chapter 2 for additional information about using the shorting bar. When wiring outputs to inductive loads, use of external suppression circuits is recommended.

Wiring Connections for Carriers with Two Rows of Terminals

Row B connections shown below are for module IC200MDD843 only.

Wiring Connections for Carriers with Three Rows of Terminals

Side B connections shown below are for module IC200MDD843 only.