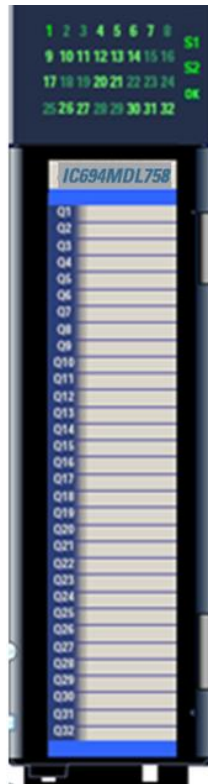# PACSystems™ RX3i

32-POINT, 12/24VDC, 0.5A, OUTPUT MODULE GROUPED WITH ESCP PER GROUP (IC694MDL758)

Caution Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Notes: Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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Introduction

The PACSystems 12/24-volt DC, ESCP per group, 0.5A Positive Logic Output module, IC694MDL758, provides 32 discrete outputs in two isolated groups of 16. Each group has its own common. The outputs are positive logic or sourcing-type outputs; they switch the loads on the positive side of the power supply, and supply current to the load. The outputs can switch user loads over the range of +12 to +24 VDC (+20%, -15%) and can source a maximum current of 0.5 Amps per point.

Each group has electronic short circuit protection and generates a fault if any output in the group is in a short circuit condition. The module provides an ESCP failure status within a group back to the RX3i controller. In addition to this, the module provides a fault on loss of field side power within a group.

Each group can be used to drive different loads. For example, one group might drive 24 VDC loads, and the other could drive 12 VDC loads. Power for the loads must be provided by the user from an isolated source.

This module can be used with either a Box-style (IC694TBB032) or Spring-style (IC694TBS032) front Terminal Block. The Terminal Block is ordered separately.

The blue bands on the label show that MDL758 is a low-voltage module.

This module can be installed in any I/O slot in an RX3i system. It must be used with an RX3i CPU. It cannot be used with a Series 90-30 PLC CPU.

Electronic Short-circuit Protection

Each output group provides "self-recovering" protection against short circuit. The fault is present until the condition that caused the fault is removed or the faulted group is turned off. After the fault condition is removed the output driver automatically sets the output to the state it was in before the fault occurred.

Each output point provides transient voltage protection to clamp high voltages at or below 40VDC.

Specifications: IC694MDL758

Specification	Description
Rated Voltage	12 through 24 volts DC, positive logic
Output Voltage Range	10.2 to 28.8 volts DC
Outputs per Module	32 (two groups of sixteen outputs each)
Isolation	
Field to Backplane (optical) and to Frame Ground	250 VAC continuous; 1500 VAC for 1 minute
Group to Group	50 VAC continuous; 500 VAC for 1 minute
Power Rating	

Output Current
     UL Approved Load Ratings
	0.5 Amps per point with 8 Amps maximum per group without ESCP trip
	     0.5 Amps per point pilot duty
	     0.5 Amps per point resistive

Power Consumption	250 mA (maximum) from 5-volt bus on backplane
	33mA (maximum) per group from user supplied isolated 24VDC with all sixteen outputs in group ON
	20mA (maximum) per group from user supplied isolated 12VDC with all sixteen outputs in group ON
Output Characteristics	
Inrush Current	5.4 Amps for 10ms without ESCP trip
On-state Voltage Drop	0.3-volt DC
Off-state Leakage Current	0.1mA maximum
On Response Time	0.5ms maximum
Off Response Time	0.5ms maximum

Specification	Description
Environmental requirement	
Installation Environment	Surrounding Air 60˚C maximum; For use in Pollution Degree 2 environments only

For product standards, general operating specifications and installation requirements refer to the *PACSystems RX3i System Manual*, GFK-2314.

Installation in Hazardous Areas

The system containing the MDL758 module must be mounted within an ultimate enclosure that can be accessed only using a tool.

The following information is for products bearing the UL marking for Hazardous Locations or ATEX marking for explosive atmospheres:

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

⚠ WARNING

- EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2 OR ZONE 2;
- EXPLOSION HAZARD – WHEN IN HAZARDOUS AREAS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND
- EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

LEDs

Figure 1: LED Display
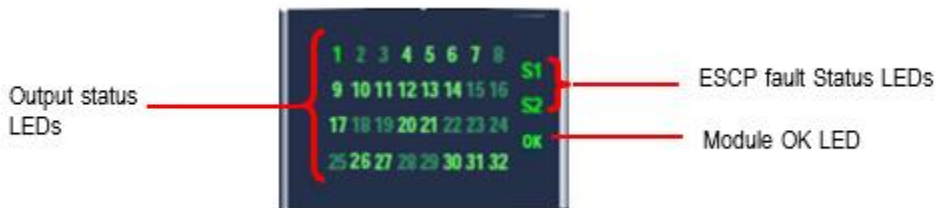
There are 32 GREEN LEDs to show status of the Output channels

Output Status (1-32)	GREEN	Output is ON
	OFF	Output is OFF

There are 2 bi-color LEDs to show fault status of the Output channels

ESCP Status (S1-S2)	GREEN	Groupx Outputs are Normal
	RED	Groupx Outputs have ESCP fault

There is a GREEN LED to show status of the Module power from backplane.

| Module Status (OK)	GREEN	Module power OK
	OFF	Module power not available

Module Data

Module MDL758 uses 16 input bits and 32 output bits to exchange status and filter information with the RX3i CPU. The memory types and offsets for this data are selected in the hardware configuration for the module.

Input Data

The module uses 16 input bits to report its status information to the RX3i CPU. It has the following content:
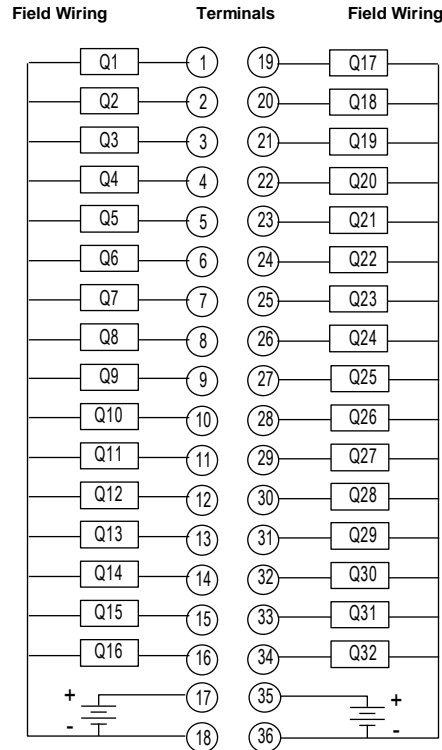
Figure 2: Input Data
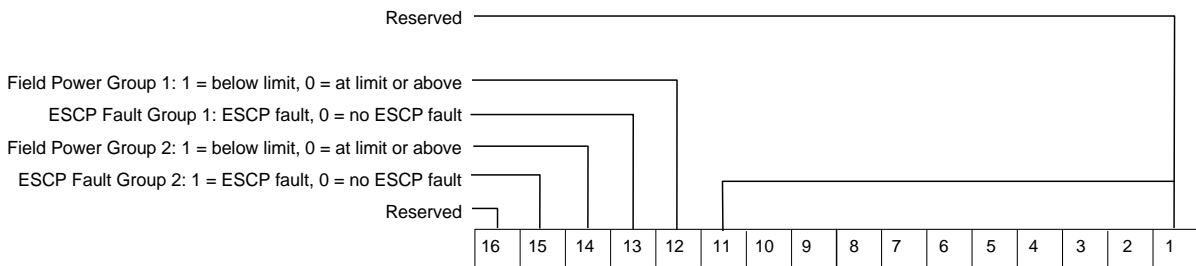
Output Data

The module receives 32 bits of output data from the RX3i CPU.

Field Wiring

Field wiring connections to the module are made to the removable terminal assembly, as described in the RX3i System Manual, GFK-2314.

Connections	Terminals	Terminals	Connections
Output 1	1	19	Output 17
Output 2	2	20	Output 18
Output 3	3	21	Output 19
Output 4	4	22	Output 20
Output 5	5	23	Output 21
Output 6	6	24	Output 22
Output 7	7	25	Output 23
Output 8	8	26	Output 24
Output 9	9	27	Output 25
Output 10	10	28	Output 26
Output 11	11	29	Output 27
Output 12	12	30	Output 28
Output 13	13	31	Output 29
Output 14	14	32	Output 30
Output 15	15	33	Output 31
Output 16	16	34	Output 32
DC+ for 1 - 16	17	35	DC+ for 17 - 32
DC- for 1 - 16	18	36	DC- for 17 - 32

Figure 3: Field Wiring

Field Wiring	Terminals	Field Wiring

Q1	1	19	Q17
Q2	2	20	Q18
Q3	3	21	Q19
Q4	4	22	Q20
Q5	5	23	Q21
Q6	6	24	Q22
Q7	7	25	Q23
Q8	8	26	Q24
Q9	9	27	Q25
Q10	10	28	Q26
Q11	11	29	Q27
Q12	12	30	Q28
Q13	13	31	Q29
Q14	14	32	Q30
Q15	15	33	Q31
Q16	16	34	Q32
+	17	35	+
-	18	36	-

Release History

CATALOGUE Number	Firmware Version	Date	Description
IC694MDL758-BA	1.01	Sep 2019	Following Emerson's acquisition of this product, changes have been made to apply appropriate branding and registration of the product with required certification agencies. No changes to material, process, form, fit or functionality.
IC694MDL758-AA	1.01	Jan 2013	Initial release.

Compatibility

Programmer version requirements	PAC Machine Edition version 7.50 SIM 2 or later
CPU Compatibility	CPU320/315, CRU320, CPE305, CPE310 (firmware version 7.70 or later)

New Features and Enhancements

This module provides 32 discrete outputs in two isolated groups of 16. Each group has electronic short circuit protection and generates a fault if any of the output in the group is in a short circuit condition. The module provides an ESCP failure status within a group back to the RX3i controller. In addition to this, the module provides a fault on loss of field side power within a group.

Restrictions and Open Issues

Moving IC694MDL758 from one slot to another slot in HWC causes a validation error.

When IC694MDL758 is configured in one slot and then moved to another slot in hardware configuration, it causes a validation error for the memory overlap.

To recover from this error, close the PAC Machine Edition project and open it agai

Technical Support & Contact Information

Home link: http://www.Emerson.com/Industrial-Automation-Controls

Knowledge Base: https://www.emerson.com/Industrial-Automation-Controls/support

Note: If the product is purchased through an Authorized Channel Partner, please contact the seller directly for any support.

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