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PRODUCT PROFILE

CompactBlock™ Guard I/O™ 1791 DS

Improve productivity; simplify control system operation, while enhancing operator protection

CompactBlock™ Guard I/O™ on DeviceNet is a safety rated I/O module designed for use in safety applications. It communicates on DeviceNet using the CIP Safety protocol and is optimized to work with Guard PLC™, GuardLogix®, and SmartGuard™ controllers. As a proven technology, Guard I/O will detect failures at the I/O and field device level, while enhancing operator protection.

CompactBlock Guard I/O on DeviceNet is ideal for applications requiring highly distributed I/O blocks close to sensors and actuators. The compact footprint and solid-state design allows for module replacement in minutes and reduces the need for special maintenance or training.

CompactBlock Guard I/O is designed for use with industrial equipment. It is especially suited for robotic, point-of-operation, guard-monitoring, and all remote control applications.

To learn more about Rockwell Automation's Industry leading safety product line please visit: www.ab.com/safety



Benefits:

- **I/O point level diagnostics and LEDs:** quickly identify a problem and reduce machine downtime
- **TÜV certified:** For use in safety applications, up to CAT4/SIL3
- **Versatility:** Can connect to both standard and safety rated sensors
- **Easy Configuration:** via RSLogix™ 5000 or RSNetWorx™ for DeviceNet
- **Flexibility:** supports connection of single and dual channel safety devices on inputs and outputs
- **Faster Installation:** Din rail mountable and removable terminal blocks.
- **Added capability for standard control:** Use test outputs for added diagnostics, panel lamps, standard actuators, etc. and connect standard proximity switches, sensors and pushbuttons to unused safety inputs

PRODUCT SPECIFICATIONS

Cat. No.	1791DS-IB12	1791DS-IB16	1791DS-IB8XOB8	1791DS-IB8XOBV4	1791DS-IB4XOW4
Description	24V dc Input Module on DeviceNet Networks	24V dc Input Module on DeviceNet Networks	24V dc Input/Solid-State Output Module on DeviceNet Networks	24V dc Input/Solid-State Output Module on DeviceNet Networks	24V dc Input/Relay Output Module on DeviceNet Networks
Current Consumption	110 mA @ 24V dc	85 mA @ 24V dc	110 mA @ 24V dc	85 mA @ 24V dc	110 mA @ 24V dc
Voltage, DeviceNet Power, Min.	11V dc	11V dc	11V dc	11V dc	11V dc
Voltage, DeviceNet Power, Max.	25V dc	25V dc	25V dc	25V dc	25V dc
Operating Voltage Range	20.4...26.4V dc (24V dc, -15...+10%)	19.2...28.8V dc (24V dc, -20...+20%)	20.4...26.4V dc (24V dc, -15...+10%)	19.2...28.8V dc (24V dc, -20...+20%)	20.4...26.4V dc (24V dc, -15...+10%)
I/O Channel Isolation	Isolated	Isolated	Isolated	Isolated	Isolated
Digital Inputs					
Number of Inputs (single-channel)	12 safety	16 safety	8 safety	8 safety	4 safety
Voltage, On-State Input, Min.	11 V dc	11 V dc	11 V dc	11 V dc	11 V dc
Voltage, Off-State Input, Max.	5V dc	5V dc	5V dc	5V dc	5V dc
Current, On-State Input, Min.	6 mA	3.3 mA	6 mA	3.3 mA	6 mA
Input Delay Time, OFF to ON ¹	16.2 ms max.	16.2 ms max	16.2 ms max.	16.2 ms max	16.2 ms max.
Input Delay Time, ON to OFF ¹	16.2 ms max.	16.2 ms max	16.2 ms max.	16.2 ms max	16.2 ms max.
Digital Outputs					
Number of Outputs	—	—	8 single-channel, safety solid-state	4 dual channel Bipolar	4 single-channel, safety relay
Output Type	—	—	current sourcing	current sourcing/current sinking pair	current sourcing
Output Current Rating	—	—	0.5 A per point	2 A max. per point 8 A total module @ 40 °C (104 °F) 6 A total module @ 60 °C (140 °F)	Inductive load: AC15: 240V ac @ 2 A (cos φ = 0.3) DC13: 24V dc @ 1 A Resistive load: 240V ac @ 2 A 30V dc @ 2 A
Output Leakage Current, Max.	—	—	0.1 mA	± 1.0 mA	0.1 mA
Output Delay Time, OFF to ON, Max.	—	—	6.2 ms	6.2 ms	26.2 ms
Output Delay Time, ON to OFF, Max.	—	—	6.2 ms	6.2 ms	26.2 ms
Service Life, Mechanical	—	—	—	—	5 000 000 operations, min.
Service Life, Electrical	—	—	—	—	100 000 operations, min.
Short Circuit Protection	—	—	Yes	Yes	No
Overcurrent Detection	—	—	Yes	Yes	No
Standard Pulse Test Outputs					
Number of Pulse Test Sources	4	16	4	8	4
Pulse Test Output Current	0.7 A per point	0.7 A per point	0.7 A per point	0.7 A per point	0.7 A per point
Pulse Test Output Leakage Current, Max.	0.1 mA	0.1 mA	0.1 mA	0.1 mA	0.1 mA
Short Circuit Protection	Yes	Yes	Yes	Yes	Yes
Overcurrent Protection	Yes	Yes	Yes	Yes	Yes
General					
Operating Temperature	-10...+55°C (14...131°F)	-20°C...+60°C (-4°F...+140°F)	-10...+55°C (14...131°F)	-20°C...+60°C (-4°F...+140°F)	-10...+55°C (14...131°F)
Storage Temperature	-40...+70°C (-40...158°F)	-40°C...+85°C (-40°F...+185°F)	-40...+70°C (-40...158°F)	-40°C...+85°C (-40°F...+185°F)	-40...+70°C (-40...158°F)
Relative Humidity	10...95% non-condensing	5...95% noncondensing	10...95% noncondensing	5...95% noncondensing	10...85% noncondensing
Vibration	0.35 mm @ 10...57 Hz 5 g @ 57...150 Hz	5 g @ 10...500 Hz	0.35 mm @ 10...57 Hz 5 g @ 57...150 Hz	5 g @ 10...500 Hz	0.35 mm @ 10...57 Hz 5 g @ 57...150 Hz
Shock, Operating	15 g	30 g	15 g	30 g	10 g
Enclosure Protection	IP 20	IP 20	IP 20	IP 20	IP 20
Dimensions (HxWxD), Metric	68 x 170 x 72 mm ²	81 x 170 x 76 mm ²	68 x 170 x 72 mm ²	81 x 170 x 76 mm ²	95 x 170 x 83 mm ²
Dimensions (HxWxD), Imperial	2.68 x 6.70 x 2.84 in ²	3.1 x 6.7 x 2.9 in ²	2.68 x 6.70 x 2.84 in ²	3.1 x 6.7 x 2.9 in ²	3.74 x 6.70 x 3.27 in ²
Weight, Metric	420 g	600 g	420 g	600 g	600 g
Weight, Imperial	0.92 lb	1.32 lb	0.92 lb	1.32 lb	1.32 lb
Certifications ³	UL, CE, C-Tick, CSA, UL Class I Div 2 Hazardous, UL NRGF, ODVA Conformance, TÜV certified for functional safety up to SIL 3, Cat. 4				UL, CE, C-Tick, CSA, UL NRGF, ODVA Conformance, TÜV certified for functional safety up to SIL 3, Cat. 4

¹ Includes DIN latch and connectors.

² Without filter. (With filter up to 126 ms.)

³ When product is marked. See the Product Certification link at <http://www.ab.com/certification> for Declarations of Conformity, Certificates, and other certification details.

All specifications are subject to change. Refer to product installation instructions.

www.rockwellautomation.com

Power, Control and Information Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846