

The Basic Remote Input Output (BRIO) module is an EN50155/ IEC60571 compliant module designed to be integrated into Train Control, Communication and Management Systems.

MAIN FEATURES

- Configurable device (no programming required)
- Full range power supply 24Vdc to 110Vdc
- Internal readback channels for each static output
- 24Vdc to 110Vdc digital inputs
- Digital input fritting current of 10mA max.
- FPGA-based I/O control (filtering) processing time less than 100µs
- Positioning by key identifier
- Latency between Ethernet command and relay switching <15ms

COMMUNICATION INTERFACES

1 Ethernet bus 100Mbps IEEE802.3

- IP address assigned either
 - Automatically via a DHCP server
 - With an external Key Identifier Dongle (KID)
- UDP & TCP Protocols
- Ethernet/IP-CIP Scanner or Adapter protocols
- IEC 61375-2-3 TRDP

Serial links

- RS485 HDLC daisy chain
- RS232 for local setting
- CAN 2.0A/CAN 2.0B, CANopen

I/O FEATURES

POWER SUPPLY

Full range power supply (24Vdc to 110Vdc)

- Monitoring of the power supply secondary stage
- Protection against polarity reversal, under voltage
- Power consumption : <20W

ANALOG OUTPUTS

Configurable voltage (0-10Vdc) OR current (0-20mA)

- Voltage or Current choice by wiring
- Monitoring of the analog output voltage range (overflow test)
- Resolution : 12 bits
- Accuracy : 2% of the full scale
- Impedance : <10Ω (voltage) or >100kΩ (current)
- Protection against overload current : infinite
- Isolation : 1,000Vrms between ground and electronics

RELAY OUTPUTS

Single pole double throw relay outputs (SPDT)

- DC load breaking capacity : 300V/0.3A -> 30V/8A
- Output delay time : OFF/ON = 10ms, ON/OFF = 5ms
- Monitoring of the relay output commands

DIGITAL INPUTS

Full range voltage (24Vdc to 110Vdc) digital inputs

- Software configurable logic levels (option)
- Adjustable filtering settings
- Continuous or pulsed fritting current: 10mA max. ±10%
- Monitoring of the digital input circuits (forcing test)
- Protection against polarity reversal
- High Speed Counter capabilities

ANALOG INPUTS

Voltage (±10Vdc) AND Current (±20mA)

- Monitoring of the analog input circuits (ADC test)
- Resolution : 12 bits
- Accuracy : 2% of the full scale
- Impedance : 10kΩ (voltage) or 113Ω (current)
- Protection against overvoltage : ±15V (Voltage) ±6V (current)

STATIC OUTPUTS

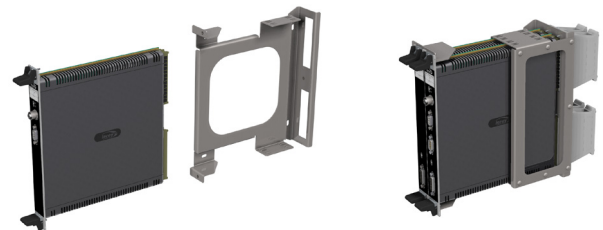
Isolated static outputs (MOSFET Technology)

- Output type : both sink and source load capability
- Output current : 1A max
- Output voltage: nominal supply voltage (16.8V to 137.5V)
- Up to 1kHz Pulse Wigth Modulation (PWM) capabilities



MECHANICAL INTEGRATION

- 6U x 6HP rack mounting OR remote stand-alone mounting with a side support
- Field I/O signals connect to the BRIO module via two DIN41612 F48 class 1 connectors.



RELAY OUTPUTS

- Endurance test :
 - 4.5 million cycles at 143V, 10mA with resistive load
 - 1.5 million cycles at 143V, 270mA with inductive load (L/R=30ms)
- Contact life span: 500,000 cycles at 3A with inductive load (L/R=40ms)
- Relay mechanical life : 20 x 10⁶ operations
- Protection against overvoltage using non-polarized varistors
- Common connected to ground with a Y-type capacitor
- Isolation :
 - Between outputs : 500Vrms
 - Between chassis ground and electronics : 1,000Vrms

STATIC OUTPUTS

- Breakdown voltage : 154V
- Output delay time : Turn-on <50µs, Turn-off <300µs
- Internal readback (switch contact) channels for each static output
- Monitoring of the static output commands
- Protection against :
 - Overvoltage using non-polarized varistors
 - Overload current of 10A for 100ms
- Common connected to ground with a Y-type capacitor
- Isolation :
 - Between outputs : 1,000Vrms
 - Between chassis ground and electronics : 1,000Vrms

PRODUCT REFERENCES

PRODUCT CONFIGURATION											
BASE				OPTIONS							
Digital inputs	Digital outputs		Ethernet	Analog inputs		Analog outputs	CAN 2.0A/B	PWM	HSC	CANopen	Extension port
	Relay	Static SSR		Current (±20mA)	Voltage (±10Vdc)	Current and voltage					
40	8	2	✓	2	2	1	○	○	○	○	○
32	-	10	✓	2	2	1	○	○	○	○	○

✓ Defacto ○ Optional

ENVIRONMENTAL QUALIFICATION TESTS

EMC TESTS

NF EN 61000-4-2	2009	ESD	Enclosure contact : ±6kV Enclosure air : ±8kV	Criterion B
NF EN 61000-4-3	2011	Immunity Radiated RFI	80MHz ... 1GHz : 20V/m 1.4GHz ... 2.1GHz : 10V/m 2.1GHz ... 2.5GHz : 5V/m	Criterion A
NF EN 61000-4-4	2010	Burst	±2kV direct	Criterion A
NF EN 61000-4-5	2007	Surge	±2kV MC ±1kV MD	Criterion A
NF EN 61000-4-6	2009	Immunity conducted RFI	10Vrms	Criterion A
NF EN 55011	2011	Measuring radiated emissions	150kHz ... 500kHz 500kHz ... 30MHz 30MHz ... 230MHz 230MHz ... 1GHz	99dBµV 93dBµV 40dBµV/m at 3m 47dBµV/m at 3m

MECHANICAL TESTS

NF EN 61373	2011	Railway applications/Rolling stock equipment/Shock and vibration tests	50m/s ² XYZ-30 ms 7.9m/s ² XYZ-5 hours	Criterion A
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CLIMATIC TESTS

NF EN 60068-2-1	2007	Cold storage	-40°C 16 hours	Criterion A
NF EN 60068-2-1	2007	Cold start (Ab)	-40°C	Criterion A
NF EN 60068-2-2	2007	Dry heat (Bb)	+70°C	Criterion A
NF EN 60068-2-30	2007	Damp test (Db)	+55°C 95% humidity 48 hours	Criterion A
NF EN 50155	2007	Salt mist	48 hours	Criterion A