IdeSafe Bus System - 2 Wire Safety Communication for Rope Switches

2 Wire Bus System for use with Rope Switches

Programmable 2 wire Safety Bus system
Satisfies highest safety levels using a 2 wire connection bus
DIN rail mounting
Monitored or Auto reset
High flexibility – easy to expand the system
Communication capabilities – can be interfaced to most Text displays
Profibus connection Module available for Diagnostic connection to PLC

Input Modules are address programmable and are incorporated within switches

The Safety Relay will open the contacts if it does not receive a valid "input contact closed" signal from all the input modules which it has been configured to monitor.

Diagnostic information via PLC, PC or Text Display

Up to 63 Safety signals (switches) on one Ide Safe bus

EN 954-1 Cat.4 EN61508 SIL3 TUV Approved

Input modules are incorporated within Safety Switches

Sales Number | Type | Supply Voltage
--- | --- | ---
182001 | Master Module – Channel Generator | 24V dc
182002 | Master Module – Channel Generator | 110V/ 230V ac
182003 | Safety Relay Module (Receiver) | 110V/ 230V ac
182004 | ModBus Gateway Text Display Interface | 110V/ 230V ac
182005 | Text Display | 110V/ 230V ac
182006 | ProfiBus Interface | 110V/ 230V ac
182007 | Programming Module / Interface | 110V/ 230V ac

Switches with Address Modules

<table>
<thead>
<tr>
<th>Sales Number</th>
<th>Type</th>
<th>Supply Voltage</th>
</tr>
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<tr>
<td>182101</td>
<td>GLHD Rope switch M20</td>
<td>Die Cast - Painted Yellow</td>
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<tr>
<td>182102</td>
<td>GLHD Rope switch 1/2&quot; NPT</td>
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<td>182103</td>
<td>GLHL Rope switch M20</td>
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<td>GLHR Rope switch M20</td>
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<td>182112</td>
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</table>
# IdeSafe Bus System - 2 Wire Safety Communication for Rope Switches

## 2 Wire Bus System for use with Rope Switches

**Description:**

Bus powered Address ‘modules’ are integrally fitted within the Rope Switch housings and protected IP67.

They monitor the positively operated switch contacts to provide a 2 wire (channel) safety signal output which is monitored by the Safety Receiver Relay. The ‘safe state’ signal is transmitted continuously by each switch to the Safety Relay as long as the switch contacts are closed and the module self check is positive. Short circuit and open circuit faults are detected along the 2 wire continuous connection.

**Mode of operation:**

The Safety Receiver is used to monitor the NC positively operated switch contacts. The status of the switch contact is continuously transmitted on the IdeSafe Bus using a dynamic signalling principle over two channels (wires). A Master Module (Channel Generator) is always used in conjunction with a Safety Receiver and can monitor up to 63 modules (switches) all connected to the same IdeBus. If one or more modules fail to send the ‘safe state’ signal then the Safety Receiver contacts will release and open.

**Addressing:**

For addressing each module (switch) the hand held Programming Module is used to assign 3 pieces of information which identifies the individual address of the module (switch) – the Synchronisation Channel, Safety Transmit 1 and Safety Transmit 2. (Refer to operating manual for the Programming Module). The Synchronisation Channel is used by the Safety Receiver to send out a synchronisation signal to each input module on the IdeBus, therefore all modules and the Safety Receiver must be coded for the same synchronisation channel. Each module must be coded for a unique channel pair not used by any other switch.

The Safety Transmit 1 and Safety Transmit 2 channels are used by each module to transmit the switch status in such a dynamic way ensuring redundancy, diversity and continuous updating.

**Terminal Connections inside switch:**

- **C** - Switch contact – positive break (internally pre-wired)
- **C** - Switch contact – positive break (internally pre-wired)
- **+D** - Idebus line - external connection
- **-D** - Idebus line - external connection
- **Rx** - Connection for programming only – otherwise common with -D and Tx
- **Tx** - Connection for programming only – otherwise common with -D and Rx

### Standards
- IEC61508
- EN954-1

### Supply
- Current consumption: 1.0mA
- Connection Cable type: Any 2 core or twisted pair
- Open loop voltage: 2.5V,dc
- Short circuit current: 100 microamp
- Dielectric voltage: None
- Power ON delay: < 5s.
- Degree of protection: IP67
- Operating temperature: -25 to 50°C
- Humidity (non condensing): 20 – 80%

### Safety Receiver (Relay output)
- Power Supply: 230V ac or 115V ac
- Output Contact Switching Voltage: 250V a.c./d.c.
- Switching Capacity: 6A AC-1 at 230V
- 3A AC-15 at 230V
- 5A DC-13 at 24V
- Status Outputs: 1 PNP transistor output
- 30V,dc 5mA max.
- 5 Status LED’s:
  - Green - Power
  - Yellow - Idebus status positive
  - Red - Relay Status
  - Red - Manual Start Ready
  - All flashing – configuration mode

### Response times
- Closed: 600 ms
- Open: 300 ms

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