Module carriers - Overview

**Node services carrier-NSM**
This node services carrier will accommodate one BIM and a node services module. It is the recommended BIM carrier for all AC powered nodes because it supports “power health” management. This carrier will support Modbus or Profinbus-DP BIMs. It is also recommended for DC powered nodes that are exclusively 2/1, i.e. where no 2/2 I/O modules are required. For these applications, it is commonly used with the power supply carrier (see this page).

**BIM-only carrier**
This carrier provides an alternative to a node services carrier - NSM when a node services module is not required. This carrier will support Modbus or Profinbus-DP BIMs. It is commonly used with the power supply carrier (see this page).

**Node services carrier-BIM**
These two node services carriers will accommodate one BIM, a node services module, two system DC power supplies and four 2/2 I/O modules. One carrier (8711) supports the Modbus BIM and the other (8712) supports the Profinbus-DP BIM. These carriers are recommended for DC powered nodes that use 2/2, or a mixture of 2/2 and 2/1 I/O modules.

**Controller carrier**
The controller carrier provides a mounting platform for up to two controllers or EBIMs (8521-XX-XX). It can also accommodate a Power Supply Monitor module (8410-NS-PS), to monitor up to seven system power supplies in the node and alert the controller to failures.

**I/O Module carriers**
I/O Module carriers are available in general purpose (2/2) and 2/1 format. As a safeguard, these two types cannot be connected to each other because of the different multipin connectors used. The only way to connect the two types is by placing a Railbus Isolator (on its carrier) between them. Within these basic formats, 4 and 8 module carriers are available and they may be joined in any combination to suit node requirements.

**64 module addressing**
The 8521 controller/EBIM is capable of addressing up to 64 modules, unlike the BIM models 8502 and 8505, which will address a maximum of 32.

Two carriers, models 8709-CA-08 (2/2) and 8729-CA-08 (2/1), are available with additional addressing lines to build a node with up to 64 modules. If 64-slot addressing is required for a node, these carrier types must be used exclusively, i.e. they cannot be mixed with 32-slot address carriers.

Note: The 8521 controller/EBIM can also be configured to a 32 module limit and may then use 32-slot address carriers.

**Power supply carrier**
This carrier is used to mount the 8910-PS-DC system power supply module which provides system power for DC power nodes. It is often used to support the node services carrier-NSM or the BIM-only carrier.

**IS power supply module carrier**
The 8920-PS-DC field power supply module provides power for 2/1 I/O modules and requires its own carrier to mount it. The carrier mounts in-line with 8- and 4-module 2/1 carriers, maintaining the Railbus connections through its edge connectors. This carrier may be used in 32-slot or 64-slot address nodes.

**Railbus isolator carrier**
When a node has IS field wiring terminating on it, an 8922-RB-IS Railbus isolator must be used between 2/2 and 2/1 carrier types. This is to prevent possible mains-voltage fault conditions from being propagated, via the Railbus, to the IS field wiring. The Railbus isolator has its own carrier – 8723-CARB. This carrier may be used in 32-slot or 64-slot address nodes.

**Carrier extenders**
If the chosen field enclosure will not accommodate a single, end to end line of carriers, extenders can be fitted to enable the carriers to be continued on another line. The extenders are left and right handed and connect to the ends of the I/O module carriers using the multipin connectors. A multicore cable is used to link the data and address bus between the carriers.

General purpose (2/2) and 2/1 extenders have different connectors to prevent accidental cross connection of the two types. Carrier extenders may be used in 32-slot or 64-slot address nodes.
## Module carriers - Listing

### 2/2 carriers

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-module carrier (32-slot addressing)</td>
<td>8707-CA-08</td>
</tr>
<tr>
<td>8-module carrier (64-slot addressing)</td>
<td>8709-CA-08</td>
</tr>
<tr>
<td>4-module carrier (32-slot addressing)</td>
<td>8710-CA-04</td>
</tr>
<tr>
<td>Node services carrier (Modbus)</td>
<td>8711-CANS</td>
</tr>
<tr>
<td>Node services carrier (Profibus)</td>
<td>8712-CANS</td>
</tr>
<tr>
<td>BIM carrier</td>
<td>8715-CABI</td>
</tr>
<tr>
<td>Power supply (8910-PS-DC) carrier</td>
<td>8717-CA-PS</td>
</tr>
<tr>
<td>Node services carrier (NSM)</td>
<td>8718-CANS</td>
</tr>
<tr>
<td>Controller/EBIM carrier</td>
<td>8750-CANS</td>
</tr>
<tr>
<td>Carrier extender (right hand)</td>
<td>8020-CERH</td>
</tr>
<tr>
<td>Carrier extender (left hand)</td>
<td>8021-CELH</td>
</tr>
<tr>
<td>Carrier extender cable 0.35m</td>
<td>8001-CC-35</td>
</tr>
<tr>
<td>Carrier extender cable 0.85m</td>
<td>8002-CC-85</td>
</tr>
<tr>
<td>Carrier extender cable 1.2m</td>
<td>8003-CC-12</td>
</tr>
</tbody>
</table>

### 2/1 carriers

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 8-module carrier (32-slot addressing)</td>
<td>8727-CA-08</td>
</tr>
<tr>
<td>IS 8-module carrier (64-slot addressing)</td>
<td>8729-CA-08</td>
</tr>
<tr>
<td>IS 4-module carrier (32-slot addressing)</td>
<td>8720-CA-04</td>
</tr>
<tr>
<td>Railbus isolator carrier</td>
<td>8723-CAR8</td>
</tr>
<tr>
<td>IS module power supply carrier</td>
<td>8724-CAPS</td>
</tr>
<tr>
<td>Carrier extender (right hand)</td>
<td>8030-CERH</td>
</tr>
<tr>
<td>Carrier extender (left hand)</td>
<td>8031-CELH</td>
</tr>
<tr>
<td>IS carrier extender cable 0.35m</td>
<td>8011-CC-35</td>
</tr>
<tr>
<td>IS carrier extender cable 0.85m</td>
<td>8012-CC-85</td>
</tr>
<tr>
<td>IS carrier extender cable 1.2m</td>
<td>8013-CC-12</td>
</tr>
<tr>
<td>IS power extension cable 0.35m</td>
<td>8016-CC-35</td>
</tr>
<tr>
<td>IS power extension cable 0.85m</td>
<td>8017-CC-85</td>
</tr>
<tr>
<td>IS power extension cable 1.2m</td>
<td>8018-CC-12</td>
</tr>
<tr>
<td>IS carrier extension cable set, 0.35m</td>
<td>8032-CC-35</td>
</tr>
<tr>
<td>IS carrier extension cable set, 0.85m</td>
<td>8033-CC-85</td>
</tr>
<tr>
<td>IS carrier extension cable set, 1.2m</td>
<td>8034-CC-12</td>
</tr>
</tbody>
</table>
**Module carriers**

**8-module carrier**

- 32-slot address bus*
- accepts up to eight I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- distributes Bussed Field Power to modules
- isolated earthing bar for cable screens/shields

**CARRIER SPECIFICATION**

*See also System Specification*

**HAZARDOUS AREA APPROVALS**

<table>
<thead>
<tr>
<th>Location of node</th>
<th>Class 1, Div 2, Groups A, B, C, D T4 hazardous location or Zone 2, IIC T4 hazardous location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of field wiring</td>
<td>As node</td>
</tr>
<tr>
<td>Field terminals accepted</td>
<td>General purpose, 2/2</td>
</tr>
<tr>
<td>I/O modules accepted</td>
<td>General purpose, 2/2</td>
</tr>
</tbody>
</table>

**ELECTRICAL**

<table>
<thead>
<tr>
<th>Railbus connectors</th>
<th>Female in, male out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module address range</td>
<td>1–32</td>
</tr>
</tbody>
</table>

**Bussted field power supply (optional)**

Two 8-pin connectors are provided at the top rear of the carrier to connect power supplies for 'field power'. Such supplies are routed through certain I/O module to provide power to field circuits.

**MATERIALS**

<table>
<thead>
<tr>
<th>Carrier moulding</th>
<th>Modified poly-phenylene oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed wiring board</td>
<td>Epoxy resin woven glass laminate</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Ambient temp</th>
<th>–40°C to +70°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>–40°C to +85°C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>5 to 95% RH (non-condensing)</td>
</tr>
</tbody>
</table>

**Vibration and Shock**

See System specification sheet

**MECHANICAL**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>342 (w) x 170 (d) x 22 (h) mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>680 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mounting methods</th>
<th>Flat panel or DIN rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN-rail types</td>
<td>'Top hat' 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022</td>
</tr>
<tr>
<td></td>
<td>G-section rail to EN 50035</td>
</tr>
</tbody>
</table>

**BUSSED FIELD POWER CONNECTIONS**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Bussed Field Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>–ve (or Neutral)</td>
</tr>
<tr>
<td>3</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>4</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>5</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>6</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>7</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>8</td>
<td>–ve (or Neutral)</td>
</tr>
</tbody>
</table>

Note: A second connector uses the same pin assignments for modules 5 & 6 and 7 & 8.

* Must not be mixed with 64-slot address carriers

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**GE Intelligent Platforms Contact Information**

Americas: 1-800-433-2682 or 1-434-978-5100
Global regional phone numbers are listed on our web site at www.ge-ip.com/contact

www.ge-ip.com/process
Module carriers

8-module carrier - extended addressing

- 64-slot address bus*
- accepts up to eight I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- distributes Bussed Field Power to modules
- isolated earthing bar for cable screens/shields

CARRIER SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of carrier
........Class 1, Div 2, Groups A, B, C, D T6 hazardous location or
......Zone 2, IIC T6 hazardous location
Location of field wiring ........................................As carrier
Field terminals accepted .........................General purpose, 2/2
I/O modules accepted ........................ General purpose, 2/2
Applicable standards:
◆ Factory Mutual Research Co., Class No. 3611 for Class I,
Division 2, Groups A, B, C, D hazardous locations
◆ CSA Std C22.2 No. 213 for Class I, Division 2, Groups A,
B, C, D hazardous locations
◆ ATEX Category 3 (for Zone 2 installation)to EN50021:1999
protection type ‘n’

ELECTRICAL
Railbus connectors ............................................female in, male out
Module address range ......................................................1–64
Bussed field power supply (optional)
Two 8-pin connectors are provided at the top rear of the carrier to
connect power supplies for ‘field power’. These supplies are routed
through I/O modules that require power for their field circuits.

MATERIALS
Carrier moulding ..................Modiﬁed poly-phenylene oxide
Printed wiring board ..........Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating, .....................................................– 40°C to + 70°C
Storage ..........................................................– 40°C to + 85°C
Relative Humidity ...................5 to 95% RH (non-condensing)
Vibration and Shock ..................See System specification

MECHANICAL
Dimensions ..................................................342 (w) x 170 (d) x 22 (h) mm
Weight .........................................................680 g
Mounting methods ..................Flat panel or DIN rail
DIN-rail types .................‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022
..............................G-section rail to EN 50035

BUSSED FIELD POWER CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I/O modules 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>–ve (or Neutral)</td>
</tr>
<tr>
<td>3</td>
<td>I/O modules 1 &amp; 2</td>
</tr>
<tr>
<td>4</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>5</td>
<td>I/O modules 3 &amp; 4</td>
</tr>
<tr>
<td>6</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>7</td>
<td>I/O modules 3 &amp; 4</td>
</tr>
<tr>
<td>8</td>
<td>–ve (or Neutral)</td>
</tr>
</tbody>
</table>

Note: A second connector uses the same pin assignments for modules 5 & 6 and 7 & 8.

* For use only with 8521-XX-XX controller/EBIM, and cannot be mixed with 32-slot address carriers
Module carriers

4-module carrier

- 32-slot address bus*
- accepts up to four I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- distributes Bussed Field Power to modules
- isolated earthing bar for cable screens/shields

CARRIER SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of node
.........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIIC T4 hazardous location
Location of field wiring ...........................................As node
Field terminals accepted .........................General purpose, 2/2
I/O modules accepted ................................ General purpose, 2/2

ELECTRICAL
Railbus connectors ........................................female in, male out
Module address range ..............................................1–32
Bussed field power supply (optional)
An 8-pin connector is provided at the top rear of the carrier to
connect power supplies for ‘field power’. Such supplies are routed
through certain I/O module to provide power to field circuits.

MATERIALS
Carrier moulding .........................Modified poly-phenylene oxide
Printed wiring board ..............Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating ..............................................– 40°C to + 70°C
Storage ..............................................– 40°C to + 85°C
Relative Humidity .........................5 to 95% RH (non-condensing)
Vibration and Shock .................See System specification sheet

MECHANICAL
Dimensions .....................................178 (w) x 170 (d) x 22 (h) mm
Weight .................................................350 g
Mounting methods .........................Flat panel or DIN rail
DIN-rail types
.........‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022
.........G-section rail to EN 50035

BUSSED FIELD POWER CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Bussed Field Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>−ve (or Neutral)</td>
</tr>
<tr>
<td>3</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>4</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>5</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>6</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>7</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>8</td>
<td>−ve (or Neutral)</td>
</tr>
</tbody>
</table>

* Must not be mixed with 64-slot address bus carriers
Module carriers

Node services carrier

- Modbus BIM
- accommodates one BIM, two PSUs and four I/O modules
- screw terminals for LAN
- DIN rail or panel mounting
- printed wiring board
- rugged polycarbonate moulding
- routes Bussed Field Power to I/O modules
- isolated earthing bar for cable screen/shield

CARRIER SPECIFICATION
See also System Specification

CARRIER MOUNTING MODULES
PSU Modules (main and redundant) 8910-PS-DC
Bus Interface Module (Modbus) 8505-BIMB
Node Services Module 8510-NS-MO
I/O modules general purpose (2/2) various

HAZARDOUS AREA APPROVALS
Location of node
Class 1, Div 2, Groups A, B, C, D T4 hazardous location or Zone 2, IIC T4 hazardous area
Location of field wiring As per node
Field terminals accepted General purpose or Zone 2/Div 2
I/O modules accepted General purpose or Zone 2/Div 2

ELECTRICAL
Railbus connector male out
External dc power supply (optional)
A 6-pin connector is provided at the top/rear of the carrier to connect a 12.0 V dc (±5%) power supply. This is an alternative to the carrier mounted PSU modules.
Bussed field power supply (optional)
An 8-pin connector is provided at the top rear of the carrier to connect power supplies for ‘field power’. Such supplies are routed through certain I/O module to provide power to field circuits.

LAN CONNECTORS
LAN A 6-way, screw-terminal (x2)
LAN B 6-way, screw-terminal (x2)

MATERIALS
Carrier moulding Modified poly-phenylene oxide
Printed wiring board Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating 40°C to + 70°C
Storage 40°C to + 85°C
Relative Humidity 5 to 95% RH (non-condensing)
Vibration and Shock See System specification sheet

MECHANICAL
Dimensions 342 (w) x 170 (d) x 22 (h) mm
Weight (approx.) 680 g
Mounting methods Flat panel (4 fixings) or DIN rail
DIN-rail types ‘Top hat’, 7.5 x 35 mm or 15 x 35 mm to EN 50022, G-section, to EN 50035
### LAN INTERFACE

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rx +</td>
</tr>
<tr>
<td>2</td>
<td>Tx +</td>
</tr>
<tr>
<td>3</td>
<td>Rx –</td>
</tr>
<tr>
<td>4</td>
<td>Tx –</td>
</tr>
<tr>
<td>5</td>
<td>Gnd</td>
</tr>
<tr>
<td>6</td>
<td>Gnd</td>
</tr>
</tbody>
</table>

Each LAN has duplicate connections wired in parallel - pin 1 to pin 1, pin 2 to pin 2, etc.

### LAN DIL SWITCHES

One switch block per LAN. Operating mode set with switches.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Switch positions</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode 1: RS422</td>
<td>ON ON</td>
<td>–</td>
</tr>
<tr>
<td>Mode 2: RS485</td>
<td>ON OFF</td>
<td>–</td>
</tr>
<tr>
<td>Mode 3: RS485</td>
<td>ON OFF</td>
<td>–</td>
</tr>
<tr>
<td>Mode 4: RS485</td>
<td>OFF OFF</td>
<td>–</td>
</tr>
</tbody>
</table>

### POWER SUPPLY CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>External Power</th>
<th>Bussed Field Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test Point 1</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
<td>–ve (or Neutral)</td>
</tr>
<tr>
<td>3</td>
<td>+12 V</td>
<td>I/O Modules 1 &amp; 2</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>5</td>
<td>0 V</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>6</td>
<td>Test Point 2</td>
<td>+ve (or Live)</td>
</tr>
<tr>
<td>7</td>
<td>Not applicable</td>
<td>I/O Modules 3 &amp; 4</td>
</tr>
<tr>
<td>8</td>
<td>Not applicable</td>
<td>–ve (or Neutral)</td>
</tr>
</tbody>
</table>

Pins for power supplies are provided in pairs. This enables one pin to be used for the supply input and the second to loop to another connector, when required.
Module carriers

Node services carrier

- Profibus BIM
- accommodates one BIM, two PSUs and four I/O modules
- sub-miniature, 9-pin, D connectors for LAN
- DIN rail or panel mounting
- printed wiring board
- rugged polycarbonate moulding
- routes Bussed Field Power to I/O modules
- isolated earthing bar for cable screen/shield

CARRIER SPECIFICATION
See also System Specification

CARRIER MOUNTING MODULES
PSU Modules (main and redundant) ..................8910-PS-DC
Bus Interface Module ......................[Profibus-DP] 8502-BI-DP
Node Services Module ........................8510-NS-MO
I/O modules .................................general purpose (2/2) various

HAZARDOUS AREA APPROVALS
Location of node
.........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
.....Zone 2, IIC T4 hazardous area
Location of field wiring..........................As per node
Field terminals accepted ....General purpose or Zone 2/Div 2
I/O modules accepted ........General purpose or Zone 2/Div 2

ELECTRICAL
Railbus connector ..........................................................male out
External dc power supply (optional)
A 6-pin connector is provided at the top/rear of the carrier to
connect a 12.0 V dc (±5%) power supply. This is an alternative to the
carrier mounted PSU modules.

Bussed field power supply (optional)
An 8-pin connector is provided at the top rear of the carrier to
connect power supplies for ‘field power’. Such supplies are routed
corner I/O module to provide power to field circuits.

LAN CONNECTORS
LAN A ..................................................9-way ‘D’ sub-miniature, female (x2)
**Module carriers**

### LAN INTERFACE

![LAN Interface Diagram]

**LAN connections**

**RS485 interface** (x2)

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Description</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shield/protective ground</td>
<td>Pin 1</td>
<td></td>
</tr>
<tr>
<td>RxD / TxD +</td>
<td>Pin 3</td>
<td></td>
</tr>
<tr>
<td>DGND (0V)</td>
<td>Pin 5</td>
<td></td>
</tr>
<tr>
<td>VP (0V)</td>
<td>Pin 6</td>
<td></td>
</tr>
<tr>
<td>RxD / TxD -</td>
<td>Pin 8</td>
<td></td>
</tr>
</tbody>
</table>

*The LAN has duplicate connections wired in parallel: pin 1 to pin 1, pin 2 to pin 2, etc.*

### POWER SUPPLY CONNECTIONS

**External Power**

- **Terminal:** 1, 2, 3, 4, 5, 6, 7, 8
- **Power Supply Connections:**
  - 1: Test Point 1
  - 2: 0 V
  - 3: +12 V
  - 4: +12 V
  - 5: 0 V
  - 6: Test Point 2
  - 7: Not applicable
  - 8: Not applicable

**Bussed Field Power**

- **Terminal:** 1, 2, 3, 4, 5, 6, 7, 8
- **Power Supply Connections:**
  - 1: I/O Modules 1 & 2
  - 2: -ve (or Neutral)
  - 3: I/O Modules 1 & 2
  - 4: +ve (or Live)
  - 5: I/O Modules 3 & 4
  - 6: +ve (or Live)
  - 7: I/O Modules 3 & 4
  - 8: -ve (or Neutral)

*Pins for power supplies are provided in pairs. This enables one pin to be used for the supply input and the second to loop to another connector, when required.*

---

**GE Intelligent Platforms Contact Information**

**Americas:** 1-800-433-2682 or 1-434-978-5100

Global regional phone numbers are listed by location on our website at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

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[www.ge-ip.com/process](http://www.ge-ip.com/process)
Module carriers

**BIM carrier**

- accommodates Bus Interface Module
- Modbus or Profibus-DP
- dual LAN connections (A & B)
- switchable RS485/RS422 termination options
- DIN rail or panel mounting

**CARTRIER SPECIFICATION**

*See also System Specification*

**LAN CONNECTORS**

- **LAN A** .........................................9-pin, D, sub-miniature, female
- **LAN B** .........................................9-pin, D, sub-miniature, female

Switchable terminations for Modbus RS485, Modbus RS422 or Profibus-DP

**CARRIER MOUNTING MODULES**

- **Bus Interface Modules** ........................Profibus-DP 8502-BI-DP
- ..........................................................Modbus 8505-BI-MB

**HAZARDOUS AREA APPROVALS**

- Location of node ..................................Zone 2, IIC T4 hazardous area
- ......................................................or Class 1, Div 2, Groups A, B, C, D T4 hazardous location

**ENVIRONMENTAL**

- Ambient temp
  - Operating ..............................................– 40°C to + 70°C
  - Storage ...............................................– 40°C to + 85°C
- Relative Humidity ..............................5 to 95% RH (non-condensing)
- Vibration and Shock ..........................See System specification sheet

**MATERIALS**

- Carrier moulding ....................Modified Poly-Phenylene Oxide
- Printed wiring board ...........Epoxy Resin Woven Glass Laminate

**DC POWER**

- External power supply ......................12.0 V dc ± 5%
  (via 6-pin external power connector at top/rear)

**MECHANICAL**

- Dimensions (overall) ......................93 (w) x 170 (d) x 35 (h) mm
- Weight (approx.) ...............................680 g
- Mounting methods ......................Flat panel (2 fixings) or DIN rail
- DIN-rail types ..............................‘Top hat’, 7.5 x 35 mm to EN 50022
  ...................................................or 15 x 35 mm to EN 50022
  ...................................................or G-section, to EN 50035
Module carriers

LAN INTERFACE

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Modbus RS422</th>
<th>Modbus RS485</th>
<th>Profibus-DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>FGND/Socket shroud</td>
<td>FGND/Socket shroud</td>
<td>FGND/Socket shroud</td>
</tr>
<tr>
<td>Pin 2</td>
<td>RxD+</td>
<td>RxD/TxD+</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 3</td>
<td>TxD+</td>
<td>RxD/TxD+</td>
<td>RxD/TxD+</td>
</tr>
<tr>
<td>Pin 4</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
<td>RTS+</td>
</tr>
<tr>
<td>Pin 5</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 6</td>
<td>VT</td>
<td>VT</td>
<td>VP</td>
</tr>
<tr>
<td>Pin 7</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
<td>RTS+</td>
</tr>
<tr>
<td>Pin 8</td>
<td>TxD–</td>
<td>RxD/TxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 9</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

LAN A

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Modbus RS422</th>
<th>Modbus RS485</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>Socket shroud</td>
<td>Socket shroud</td>
</tr>
<tr>
<td>Pin 2</td>
<td>RxD+</td>
<td>RxD/TxD+</td>
</tr>
<tr>
<td>Pin 3</td>
<td>TxD+</td>
<td>RxD/TxD+</td>
</tr>
<tr>
<td>Pin 4</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 5</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 6</td>
<td>VT</td>
<td>VT</td>
</tr>
<tr>
<td>Pin 7</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 8</td>
<td>TxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 9</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

LAN DIL SWITCHES

One switch block per LAN to determine termination and/or bias
ON = switch to right; OFF = switch to left (with normal orientation)
Set operating mode with switches as follows:

<table>
<thead>
<tr>
<th>Mode</th>
<th>Switch positions</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS422</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modbus applications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Switch positions</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS422</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Switch model may vary but switching directions remain the same.

POWER SUPPLY CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>External power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No connection</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
</tr>
<tr>
<td>3</td>
<td>+12 V</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
</tr>
<tr>
<td>5</td>
<td>0 V</td>
</tr>
<tr>
<td>6</td>
<td>No connection</td>
</tr>
</tbody>
</table>

Note: Any required termination should be implemented in the Profibus D-type plug.

Note: Pin with assignments shown in italics are normally not connected; they occur because of the ‘universal’ nature of the interface.

External power

<table>
<thead>
<tr>
<th>Terminal</th>
<th>External power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No connection</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
</tr>
<tr>
<td>3</td>
<td>+12 V</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
</tr>
<tr>
<td>5</td>
<td>0 V</td>
</tr>
<tr>
<td>6</td>
<td>No connection</td>
</tr>
</tbody>
</table>

Power supply pins are provided in pairs. This enables one pin to be used for the supply input and the second to loop to another connector, when required.
Module carriers

Power supply carrier

- accommodates one 8910-PS-DC power supply
- DIN rail or panel mounting
- use for 2/1 only nodes with DC power feed
- use with 8718-CA-NS or 8715-CA-BI with DC power feed

CARRIER SPECIFICATION

See also System Specification

HAZARDOUS AREA APPROVALS

Location of node

... Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
... Zone 2, IIC T4 hazardous location

ELECTRICAL

12V dc output connector .........................6-way screw terminal

MATERIALS

Carrier moulding .........................Modified poly-phenylene oxide
Printed wiring board .............Epoxy resin woven glass laminate

ENVIRONMENTAL

Ambient temp

Operating, ..........................–40°C to +70°C
Storage ........................................ –40°C to +85°C
Relative Humidity ...........5 to 95% RH (non-condensing)

Vibration and Shock .................See System specification sheet

MECHANICAL

Dimensions ..................85.5 (w) x 167 (d) x 27.4 (h) mm
Weight ........................................200 g

Mounting methods ..........Flat panel or DIN rail

DIN-rail types

.........‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022

DC OUTPUT POWER CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 V dc</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>+12V dc</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Module carriers

Node services carrier

◆ accommodates Bus Interface Module
◆ accommodates Node Services Module
◆ Modbus or Profinet
◆ dual LAN connections (A & B)
◆ switchable RS485/RS422 termination options
◆ eight power fail inputs
◆ DIN rail or panel mounting

CARRIER SPECIFICATION
See also System Specification

CARRIER MOUNTING MODULES
Bus Interface Modules .....................[Profibus-DP] 8502-BI-DP
....................................................[Modbus] 8505-BI-MB
Node Services Module .........................8510-MO-NS

HAZARDOUS AREA APPROVALS
Location of node ................. Zone 2, IIC T4 hazardous area
......or Class 1, Div 2, Groups A, B, C, D T4 hazardous location

ELECTRICAL
Railbus connector ..........................male out
Power fail connector .........................8 pairs (screw terminal)
Carrier ground terminal ..................M2 screw terminal

DC POWER
External power .........................12.0 V dc (±5%)
A 6-pin connector is provided at the top/rear of the carrier for the
connection of the power supply.

LAN CONNECTORS
LAN A ........................................9-pin, D, sub-miniature, female
LAN B ........................................9-pin, D, sub-miniature, female
Switchable terminations for Modbus RS485, Modbus RS422 or
Profibus-DP

Note: The screw terminal beside each LAN connector is a
termination for the cable screen and should not be used as system
ground.

ENVIRONMENTAL
Ambient temp
Operating .........................................– 40°C to + 70°C
Storage ...........................................– 40°C to + 85°C
Relative Humidity ....................5 to 95% RH (non-condensing)
Vibration and Shock ..................See System specification sheet

MATERIALS
Carrier moulding ...............Modified Poly-Phenylene Oxide
Printed wiring board ..........Epoxy Resin Woven Glass Laminate

MECHANICAL
Dimensions (overall) ..............178 (w) x 170 (d) x 68 (h) mm
Weight (approx.) .........................450 g
Mounting methods ............Flat panel (2 fixings) or DIN rail
DIN-rail types ............‘Top hat’, 7.5 x 35 mm to EN 50022
........................................or 15 x 35 mm to EN 50022
........................................or G-section, to EN 50035

POWER SUPPLY CONNECTIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>External power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No connection</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
</tr>
<tr>
<td>3</td>
<td>+12 V</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
</tr>
<tr>
<td>5</td>
<td>0 V</td>
</tr>
<tr>
<td>6</td>
<td>No connection</td>
</tr>
</tbody>
</table>

Power supply pins are provided in pairs. This enables one pin to be used
for the supply input and the second to loop to another connector, when
required.
Module carriers

LAN INTERFACE

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Modbus RS422</th>
<th>Modbus RS485</th>
<th>Profibus-DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>Socket shroud</td>
<td>Socket shroud</td>
<td>Socket shroud</td>
</tr>
<tr>
<td>Pin 2</td>
<td>RxD+</td>
<td>RxD/TxD+</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 3</td>
<td>TxD+</td>
<td>RxD/TxD+</td>
<td>RxD/TxD+</td>
</tr>
<tr>
<td>Pin 4</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 5</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 6</td>
<td>VT</td>
<td>VT</td>
<td>VP</td>
</tr>
<tr>
<td>Pin 7</td>
<td>RxD–</td>
<td>RxD/TxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 8</td>
<td>TxD–</td>
<td>RxD/TxD–</td>
<td>RxD/TxD–</td>
</tr>
<tr>
<td>Pin 9</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

Note: Pins with assignments shown in italics are normally not connected; they occur because of the ‘universal’ nature of the interface.

PSU POWER FAIL CONNECTOR

Eight pairs of terminals are provided for the PSU health signals. If an 8510-MO-NS module is fitted and power fail signalling is being used:

(a) connect the power supply AUX and –ve terminals to a pair as shown in the table (right)
(b) put individual wire links across each unused terminal pairs to prevent a continual alarm condition being signalled to the BIM.

Note: Terminals 15 and 18 are not used.

LAN DIL SWITCHES

One per LAN to determine termination and/or bias
ON = switch to right; OFF = switch to left (with normal orientation)
Note: Switch model may vary.

Modbus applications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Switch positions</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS422 not terminated</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>RS422 terminated receiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS422 terminated &amp; biased receiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS485 not terminated</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>RS485 terminated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS485 terminated &amp; biased</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Any required termination should be implemented in the Modbus D-type plug.

Profibus-DP applications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Switch positions</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS485 not terminated</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

Note: Any required termination should be implemented in the Profibus D-type plug.
**Module carriers**

**Controller carrier**

- accommodates two controllers/EBIMs
- accommodates Power Supply Monitor module
- serial port connections for controllers
- manual “change state” buttons
- seven* power fail inputs
- panel mounting

The controller carrier provides a mounting platform for up to two controllers or EBIMs (8521-XX-XX). It can also accommodate a Power Supply Monitor module (8410-NS-PS) which can monitor up to seven system power supplies in the node and alert the controller to failures. The “powerfail” signals are brought to the module via a screw terminal block at the rear of the carrier. For each controller/EBIM there is a serial port connection on the carrier and a manually operated “change state” (failover) button.

**CARRIER SPECIFICATION**

See also System Specification

**CARRIER MOUNTING MODULES**

<table>
<thead>
<tr>
<th>Controller/EBIM (x2)</th>
<th>8521-XX-XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply Monitor module</td>
<td>8410-NS-PS</td>
</tr>
</tbody>
</table>

**HAZARDOUS AREA APPROVALS**

Location of carrier: Zone 2, IIC T6 hazardous area

Applicable standards:
- Factory Mutual Research Co., Class No. 3611 for Class I, Division 2, Groups A, B, C, D hazardous locations
- CSA Std C22.2 No. 213 for Class I, Division 2, Groups A, B, C, D hazardous locations
- ATEX Category 3 (for Zone 2 installation) to EN50021:1999 protection type ‘n’

**ELECTRICAL**

<table>
<thead>
<tr>
<th>Railbus connector</th>
<th>Male out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial port connectors</td>
<td>9-pin, D-type (female) (x2)</td>
</tr>
<tr>
<td>Power “health” connections</td>
<td>Screw terminals (x7 pairs)</td>
</tr>
<tr>
<td>Ground terminals</td>
<td>M4 screw terminal (x2)</td>
</tr>
</tbody>
</table>

**DC POWER**

External power: 12.0 V dc (±5%)

A 6-pin connector (see next page) is provided at the top of the carrier. This connection powers the Power Supply Monitor module and other modules on carriers connected to this one.

Note: This connection does not provide power to the controller/EBIM module(s).

* up to six 2/2 power supplies plus one 2/1 power supply.

**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Ambient temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating: – 40°C to + 70°C</td>
</tr>
<tr>
<td>Storage: – 40°C to + 85°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 95% RH (non-condensing)</td>
</tr>
</tbody>
</table>

**MATERIALS**

Carrier body: Painted 1.6mm ZINTEC to BS EN 10152

Printed wiring board: Epoxy Resin Woven Glass Laminate

**MECHANICAL**

Dimensions (footprint): 200 (w) x 253 (d) mm

Height (top of circuit board): 20 mm

(overall): 53 mm

Weight (approx.): 1.43 kg

Mounting methods: Flat panel (4 fixings)

**USER CONTROLS**

Two “change state” buttons, one for each controller/EBIM, are provided on the carrier to enable the user to change the state of a controller from master to standby, standby to offline or offline to standby. The controller/EBIM affected by each “change state” button is indicated on the circuit board. The state change depends upon the controller state before the button is pressed. See table below for effects.

<table>
<thead>
<tr>
<th>State</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master</td>
<td>Change to standby if current standby is healthy</td>
</tr>
<tr>
<td>Standby</td>
<td>Change to offline state</td>
</tr>
<tr>
<td>Backup</td>
<td>Re-synchronize and return to standby</td>
</tr>
</tbody>
</table>
Ground terminals (A & B)
A & B provide the same ground connection. B is recommended for terminating any shielding on the power “health” cable(s).

 SERIAL PORT CONNECTORS (X2)

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0V</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>Tx/Rx (+)</td>
</tr>
<tr>
<td>4</td>
<td>Tx/Rx (+)</td>
</tr>
<tr>
<td>5</td>
<td>Tx/Rx (–)</td>
</tr>
<tr>
<td>6</td>
<td>Tx/Rx (–)</td>
</tr>
<tr>
<td>7</td>
<td>NC</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
<tr>
<td>9</td>
<td>0V</td>
</tr>
</tbody>
</table>

RAILBUS POWER SUPPLY CONNECTIONS

**External power**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>External power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No connection</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
</tr>
<tr>
<td>3</td>
<td>+12 V</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
</tr>
<tr>
<td>5</td>
<td>0 V</td>
</tr>
<tr>
<td>6</td>
<td>No connection</td>
</tr>
</tbody>
</table>

Power supply pins are provided in pairs. This enables one pin to be used for the supply input and the second to loop to another connector, when required.

Note: The controllers/EBIMs do not draw main power from this supply. See previous page.

**PSU POWER “HEALTH” CONNECTOR**

This power “health” facility is operational only when a Power Supply Monitor module (8410-NS-PS) is fitted on the carrier.

**Terminal pairs 1 – 6**
These terminal pairs (+ and –) are provided for external 2/2 power supplies, e.g. 8913-PS-AC or 8914-PS-AC. For each pair:
- Power health signal from PSU
- negative (–ve) connection from PSU

Note: On the 8913-PS-AC, it is the 12V output that provides the power health signal, therefore connect the –ve terminal from the 12V output to the –ve terminal on the power health connector.
Each unused terminal pair must be fitted with a shorting link to prevent an alarm condition being signalled to the controller.

**Terminal pairs 7 & 8**
These terminal pairs are disconnected and should not be used.

**Terminal pair 9**
If a Railbus Isolator (8922-RB-IS) is not used in the node, this terminal pair must be fitted with a shorting link to prevent an alarm condition being signalled to the controller/EBIM.
Carrier extender

Left-hand/right-hand

- General purpose and non-IS field wiring installations
- ensures Railbus and power supply continuity
- pairs (LH & RH) link separate carrier runs
- sub-D connectors linked via multiway cable
- screw terminals link power supply connections
- rugged polycarbonate base with DIN rail fixings
- multipin connector to carrier
- maximum of 3 extender pairs per node
- 32- and 64-slot address capable

SPECIFICATION

See also System Specification

HAZARDOUS AREA APPROVALS

Location of node

Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
Zone 2, IIC T4 hazardous location

ELECTRICAL

Railbus carrier connector

8020-CE-RH female in
8021-CE-LH male out

Usable with 32-slot or 64-slot address nodes

Extender cable connector

Sub-D, 37-pin female

DC power cable connector

Screw terminal

DC power cable conductor size

2.5 mm² (max.)

MATERIALS

Carrier moulding

Modified poly-phenylene oxide

Printed wiring board

Epoxy resin woven glass laminate

ENVIRONMENTAL

Ambient temp

Operating: –40°C to + 70°C
Storage: –40°C to + 85°C

Relative Humidity

5 to 95% RH (non-condensing)

Vibration and Shock

See System specification sheet

MECHANICAL

Dimensions (overall)

42 (w) x 168 (d) x 37 (h) mm

Weight

135 g

Mounting method

Integral DIN-rail fixings

DIN rail types

‘Top hat’, 35 x 7.5 mm or 35 x 15 mm to EN 50022
G-section, to EN 50035

PART NUMBERS

<table>
<thead>
<tr>
<th>Carrier Extender, Right-hand</th>
<th>8020-CE-RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Extender, Left-hand</td>
<td>8021-CE-LH</td>
</tr>
</tbody>
</table>
Carrier extender cables

0.35m, 0.85m and 1.2m

- Railbus data extender cables
- general purpose and non-IS field wiring installations
- three lengths - 0.35, 0.85 and 1.2 m
- sub-D cable connectors
- 32- and 64-slot address capable

SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of node
.........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIC T4 hazardous location

ELECTRICAL
Extender cable connectors .......................Sub-D, 37-pin male

ENVIRONMENTAL
Ambient temp
Operating ......................................................– 40°C to + 70°C
Storage..........................................................– 40°C to + 85°C
Relative Humidity ...............................5 to 95% RH (non-condensing)
Vibration and Shock ......................See System specification sheet

PART NUMBERS

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Extension Cable, 0.35m</td>
<td>8001-CC-35</td>
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<tr>
<td>Carrier Extension Cable, 0.85m</td>
<td>8002-CC-85</td>
</tr>
<tr>
<td>Carrier Extension Cable, 1.2m</td>
<td>8003-CC-12</td>
</tr>
</tbody>
</table>
Module carriers

IS 8-module carrier

- 32-slot address bus*
- accepts up to eight 2/1 I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- isolated earthing bar for cable screens/shields

CARRIER SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of node
.........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIC T4 hazardous location
Location of field wiring
.........Class 1, Div 1, Groups A, B, C, D T4 hazardous location or
......Zone 1 /Zone 0, IIC T4 hazardous location
Field terminals accepted ............................................IS only
I/O modules accepted ........................................... 2/1 only

ELECTRICAL
Railbus connectors .............................................male in, female out
Module address range .................................................1–32
Earth leakage detection
4-pin connectors are provided at the top/rear of the carrier for wiring the individual modules to earth leakage detectors, e.g. MTL2220.
(Refer to GE for earth leakage detection support within I/O modules)

MATERIALS
Carrier moulding .......... Modified poly-phenylene oxide
Printed wiring board .......... Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating, .......................... – 40°C to + 70°C
Storage .............................................. – 40°C to + 85°C
Relative Humidity .................. 5 to 95% RH (non-condensing)
Vibration and Shock .............. See System specification sheet

MECHANICAL
Dimensions .................. 342 (w) x 170 (d) x 22 (h) mm
Weight .................. 680 g
Mounting methods .................. Flat panel or DIN rail
DIN-rail types
.........‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022
..............................................G-section rail to EN 50035

* Must not be mixed with 64-slot address bus carriers
Module carriers

IS 8-module carrier - extended addressing

- 64-slot address bus*
- accepts up to eight 2/1 I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- isolated earthing bar for cable screens/shields

CARRIER SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of carrier
.........Class 1, Div 2, Groups A, B, C, D T6 hazardous location or
......Zone 2, IIC T6 hazardous location
Field terminals accepted .....................................IS only
I/O modules accepted ................................... 2/1 only
Applicable standards:
◆ Factory Mutual Research Co., Class No. 3611 for Class I,
Division 2, Groups A, B, C, D hazardous locations
◆ CSA Std C22.2 No. 213 for Class I, Division 2, Groups A,
B, C, D hazardous locations
◆ ATEX Category 3 (for Zone 2 installation) to EN50021:1999
protection type 'n'

ELECTRICAL
Railbus connectors .......................................male in, female out
Module address range ....................................1–64
Earth leakage detection
4-pin connectors (see right) are provided at the top/rear of the
carrier for wiring the individual modules to earth leakage detectors,
e.g. MTL2220*

*Refer to MTL for earth leakage detection support within I/O
modules

MATERIALS
Carrier moulding ....................Modified poly-phenylene oxide
Printed wiring board ...............Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating ..............................................− 40°C to + 70°C
Storage .................................................− 40°C to + 85°C
Relative Humidity ......................5 to 95% RH (non-condensing)
Vibration and Shock .....................See System specification

MECHANICAL
Dimensions ........................................342 (w) x 170 (d) x 22 (h) mm
Weight ...................................................680 g
Mounting methods ..............................Flat panel or DIN rail
DIN-rail types
.........‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022
............................................G-section rail to EN 50035

* For use only with 8521-XX-XX controller/EBIM, and cannot be
mixed with 32-slot address carriers

<table>
<thead>
<tr>
<th>MODULE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5 6 7 8</td>
</tr>
</tbody>
</table>

Connector is repeated for modules 5 to 8
Module carriers

IS 4-module carrier

- 32-slot address bus*
- accepts up to four 2/1 I/O modules and field terminals
- printed wiring board
- rugged polycarbonate moulding
- DIN rail or panel mounting
- carries control signals and data on Railbus
- distributes DC power to modules
- isolated earthing bar for cable screens/shields

CARRIER SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of node
.........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIC T4 hazardous location
Location of field wiring
.........Class 1, Div 1, Groups A, B, C, D T4 hazardous location or
......Zone 1 /Zone 0, IIC T4 hazardous location
Field terminals accepted ............................................IS only
I/O modules accepted ........................................... 2/1 only

ELECTRICAL
Railbus connectors....................................male in, female out
Module address range .........................................1–32
Earth leakage detection
A 4-pin connector is provided at the top/rear of the carrier for wiring the individual modules to earth leakage detectors, e.g. MTL2220.
(Refer to MTL for earth leakage detection support within I/O modules.)

MATERIALS
Carrier moulding.................................Modified poly-phenylene oxide
Printed wiring board......................Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating ......................................................– 40°C to + 70°C
Storage .............................................................40°C to + 85°C
Relative Humidity .................................5 to 95% RH (non-condensing)
Vibration and Shock .........................See System specification sheet

MECHANICAL
Dimensions ..................................................178 (w) x 170 (d) x 22 (h) mm
Weight .........................................................350 g
Mounting methods .................................Flat panel or DIN rail
DIN-rail types
...... ‘Top hat’ 35 x 7.5 mm rail or 35 x 15 mm rail to EN 50022
..........................................................G-section rail to EN 50035

* Must not be mixed with 64-slot address bus carriers
Module carriers

**Railbus isolator carrier**

- accommodates one Railbus Isolator
- DIN rail or panel mounting
- printed wiring board
- rugged polycarbonate moulding
- 32- and 64-slot address capable

**CARRIER SPECIFICATION**

*See also System Specification*

**CARRIER MOUNTING MODULE**

Railbus Isolator ................................................. 8922-RB-IS

**HAZARDOUS AREA APPROVALS**

Location of node ..................................................
Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
Zone 2, IIC T4 hazardous area

**ELECTRICAL**

Railbus connectors ........................................... male in, female out
Usable with 32-slot or 64-slot address nodes
DC power
DC power for the Railbus Isolator is obtained from the system through
the multipin Railbus connectors.

**MATERIALS**

Carrier moulding .......................... Modified poly-phenylene oxide
Printed wiring board ................. Epoxy resin woven glass laminate

**ENVIRONMENTAL**

Ambient temp
Operating .................................................. –40°C to + 70°C
Storage .......................................................... –40°C to + 85°C
Relative Humidity .......................... 5 to 95% RH (non-condensing)
Vibration and Shock .......................... See System specification sheet

**MECHANICAL**

Dimensions (overall) .................. 93 (w) x 168 (d) x 35 (h) mm
Weight (approx.) ........................................... 195 g
Mounting methods ...................... Flat panel (3 fixings) or DIN-rail
DIN-rail types ............................... ‘Top hat’, 7.5 x 35 mm or 15 x 35 mm to EN 50022
........................................................ G-section, to EN 50035
Module carriers

IS module power supply carrier

- accommodates one 8920 PSU module
- DIN rail or panel mounting
- printed wiring board
- rugged polycarbonate moulding
- 32- and 64-slot address capable

CARRIER SPECIFICATION
See also System Specification

CARRIER MOUNTING MODULE
System Power Supply module ........................................... 8920-PS-DC

HAZARDOUS AREA APPROVALS
Location of node ..................................................................
...........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIC T4 hazardous area

ELECTRICAL
Railbus connectors ......................................................... male in, female out
(Usable with 32-slot or 64-slot address nodes)

MATERIALS
Carrier moulding ........................................ Modified poly-phenylene oxide
Printed wiring board .............. Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating ................................................................. – 40°C to + 70°C
Storage ................................................................. – 40°C to + 85°C
Relative Humidity ............................................ 5 to 95% RH (non-condensing)
Vibration and Shock ........................................ See System specification sheet

MECHANICAL
Dimensions (overall) .................. 93 (w) x 168 (d) x 35 (h) mm
Weight (approx.) ........................................................ 195 g
Mounting methods ......................... Flat panel [4 fixings] or DIN-rail
DIN-rail types ..................................................... ‘Top hat’, 7.5 x 35 mm or 15 x 35 mm to EN 50022
................................................................................. G-section, to EN 50035
Carrier extender

Left-hand/right-hand

- for IS field wiring installations
- ensures Railbus and power supply continuity
- pairs (LH & RH) link separate carrier runs
- sub-D connectors linked via multiway cable
- screw terminals link power supply connections
- rugged polycarbonate base with DIN rail fixings
- multipin connector to carrier
- maximum of 3 extender pairs per node
- 32- and 64-slot address capable

SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of node .................................................................
........Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
......Zone 2, IIIC T4 hazardous location

ELECTRICAL
Railbus carrier connector ....................................................
8030-CE-RH.................................................................male in
8031-CE-LH ...............................................................female out
Usable with 32-slot or 64-slot address nodes
Extender cable connector........Sub-D, 50-pin female
DC power cable connector..................................................6-pin

MATERIALS
Carrier moulding.........................Modified poly-phenylene oxide
Printed wiring board..............Epoxy resin woven glass laminate

ENVIRONMENTAL
Ambient temp
Operating ......................................................– 40°C to + 70°C
Storage ..........................................................– 40°C to + 85°C
Relative Humidity ...............5 to 95% RH (non-condensing)
Vibration and Shock .............See System specification sheet

MECHANICAL
Dimensions (overall) ...............48 (w) x 168 (d) x 42 (h) mm
Weight .......................................................140 g
Mounting method .........................Integral DIN-rail fixings
DIN rail types .........................‘Top hat’, 35 x 7.5 mm or 35 x 15 mm to EN 50022
.......................................................G-section, to EN 50035

PART NUMBERS

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Extender, Right-hand</td>
<td>8030-CE-RH</td>
</tr>
<tr>
<td>Carrier Extender, Left-hand</td>
<td>8031-CE-LH</td>
</tr>
</tbody>
</table>
Carrier extender cables

**IS carrier extender cables**

- Railbus data & power extender cables
- for IS field wiring installations
- three lengths - 0.35, 0.85 and 1.2 m
- sub-D cable connectors
- 32- and 64-slot address capable

**SPECIFICATION**

*See also System Specification*

**HAZARDOUS AREA APPROVALS**

Location of node

- Class 1, Div 2, Groups A, B, C, D T4 hazardous location or
- Zone 2, IIC T4 hazardous location

**ELECTRICAL**

Data extender cable connectors

- Sub-D, 50 pin male

Power extender cable connectors

- 6-pin

**ENVIRONMENTAL**

Ambient temp

- Operating: -40°C to +70°C
- Storage: -40°C to +85°C

Relative Humidity

- 5 to 95% RH (non-condensing)

Vibration and Shock

- See System specification sheet

**PART NUMBERS - DATA CABLES**

<table>
<thead>
<tr>
<th>IS Carrier Extension Cable</th>
<th>Length</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.35m</td>
<td>8011-CC-35</td>
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<tr>
<td>0.85m</td>
<td>8012-CC-85</td>
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</tr>
<tr>
<td>1.2m</td>
<td>8013-CC-12</td>
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</tbody>
</table>

**PART NUMBERS - POWER CABLES**

<table>
<thead>
<tr>
<th>IS Power Extension Cable</th>
<th>Length</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.35m</td>
<td>8016-CC-35</td>
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<tr>
<td>0.85m</td>
<td>8017-CC-85</td>
<td></td>
</tr>
<tr>
<td>1.2m</td>
<td>8018-CC-12</td>
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</table>

**PART NUMBERS - CABLE SETS**

<table>
<thead>
<tr>
<th>IS Carrier Extension Cable set</th>
<th>Length</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>0.35m</td>
<td>8032-CC-35</td>
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</tr>
<tr>
<td>0.85m</td>
<td>8033-CC-85</td>
<td></td>
</tr>
<tr>
<td>1.2m</td>
<td>8034-CC-12</td>
<td></td>
</tr>
</tbody>
</table>
**Field terminals - Screw clamp**

**Fusing & loop-disconnect**
Field terminals are available that contain a replaceable fuse or a “loop-disconnect” link for each channel. Fuses have a 2A rating and, like the links, have a mechanical feature that allows them to be partially withdrawn. This provides a break in the field wiring loop which assists servicing and fault finding in the field.

**Thermocouple modules**
Thermocouple modules require specific field terminals. The thermocouple modules – 8105-TI-TC (4-channel) and 8205-TI-S (8-channel IS) – each have their own specific field terminal containing a cold junction compensation sensor. The 8205-TI-IS can also accommodate a remote cold junction – if used, it occupies one of the eight available channels.

**RTD modules**
The RTD modules, 8106-TI-RT (4-channel) and 8206-TI-S (8-channel IS) use field terminals that are specifically designed to accommodate 2, 3 and 4-wire connections. The field terminals incorporate diodes that become forward biased if a channel becomes open circuited - ensuring that other channels are not affected by this situation. Similarly, an RTD can be removed from, or not fitted to, a channel without affecting the operation. The points where the energisation current enters and leaves the field terminals are shown by the symbols I+ and I–, respectively, on the appropriate diagrams.

**IS field terminals**
Particular field terminals are required for modules with built-in IS interfaces, and field terminals are coloured blue to mark this difference.

**Tagging strip**
A tagging strip is supplied with each terminal (with the exception of the mass termination assemblies). A card is provided for the user to mark the channel assignments for the field wiring and this is protected by a clear plastic panel.

**Mechanical key coding**
Field terminals are an important link in the field connection process and a mechanical keying technique is used to prevent incompatible modules from being connected accidentally to a field circuit. This avoids inadvertent damage to I/O modules and field wiring, and maintains safety in hazardous area applications. It is implemented in two complementary ways.

**Rotatable keys**
A pair of mechanically rotatable keys form part of the field terminal (see diagram below) and these are set by the user during installation to match the fixed key-code (e.g. A 1) of the I/O module that will be fitted onto it. A module with a different key-code cannot then accidentally be fitted on to that field terminal.

**Keyways**
The four types of field terminal: general purpose, non-incendive, non-arcing and intrinsically safe, have a further pattern of keys that make each type unique; modules of a corresponding type have a matching keyway. It is therefore impossible to implement a potentially hazardous combination of module and field terminal. The four types of field terminal can be identified from the diagram below.

**General**
A field terminal is a replaceable unit for terminating the wiring from the field devices. Each I/O module requires its own field terminal and the correct type is recommended on the individual I/O module data sheet.

The field wiring is terminated on screw terminals that can take up to 2.5mm² wire. By wiring virtually directly to the I/O module there is no need for additional patching or terminations.

The field terminal attaches to the module carrier first; the I/O module is then mounted on it. A pair of multipin connectors link the field terminal to the I/O module.
Field terminals - Mass Termination Assemblies

Mass Termination Assembly

Mass Termination Assemblies (MTAs) offer the user a number of different ways to terminate field wiring. Two versions are available, 16-pin [8618-FT-MT] and 44-pin [8619-FT-MT], both of which provide IDC multi-pin connectors instead of screw terminals.

Some standard 1, 2 and 3 metre cables, are available from GEF to assist the user; others can be made to order; or users can put together their own custom cables to suit their specific wiring termination requirements.

The Mass Termination Assemblies are particularly useful when legacy systems are being replaced and connections must be made to existing field wiring, junction boxes and marshalling cabinets.

Mass Termination Assemblies can also be used to interface to signal conditioning units. For example, with devices that require a drive current above the 1A capability of the 8115-DO-DC discrete output module, the 8618-FT-MT can be used to connect to high-current relays*.

Switch/Proximity Detector Wiring Panel

The 8650-FT-PX provides a simple method to terminate up to 32 two-wire field devices. It is DIN-rail mountable and links to the 8619-FT-MT field terminal using a pair of ready terminated, IDC connector cables. For maximum convenience, there is also provision for cable screens to be terminated and grounded.

Mechanical key coding

This feature is available on these terminals. See the previous page for details.

*See Technical Support Note TSN112: “Using the 8115-DO-DC with high-current loads”.

Available from: www.ge-ip.com
Field terminals

- range of field terminals
- standard, fused, loop-disconnect & MTAs
- blue moulding for IS field wiring
- THC and RTD versions available
- tag strip on all screw-clamp field terminals

SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location of field terminal...Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location
Location of I/O field wiring
For 860x-FT-xx and 861x-FT-xx...Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location
For 862x-FT-IS .........................Zone 0, IIC hazardous area or Div 1, Groups A–D hazardous location

ELECTRICAL
Rated voltage..........................................................250V ac
Maximum current per I/O channel..................................3A
Fuse rating (where fitted)..................................................2A
Conductor size..........................................................0.14–2.5mm²

MECHANICAL
Material..........................................................Modified Poly-Phenylene Oxide
Dimensions - approx (including tagging strip) 8617-FT-NI and 8623-FT-IS...........42 [w] x 88 [d] x 61 [h] mm
Others..........................................................42[w] x 88 [d] x 39.5 [h] mm
Weights (typical - including tagging strip) Unfused type (except THC & RTD) ...................78g
Fused type (including fuses) ........................................86g
THC type......................................................70g
RTD type....................................................106g
8617-FT-NI and 8623-FT-IS (16-channel) ...................106g
See also datasheets for 8618-FT-MT and 8619-FT-MT

PTE NUMBERS
GENERAL PURPOSE FIELD WIRING

<table>
<thead>
<tr>
<th>Field terminal description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>8602-FTST</td>
</tr>
<tr>
<td>Fused</td>
<td>8604-FTFU</td>
</tr>
<tr>
<td>THC</td>
<td>8605-FTTC</td>
</tr>
<tr>
<td>RTD</td>
<td>8606-FTRT</td>
</tr>
<tr>
<td>4-wire transmitter</td>
<td>8615-FT-4W</td>
</tr>
<tr>
<td>16/30-channel DI</td>
<td>8617-FTNI</td>
</tr>
<tr>
<td>16-pin Mass Termination Assembly</td>
<td>8618-FTMT</td>
</tr>
<tr>
<td>44-pin Mass Termination Assembly</td>
<td>8619-FTMT</td>
</tr>
</tbody>
</table>

ZONE 2/ DIV 2 FIELD WIRING APPLICATIONS

<table>
<thead>
<tr>
<th>Field terminal description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>THC</td>
<td>8605-FTTC</td>
</tr>
<tr>
<td>RTD</td>
<td>8606-FTRT</td>
</tr>
<tr>
<td>Non-incendive*</td>
<td>8601-FTNI</td>
</tr>
<tr>
<td>Non-incendive, fused*</td>
<td>8603-FTFU</td>
</tr>
<tr>
<td>Non-arcing, standard*</td>
<td>8610-FTNA</td>
</tr>
<tr>
<td>Non-arcing, fused*</td>
<td>8611-FTFU</td>
</tr>
<tr>
<td>4-wire transmitter</td>
<td>8615-FT-4W</td>
</tr>
<tr>
<td>16/30-channel DI</td>
<td>8617-FTNI</td>
</tr>
<tr>
<td>16-pin Mass Termination Assembly</td>
<td>8618-FTMT</td>
</tr>
<tr>
<td>44-pin Mass Termination Assembly</td>
<td>8619-FTMT</td>
</tr>
</tbody>
</table>

ZONE 1, 0/DIV 1 (IS) FIELD WIRING APPLICATIONS

<table>
<thead>
<tr>
<th>Field terminal description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS, standard</td>
<td>8621-FTIS</td>
</tr>
<tr>
<td>IS, loop-disconnect</td>
<td>8622-FTIS</td>
</tr>
<tr>
<td>IS, 16-channel DI</td>
<td>8623-FTIS</td>
</tr>
<tr>
<td>IS, 8-channel DI, loop-disconnect</td>
<td>8624-FTIS</td>
</tr>
<tr>
<td>IS, THC</td>
<td>8625-FTIS</td>
</tr>
<tr>
<td>IS, RTD</td>
<td>8626-FTIS</td>
</tr>
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</table>

ADDITIONAL COMPONENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch/Prox detector wiring panel</td>
<td>8650-FTPX</td>
</tr>
<tr>
<td>2A Fuse pack (10 in pack)</td>
<td>8401-FU-2A</td>
</tr>
<tr>
<td>Loop-disconnect links (10 in pack)</td>
<td>8405-JK-ZE</td>
</tr>
</tbody>
</table>

*Refer to 2/2 I/O module data sheets for recommended non-incendive or non-arcing field terminal type in Zone 2 and Division 2 applications.
# Field terminals

## Connection diagrams

Identify terminal type in the table below, then see named diagram for connections.

<table>
<thead>
<tr>
<th>Terminal type</th>
<th>Diagram No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8601-FT-NI</td>
<td>1</td>
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<tr>
<td>8602-FT-ST</td>
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</tr>
<tr>
<td>8603-FT-FU</td>
<td>1</td>
</tr>
<tr>
<td>8604-FT-FU</td>
<td>1</td>
</tr>
<tr>
<td>8605-FT-TC</td>
<td>2</td>
</tr>
<tr>
<td>8606-FT-RT (2-wire)</td>
<td>3</td>
</tr>
<tr>
<td>8606-FT-RT (3-wire)</td>
<td>4</td>
</tr>
<tr>
<td>8606-FT-RT (4-wire)</td>
<td>5</td>
</tr>
<tr>
<td>8610-FT-NA</td>
<td>1</td>
</tr>
<tr>
<td>8611-FT-FU</td>
<td>1</td>
</tr>
<tr>
<td>8615-FT-4W</td>
<td>1</td>
</tr>
<tr>
<td>8617-FT-NI</td>
<td>6 or 6a†</td>
</tr>
<tr>
<td>8618-FT-MT</td>
<td>see datasheet</td>
</tr>
<tr>
<td>8619-FT-MT</td>
<td>see datasheet</td>
</tr>
<tr>
<td>8621-FT-1S</td>
<td>1 or 7*</td>
</tr>
<tr>
<td>8622-FT-1S</td>
<td>1 or 7*</td>
</tr>
<tr>
<td>8623-FT-1S</td>
<td>6</td>
</tr>
<tr>
<td>8624-FT-1S</td>
<td>1</td>
</tr>
<tr>
<td>8625-FT-1S</td>
<td>8</td>
</tr>
<tr>
<td>8626-FT-1S [2 wire]</td>
<td>9</td>
</tr>
<tr>
<td>8626-FT-1S [3 wire]</td>
<td>10</td>
</tr>
<tr>
<td>8626-FT-1S [4 wire]</td>
<td>11</td>
</tr>
<tr>
<td>8650-FT-PX</td>
<td>see datasheet</td>
</tr>
</tbody>
</table>

† Wire as per diagram 6a only when used with 8125-DI-DC or 8127-DI-SE modules.

* Wire as per diagram 7 only when used with 8215-DO-IS module.

---

**Diagram 1**

**Diagram 2**

**Diagram 3**

**Diagram 4**

**Diagram 5**
Connection diagrams

Diagram 6

Diagram 6a

Diagram 7

Diagram 8

Diagram 9

Diagram 10

Diagram 11
Field terminals

16-pin mass termination assembly

- 16-pin IDC connector termination
- IDC alternative for most screw terminal types
- use with 8115-DO-DC for high-current relay adapters
- provides a choice of field wiring terminations
- clip-on protective cover

SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Field terminal location ...... Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location
I/O field wiring location ... Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location

ELECTRICAL
Rated voltage .............................................. 50V AC
Maximum current per I/O channel ...................... 0.75A

MECHANICAL
Material ................................................. Modified Poly-Phenylene Oxide
Dimensions - approx. ............... 42(w) x 95(d) x 42*(h) mm
Weight ...................................................... 44g
* with protective cover fitted

CABLE OPTIONS
16-way cables, terminated with 16-pin IDC connectors at each end, are available for the 8618-FT-MT.

Description Part number
1 metre cable .................. 8081-FC-10
2 metre cable .................. 8082-FC-20
3 metre cable .................. 8083-FC-30

See also Technical Support Note TSN112 for details of using this product with high-current relays.

Notes
1. This field terminal cannot be used with the following I/O module types:
   8105-TI-TC, 8106-TI-RT Special functionality required e.g. CJC
   8121-DI-DC, 8122-DI-DC Insufficient terminals - use 8619-FT-MT
2. AC modules cannot be used with this field terminal because of the 50V AC voltage rating.

IDC CONNECTOR PINOUTS

When used with the following I/O module types:
8101-HI-TX  8102-HO-IP  8103-AI-TX  8104-AO-IP
8109-DI-DC  8110-DI-DC  8115-DO-DC  8117-DO-DC
8119-VI-05 use this pinout:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voltage i/p - Ch 1</td>
</tr>
<tr>
<td>2</td>
<td>Current i/p - Ch 1</td>
</tr>
<tr>
<td>3</td>
<td>Common - Ch 1</td>
</tr>
<tr>
<td>4</td>
<td>NAMUR i/p - Ch 1</td>
</tr>
<tr>
<td>5</td>
<td>Power supply +ve - Ch 2</td>
</tr>
<tr>
<td>6</td>
<td>Power supply +ve - Ch 1</td>
</tr>
<tr>
<td>7</td>
<td>Voltage i/p - Ch 2</td>
</tr>
<tr>
<td>8</td>
<td>Current i/p - Ch 2</td>
</tr>
<tr>
<td>9</td>
<td>Common - Ch 2</td>
</tr>
<tr>
<td>10</td>
<td>NAMUR i/p - Ch 2</td>
</tr>
<tr>
<td>11</td>
<td>Common - Ch 1</td>
</tr>
<tr>
<td>12</td>
<td>NAMUR gate control - Ch 1</td>
</tr>
<tr>
<td>13</td>
<td>o/p -ve - Ch 1</td>
</tr>
<tr>
<td>14</td>
<td>o/p +ve - Ch 1</td>
</tr>
<tr>
<td>15</td>
<td>o/p -ve - Ch 2</td>
</tr>
<tr>
<td>16</td>
<td>o/p +ve - Ch 2</td>
</tr>
</tbody>
</table>

When used with I/O module type: 8123-PI-QU
**Field terminals**

**16-pin mass termination assembly**

**8618-FT-MT**

**USAGE OPTIONS**

**PIN OUT**

![Diagram of 16-pin output]

**+ CABLE**

![Diagram of 16-pin output connected by cable]

**+ 16- TO 14-WAY CABLE**

![Diagram of 16-pin output connected to 14-way cable]

**+ HIGH-CURRENT RELAYS**

![Diagram of 16-pin output connected to high-current relays]

For further details on choosing and using output relays see Technical Support Note TSN112 “Using the 8115-DO-DC with high-current loads”
**Field terminals**

**44-pin mass termination assembly**
- 32 channel connection
- use with 8121/8122 and 8125/8127
- use with 8650-FT-PX field terminal
- provides a choice of field wiring terminations
- clip-on protective cover

**SPECIFICATION**

See also System Specification

**HAZARDOUS AREA APPROVALS**

Field terminal location ……Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location

I/O field wiring location ……Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location

**ELECTRICAL**

Rated voltage ...........................................................50V AC
Maximum current per I/O channel .........................0.75A

**MECHANICAL**

Material ....................................Modified Poly-Phenylene Oxide
Dimensions ± approx. .................42(w) x 95(d) x 42*(h) mm
Weight .........................................................48g
* with protective cover fitted

**CABLE OPTIONS**

20- + 24-way cable sets, terminated with IDC connectors at each end, are available for the 8619-FT-MT. These could be used, for example, to connect the 8619-FT-MT to the 8650-FT-PX wiring panel.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 metre length set</td>
<td>8085-FC-10</td>
</tr>
<tr>
<td>2 metre length set</td>
<td>8086-FC-20</td>
</tr>
<tr>
<td>3 metre length set</td>
<td>8087-FC-30</td>
</tr>
</tbody>
</table>

**IDC CONNECTOR PINOUTS**

### J1

<table>
<thead>
<tr>
<th>8125</th>
<th>8127</th>
<th>8121</th>
<th>8122</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ch 1</td>
<td>Ch 2–</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0V</td>
<td>Ch 1–</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ch 3</td>
<td>Ch 4–</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ch 2</td>
<td>Ch 3–</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ch 5</td>
<td>Ch 6–</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ch 4</td>
<td>Ch 5–</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Ch 7</td>
<td>Ch 8–</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Ch 6</td>
<td>Ch 7–</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ch 17</td>
<td>Ch 10–</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Ch 16</td>
<td>Ch 9–</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Ch 19</td>
<td>Ch 12–</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Ch 18</td>
<td>Ch 11–</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ch 21</td>
<td>Ch 14–</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ch 20</td>
<td>Ch 13–</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ch 23</td>
<td>Ch 16–</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Ch 22</td>
<td>Ch 15–</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Ch 27</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Ch 28</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Ch 32</td>
<td>n/c</td>
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</tr>
</tbody>
</table>

### J2

<table>
<thead>
<tr>
<th>8125</th>
<th>8127</th>
<th>8121</th>
<th>8122</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ch 8</td>
<td>Ch 1+</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ch 9</td>
<td>Ch 2+</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ch 10</td>
<td>Ch 3+</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ch 11</td>
<td>Ch 4+</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ch 12</td>
<td>Ch 5+</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ch 13</td>
<td>Ch 6+</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Ch 14</td>
<td>Ch 7+</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Ch 15</td>
<td>Ch 8+</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Ch 26</td>
<td>Ch 9+</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Ch 24</td>
<td>Ch 10+</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Ch 25</td>
<td>Ch 11+</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ch 27</td>
<td>Ch 12+</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ch 28</td>
<td>Ch 13+</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ch 29</td>
<td>Ch 14+</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Ch 30</td>
<td>Ch 15+</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Ch 31</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Ch 32</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>0V</td>
<td>Ch 16+</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>0V</td>
<td>n/c</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>n/c</td>
<td>n/c</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. 0V pins are all linked only when the module is fitted.
2. Channels 27, 28 and 32 are common to both J1 and J2.
3. n/c = no connection
**Field terminals**

**44-pin mass termination assembly**

**USAGE OPTIONS**

**PIN OUT**

32 channel outputs

**+ CABLE**

32 channel outputs

**+ CABLE + 8650 Wiring Panel**

32 channel switch/prox. detector wiring panel 8650-FT-PX
Field terminals

Switch/proximity detector wiring panel

- simplified 32-channel field wiring connection
- multipin connectors to 8619-FT-MT field terminal
- screw terminals for field wiring
- DIN-rail mounting

SPECIFICATION
See also System Specification

HAZARDOUS AREA APPROVALS
Location: Zone 2, IIC, T4 hazardous area or Class 1, Div 2, Groups A–D, T4 hazardous location

ELECTRICAL
System connectors: 20-pin & 24-pin
Field terminals: rising cage-clamp screw terminals
Conductor size: 0.14–2.5 mm²
Rated voltage: 50V AC
Maximum current per I/O channel: 0.75A
Ground terminals: 2 x M4

MECHANICAL
DIN rail mounting: 'T' section to EN 50022
'G' section to EN 50035
Weight: 390g

CABLE OPTIONS
20- + 24-way cable sets to connect with the 8619-FT-MT
1 metre length set: 8085-FC-10
2 metre length set: 8086-FC-20
3 metre length set: 8087-FC-30

DIMENSIONS
in mm

TERMINAL ASSIGNMENTS

GE Intellignet Platforms Contact information
Americas: 1 800 433 2682 or 1 434 976 5100
Global regional phone numbers are listed by location on our web site at www.ge-ip.com/contact

www.ge-tp.com/process

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Mass Termination Field Terminal and High Current Relay Output

- Mass Termination Connectors Save wiring time to High Current Relay Assemblies.
- Quick Connect Cable Adapter for 6 Amp or 10 Amp Relay Outputs
- Easy Installation, Relay comes complete and ready to snap on to DIN Rail.
- Each Relay includes replaceable Relay and the Din Rail Mounting Assembly
- Adapter connects 8 relays together in a single package.

High Current Output Capability

New: For discrete field devices that require more than the maximum specified current, a standard mass termination field terminal is available with a 16-pin connection to allow a direct cable connection to an external panel. Relay output options are available to provide up to 10A per channel. This option greatly simplifies field wiring.

High current output capability beyond the discrete output modules' specified 1 Amp per channel is provided with a mass termination assembly and a direct cable interface to 6 or 10 Amp relays.

Specifications For Mass Termination Block

<table>
<thead>
<tr>
<th>Part No.</th>
<th>KV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum current</td>
<td>1 Amp per Channel (6 Amps per Module)</td>
</tr>
<tr>
<td>Voltage Rating</td>
<td>30 VDC Between Non-Connected signals</td>
</tr>
<tr>
<td>Max Cable Length</td>
<td>4 meters</td>
</tr>
<tr>
<td>Key Position</td>
<td>Set the Key to match the Discrete Output Module being Used, For Example: A1</td>
</tr>
<tr>
<td>Hazardous Area</td>
<td>FM Approved Class I, Div 2, Groups A, B, C &amp; D, Atex 3 G IIC T4</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL US and Canada</td>
</tr>
</tbody>
</table>

Cable: The direct connect cable comes in standard lengths of 1m and 2m. It converts the 16 pin output of an 8115 Discrete Output module to a 14 pin interface that connects directly to the relays. Additional lengths are available if required.

Adapters: There are two different size adapters, one for 6 Amp Relays and a second, larger one for 10 Amp relays. These adapters provide a direct connection to the relays from the mass termination block, assuring a quick installation for higher output power.
PLC Adapter for Eight 6-Amp Relays - Cable from the Mass termination unit plugs directly into the adapter which connects directly to the 8 relays, providing both a cost savings and space savings over conventional wiring approaches.

Adapters (pictured below) are available for both the 6 Amp and 10 Amp relays. Choose the right output for your needs based on required current, available panel size and your budget.

**PLC–V8L (10 Amp Relays)**  **PLC-V8 (6 Amp Relays)**

**Specifications**

**Dimensions**

- PLC-V8L w/ 8 10A relays 112mm(w) X 80.3mm(H) X 91.25mm(D)
- PLC-V8L w/ 8 10A relays 4.4 in. (w) X 3.16 in. (H) X 3.59 in. (D)
- PLC-V8 w/ 8 6A relays 49.6mm(w) X 80.3mm(H) X 91.25mm(D)
- PLC-V8 w/ 8 6A relays 19.6 in. (w) X 3.16 in. (H) X 3.59 in. (D)

**Relay for 10 Amp**

<table>
<thead>
<tr>
<th>Input Data (Coil side)</th>
<th>REL-MR-24DC/21-HC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Input Voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Typical Input Current</td>
<td>17mA</td>
</tr>
<tr>
<td>Typical response Time</td>
<td>7ms</td>
</tr>
<tr>
<td>Typical Release Time</td>
<td>3ms</td>
</tr>
<tr>
<td>Coil resistance at 20C</td>
<td>1440 Ohms +/-10%</td>
</tr>
</tbody>
</table>

**Output Data**

- Contact Type: Single Contact, 1 PDT
- Contact Material: AgSnO
- Max Switching Voltage: 250 V AC/DC
- Min Switching Voltage: 12 V AC/DC
- Continuous Current: 6 A
- Max Inrush Current: N/A
- Min Switching Current: 10 mA
- Max Pwr Rating, Ohmic Load: 250VAC, 1500 VA
- Min Switching Pwr.: 120 mW

The relays are shipped complete in the DIN Rail mounting package and are ready to snap onto the DIN Rail. 8 relays are jumpered together with the adapter providing an integrated cable assembly and an easy installation. The relays are modules that can be replaced in the DIN Rail package. The 10 Amp relays use a Plug-in Bridge to Jumper Field Power. This jumper option allows the full 10 Amps per relay continuous output at 250 VAC when used with the 10 Amp Mechanical Relay.

**Phoenix Miniature Series Relays**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2967620</td>
<td>PLC-RSC-24DC/21-HC</td>
<td>10 Amp Mechanical Relay 14mm/8 require</td>
</tr>
<tr>
<td>2967002</td>
<td>PLC-OSC-24DC/24DC/2</td>
<td>3 Amp Solid State Relay (8 required)</td>
</tr>
<tr>
<td>2966711</td>
<td>PLC-RSC-24DC/21</td>
<td>6 Amp Mechanical Relay 6.2mm/8 Require</td>
</tr>
<tr>
<td>2299660</td>
<td>PLC-V8L/FLK 14/OUT</td>
<td>Large 8 Relay Cable Adapter (10 Amp)</td>
</tr>
<tr>
<td>2295554</td>
<td>PLC-V8/FLK 14/OUT</td>
<td>8 Relay Cable Adapter (6 Amp)</td>
</tr>
<tr>
<td>2300575</td>
<td>FLK 16/14/DV OUT/100</td>
<td>1m to 14 position cable</td>
</tr>
<tr>
<td>2300588</td>
<td>FLK 16/14/DV OUT/200</td>
<td>2m to 14 position cable</td>
</tr>
<tr>
<td>2967691</td>
<td>FBST 14-PLC BK</td>
<td>Plug-in Bridge 2 Position for 14mm PLC</td>
</tr>
</tbody>
</table>

All relays Assemblies meet the following Certifications

- Hazardous Area: FM Approved Class I, Div 2, Groups A, B, C & D
- Approvals: Atex 3 G IIC T4 UL US and Canada