MTL 9491-PS

12V DC Intrinsically Safe Power Supply

- Isolated power supply
- Zone 2 & Division 2 mountable
- DIN-rail or backplane mounting
- ATEX / IECEx certified
- FM / FMC approved
- 200mA @ 10.9V DC - Ex ia IIB Groups C, D output
- 400mA @ 11.8V DC - Ex ib IIB output
- Power over Ethernet option
- Multiple outputs achieved by ganging 9491-PS modules using 24V DC power distribution backplane

The 9491-PS Power Supply is the preferred method for supplying the 9460-ET range of intrinsically safe Ethernet modules and is based on an isolating power supply. It takes a 24V DC safe area / Zone 2 / Division 2 supply and produces an intrinsically safe, 12V DC nominal output capable of powering the Ethernet modules mounted in a Zone 1/ Division 1 hazardous area. The 9491-PS may be mounted in a safe area, Zone 2 or Division 2 hazardous area.

Each 9491-PS can power a single Ethernet module. In order to provide multiple outputs required for several Ethernet modules, the 9491-PS power supply module is ganged up to the required number of ways, either DIN-rail mounted or using the power distribution backplane to simplify the 24VDC input connection to the modules.

The 9491-PS module has LED power indication for both input and output along with internal current limiting and electronic auto-reset circuit breaker action to protect the module in the event of its output being short circuited or overloaded. This also minimises the power dissipation during the fault to a negligible level, thus improving reliability.

The output can be from either the Ex ia IIB Group C, D or Ex ib IIB output connectors depending upon application. The ‘ib’ IIB output provides a higher useable output power where the Gas Group and Zone allows.
12V DC intrinsically safe power supply

October 2016

SPECIFICATION

See also System Specification

POWER INPUT
Separately powered
Input voltage
24V DC (20–30V)
Input current
350mA
Input protection
Fuse + supply reversal diode
Connectors (see dimension drawing)
DIN rail mounting: screw terminals – capacity 2.5mm² stranded or single core
Backplane mounting: multipin connector

POWER OUTPUT
[Ex ia] output (pins 1 & 3)
Graph shows normal working range & total available range

<table>
<thead>
<tr>
<th>Minimum output voltage</th>
<th>Equivalent circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output current (mA)</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>12.1</td>
</tr>
<tr>
<td>9.7</td>
<td>1.3Ω maximum</td>
</tr>
<tr>
<td>12.1</td>
<td>12.1V minimum</td>
</tr>
</tbody>
</table>

[Ex ib] output (pins 5 & 6)

<table>
<thead>
<tr>
<th>Minimum output voltage</th>
<th>Equivalent circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output current (mA)</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>12.1</td>
</tr>
<tr>
<td>11.6</td>
<td>1.3Ω maximum</td>
</tr>
<tr>
<td>12.1</td>
<td>12.1V minimum</td>
</tr>
</tbody>
</table>

Connectors
9491-PS is supplied with two IS output connectors.
Capacity 2.5mm² stranded or single core
(When using crimp ferrules for the IS connectors the metal tube length should be 12mm and the wire trim length 14mm.)

ISOLATION
Isolation - input to output
Um = 253V rms

SAFETY
Location of module
Safe area, Zone 2, Division 2
Location of field wiring
[Ex ia] output
Zone 0, IIb hazardous area
or Class 1, Div 1, Groups C, D hazardous location
[Ex ib] output
Zone 1, IIB hazardous area

Certification Code
See approvals

Safety description
See certificate

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Publication No. EPS 9491-PS Rev 6 131016
October 2016

DIMENSIONS (mm)

MECHANICAL
Mounting
DIN rail or power distribution backplane
Dimensions
See diagram
Weight
130 g

ENVIRONMENTAL
Ambient temp
Operating 0°C to +70°C
Storage -20°C to +70°C
Relative Humidity
5 to 95% RH (non-condensing)
Ingress Protection
Select enclosure to suit application, see certificate for information

LED INDICATORS

<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>Flash</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pwr (green)</td>
<td>24V power fail</td>
<td>N/A</td>
<td>24V power OK</td>
</tr>
<tr>
<td>IS (green)</td>
<td>IS power fail</td>
<td>output overload or short circuit present</td>
<td>IS power OK</td>
</tr>
</tbody>
</table>

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.
MTL 9492-PS-PLUS

12V DC intrinsically safe power supply

- Isolated power supply
- Zone 2 mountable
- DIN-rail or backplane mounting
- ATEX / IECEx certified
- 480mA @ 10.00V DC - Ex ia IIB
- 550mA @ 11.90V DC - Ex ib IIB output
- Power over Ethernet option
- Multiple outputs achieved by ganging 9492-PS-PLUS modules using 24V DC power distribution backplane
- Wide operating temperature −40°C to +70°C

The MTL 9492-PS-PLUS power supply is the preferred method for supplying the 9460-ET series of intrinsically safe ethernet modules and is based on an isolating power supply. It takes a 24V DC safe area / Zone 2 supply and produces an intrinsically safe, 12V DC nominal output capable of powering the ethernet modules mounted in a Zone 1 hazardous area. The 9492-PS-PLUS may be mounted in a safe area or Zone 2 hazardous area.

Each 9492-PS-PLUS can power a single ethernet module. In order to provide multiple outputs required for several ethernet modules, the 9492-PS-PLUS power supply module is ganged up to the required number of ways, either DIN-rail mounted or using the power distribution backplane to simplify the 24VDC input connection to the modules.

The 9492-PS-PLUS module has LED power indication for both input and output along with internal current limiting and electronic auto-reset circuit breaker action to protect the module in the event of its output being short circuited or overloaded. This also minimises the power dissipation during the fault to a negligible level, thus improving reliability.

The output can be from either the Ex ia IIB or Ex ib IIB output connectors depending upon application. The ‘ib’ IIB output provides a higher useable output power where the Gas Group and Zone allows.
**SPECIFICATION**

See also System Specification

**POWER INPUT**

Separately powered

Input voltage  
24V DC (20–30V)

Input current  
390mA

Input protection  
Fuse + supply reversal diode

Connectors (see dimension drawing)

DIN rail mounting: screw terminals – capacity 2.5mm² stranded or single core

Backplane mounting: multipin connector

**POWER OUTPUT**

[Ex ia] output (pins 1 & 3)

Graph shows normal working range & total available range

<table>
<thead>
<tr>
<th>Minimum output voltage</th>
<th>Equivalent circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5V</td>
<td>5.27 Ω maximum</td>
</tr>
<tr>
<td>10.0V</td>
<td></td>
</tr>
<tr>
<td>9.6V</td>
<td></td>
</tr>
</tbody>
</table>

[Ex ib] output (pins 5 & 6)

<table>
<thead>
<tr>
<th>Minimum output voltage</th>
<th>Equivalent circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5V</td>
<td>1.09 Ω maximum</td>
</tr>
<tr>
<td>11.9V</td>
<td></td>
</tr>
</tbody>
</table>

Connectors

9492-PS-PLUS is supplied with two IS output connectors. Capacity 2.5mm² stranded or single core

(When using crimp ferrules for the IS connectors the metal tube length should be 12mm and the wire trim length 14mm.)

**ISOLATION**

Isolation - input to output  
Um = 253V rms

**SAFETY**

Location of module  
Safe area, Zone 2

Location of field wiring  
[Ex ia] output  
Zone 0, IIB hazardous area  
[Ex ib] output  
Zone 1, IIB hazardous area

**Certification Code**

See approvals

**Safety description**

See certificate

**DIMENSIONS (mm)**

MECHANICAL

Mounting  
DIN rail

Please contact Eaton MTL product line for ‘backplane’ option

Dimensions  
See diagram

Weight  
130 g

ENVIRONMENTAL

Ambient temp  
Operating −40°C to +70°C

Storage −40°C to +70°C

Relative Humidity  
5 to 95% RH (non-condensing)

Ingress Protection  
Select enclosure to suit application, see certificate for information

**LED INDICATORS**

<table>
<thead>
<tr>
<th>OFF</th>
<th>Flash</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pwr (green)</td>
<td>24V power fail</td>
<td>N/A</td>
</tr>
<tr>
<td>IS (green)</td>
<td>IS power fail</td>
<td>output overload or short circuit present</td>
</tr>
</tbody>
</table>

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Publication No. EPS 9492-PS-PLUS Rev 2 131016  
October 2016

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The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.
MTL 9493-PS-XXX
Intrinsically safe power supply

- Isolated power supply
- Zone 2 mountable
- DIN-rail or backplane mounting
- ATEX / IECEx certified
- Range of Ex ia output voltages available
- Power over Ethernet option
- Multiple outputs achieved by ganging 9493-PS-XXX modules using 24V DC power distribution backplane

The 9493-PS-XXX Power Supply is a general purpose Intrinsically Safe power supply unit. It takes a 24V DC safe area or Zone 2 supply and produces an Intrinsically Safe output available in a range of different DC voltages. The 9493-PS-XXX may be mounted in a safe area or Zone 2 hazardous area.

In order to provide multiple outputs as required, the 9493-PS-XXX power supply module is ganged up to the required number of ways, either DIN-rail mounted or using the power distribution backplane to simplify the 24VDC input connection to the modules.

The 9493-PS-XXX power supply module has LED power indication for both input and output along with internal current limiting and electronic auto-reset circuit breaker action to protect the module in the event of its output being short-circuited or overloaded. This also minimizes the power dissipation during the fault to a negligible level, thus improving reliability.

The output is Ex ia certified for Group I, IIA, IIB or IIC, depending on model to suit different applications.
SPECIFICATION
See also System Specification

9493-PS-B5
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
83mA

Power output
[Ex ia IIB] Output (pins 1 & 3)
Nominal Output Voltage
4.8V – 5.2V
Nominal Output Current
250mA (Max 550mA)

Uo
5.4V

Graph shows normal working range & total available range

9493-PS-C6
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
122mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
5.7V – 6.7V
Nominal Output Current
300mA (Max 550mA)

Uo
7V

Graph shows normal working range & total available range

9493-PS-C5
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
61mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
4.8V – 5.2V
Nominal Output Current
180mA (Max 550mA)

Uo
5.4V

Graph shows normal working range & total available range

9493-PS-C9
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
165mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
8.4V – 9.7V
Nominal Output Current
300mA (Max 550mA)

Uo
10V

Graph shows normal working range & total available range
SPECIFICATION (continued)
See also System Specification

9493-PS-C11
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
196mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
9.9V … 11.7V
Nominal Output Current
300mA (Max 550mA)

Uo
12V
Graph shows normal working range & total available range

9493-PS-C12
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
175mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
10.8V … 12.7V
Nominal Output Current
250mA (Max 260mA)

Uo
13V
Graph shows normal working range & total available range

9493-PS-C14
Power input
Input Voltage
24V DC (20-30V)
Input Current @ 24V
120mA

Power output
[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
12.4V … 14.7V
Nominal Output Current
120mA (Max 260mA)

Uo
15V
Graph shows normal working range & total available range
SPECIFICATION (continued)

See also System Specification

9493-PS-B17

Power input

Input Voltage
24V DC (20-30V)

Input Current @ 24V
163mA

Power output

[Ex ia IIB] Output (pins 1 & 3)
Nominal Output Voltage
15.0V ... 17.7V
Nominal Output Current
160mA (Max 260mA)

Uo
18V

Graph shows normal working range & total available range

Minimum output voltage

Equivalents circuit

17.7V minimum

9493-PS-C17

Power input

Input Voltage
24V DC (20-30V)

Input Current @ 24V
74mA

Power output

[Ex ia IIC] Output (pins 1 & 3)
Nominal Output Voltage
15.0V ... 17.7V
Nominal Output Current
60mA (Max 160mA)

Uo
18V

Graph shows normal working range & total available range

Minimum output voltage

Equivalent circuit

17.7V minimum

Standard stock range

<table>
<thead>
<tr>
<th>P/N</th>
<th>Gas Group</th>
<th>Uo</th>
<th>Nominal output voltage</th>
<th>Nominal output current</th>
</tr>
</thead>
<tbody>
<tr>
<td>9493-PS-C5 IIC</td>
<td>5.4V</td>
<td>4.8V ... 5.2V</td>
<td>180mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-B5 IIB</td>
<td>5.4V</td>
<td>4.8V ... 5.2V</td>
<td>250mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C6 IIC</td>
<td>7V</td>
<td>5.7V ... 6.7V</td>
<td>300mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C9 IIC</td>
<td>10V</td>
<td>8.4V ... 9.7V</td>
<td>300mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C11 IIC</td>
<td>12V</td>
<td>9.9V ... 11.7V</td>
<td>300mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C12 IIC</td>
<td>13V</td>
<td>10.8V ... 12.7V</td>
<td>250mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C14 IIC</td>
<td>15V</td>
<td>12.4V ... 14.7V</td>
<td>120mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-B14 IIB</td>
<td>15V</td>
<td>12.4V ... 14.7V</td>
<td>250mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-C17 IIC</td>
<td>18V</td>
<td>15.0V ... 17.7V</td>
<td>60mA</td>
<td></td>
</tr>
<tr>
<td>9493-PS-B17 IIB</td>
<td>18V</td>
<td>15.0V ... 17.7V</td>
<td>160mA</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: More variants outside the Standard Stock Range can be ordered, subject to an MOQ. Please contact MTL product line for further details.
SPECIFICATION (continued)

Connectors
9493-PS-XXX is supplied with one IS output connectors.
Capacity 2.5mm² stranded or single core
(When using crimp ferrules for the IS connectors the metal tube length should be 12mm and the wire trim length 14mm.)

ISOLATION
Isolation - input to output
Um = 253V rms

SAFETY
Location of module
Safe area, Zone 2
Location of field wiring
[Ex ia] output
Zone 0, (Gas group depends on model type)
Model 9493-PS-CXX, IIC Hazardous area
Model 9493-PS-BXX, IIB Hazardous area
Model 9493-PS-AXX, IIA Hazardous area
Model 9493-PS-MXX, Group 1 Mining
Certification Code
See approvals
Safety description
See certificate

DIMENSIONS (mm)

MECHANICAL
Mounting
DIN rail

Dimensions
See diagram

LED INDICATORS

<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>Flash</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pwr (green)</td>
<td>24V power fail</td>
<td>N/A</td>
<td>24V power OK</td>
</tr>
<tr>
<td>IS (green)</td>
<td>IS power fail</td>
<td>output overload or short circuit present</td>
<td>IS power OK</td>
</tr>
</tbody>
</table>

Weight
130 g

ENVIRONMENTAL

Ambient temp
Operating
−40°C to +70°C
Storage
−40°C to +70°C

Relative Humidity
5 to 95% RH (non-condensing)

Ingress Protection
Select enclosure to suit application, see certificate for information