

Power supplies



General

Good power supply management is at the heart of the MTL8000 system.

AC and DC power supply units are available to suit the available resources.

All units are designed to endure the harsh environmental conditions that are frequently found in process plants and, naturally, they meet rigorous EMC and electrical safety standards. Power supply connections are minimised and simplified to ensure that power provision requires the minimum of wiring effort

8000 series power supplies are designed to support redundancy when required. Most have "health" signal outputs for early warning of problems.

DC system power supply

The 8910-PS-DC DC input power supply provides a regulated 12 V @ 4.9 A output from a DC input voltage range of 18.5 up to 36V. This input voltage range accommodates the typical 24 V DC supplies available on process plants worldwide.

This power supply is designed to mount directly on 8711-CA-NS or 8712-CA-NS node services carriers or on a 8717-CA-PS power supply carrier. On the node services carriers mentioned here, two positions are provided. This enables a second power supply to be mounted, under conditions where the user wants to provide additional power, or where a redundant power supply is required to provide maximum system availability.

DC IS module supply

Power Supply module 8920-PS-DC mounts on its own carrier (8724-CA-PS) and accepts a locally available 24 V dc (nominal) supply and converts it to 12 V dc for powering MTL8000 I/O modules that have intrinsically safe field wiring.

Its 5 A output is capable of powering between six and twenty I/O modules, depending on the module types and their mix.

A number of 8920-PS-DC modules may be used together, within an MTL8000 node, in a load-sharing arrangement. Where power supply redundancy is required an additional supply module may be added in an "n+1" arrangement. Failure of any power supply is signalled to the Bus Interface Module.

AC power supplies

The 8913-PS-AC and 8914-PS-AC supplies produce DC output power from a wide range of AC inputs. Both can be mounted in a Zone 2 or Division2 hazardous area which means that they can be used for a broad range of applications including supplying power to 8000 series modules.

System and Field power

The 8913-PS-AC is a dual output supply capable of producing 12 V and 24 V DC outputs of approximately 5 A.

For 8000 series products, the 12 V output can be used to supply system power to the node and also provide 24 V to power field devices via the field power bussing facilities on the 8000 series carriers.

Field power

The 8914-PS-AC has a single 24 V DC output with a 10 A capacity. This is ideal for powering a wide range of field devices. With 8000 series products, it is normally distributed via the field power bus (see below).

Load sharing

A load sharing diode is built in to the 12V output of the 8913-PS-AC power supply and the 24V output of the 8914-PS-AC. This enables one or more of the same power supply type to be connected in parallel to share the load requirements.

Power health signalling

The 8913-PS-AC and the 8914-PS-AC supplies provide power health signals that can be routed to the BIM to warn of possible imminent power failure.

The 8913 provides the power health signal from its 12 V DC output.

Bussed field power (2/2 modules/carriers only)

In addition to the system power supply, an MTL8000 node may need to be supplied with additional field power.

Conventional systems require field power supplies to be wired in at the field terminals or via additional patching connectors. This adds complication to the field wiring and can be a source of confusion during maintenance work.

The MTL8000 system overcomes this complication with a system for bussing power on the carriers. Each carrier can bus an external power supply to modules so that they can energise the field wiring.

In the case of the 4-20mA Analog Input and Output modules, the bussed field power is also used to energise the field interface circuits.

The connection for the bussed field power is located at the top of the carrier and uses a two-part removable connector. Individual bussed field power supplies connect to two modules. If an adjacent pair of modules require the same power supply voltage the connector can be wire-linked to provide it, otherwise a different supply voltage (AC or DC) can be connected.

