

White Paper

Why move the power supply out of the control panel?

Emparro67



Trends in automation

Over the past decade, more and more machine builders and manufacturing companies have been moving key components into the field. By dividing the machine or system up into subsections, PLCs, controllers and I/Os can be placed closer to the equipment they manage.

Creating decentralized units means they can be assembled, tested and run individually as modular subsystems. This makes installation, commissioning and maintenance easier. This approach also supports future expansion, modular machine design, flexible placement or updates.

Until now, power supplies for machines and applications have been almost exclusively found in the control cabinet. But not anymore! Now it's possible to move the power supply out of the control panel onto the machine field taking advantage of having the power supply as close as possible to the loads.



Concerns when moving the power supply out of the cabinet

There are a couple of options when moving the power supply out of the control panel and onto the machine. One option is to build in a small control panel to house IP20 power supplies. The other option is to mount an IP67 power supply directly onto the machine, eliminating an additional enclosure on the machine.

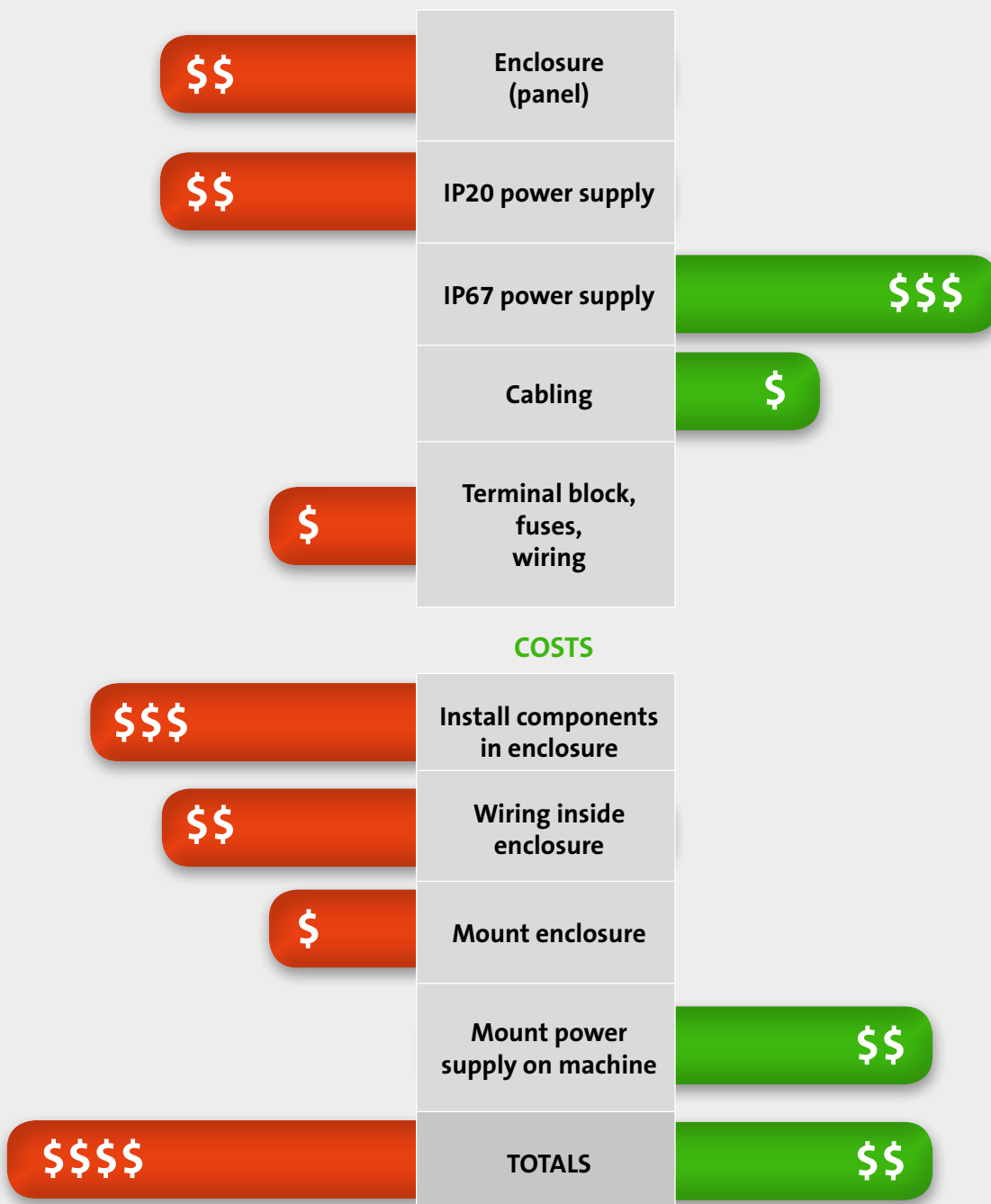
Let's look at the **costs** involved with these two different installation options.

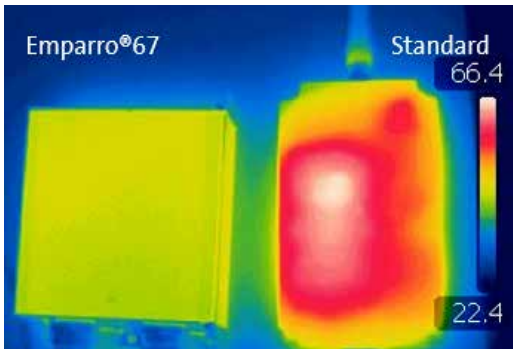


IP20 power supply



IP67 power supply





Heat dissipation needs to be considered when creating a power supply installation concept. One of the main advantages when choosing a decentralized, IP67 solution that can be mounted directly on the machine, is that heat dissipation is no longer a concern. Because the power supply is no longer housed in an enclosure, heat easily dissipates. Simultaneously, this means that the control panel for the PLC or controllers can be smaller and less expensive.

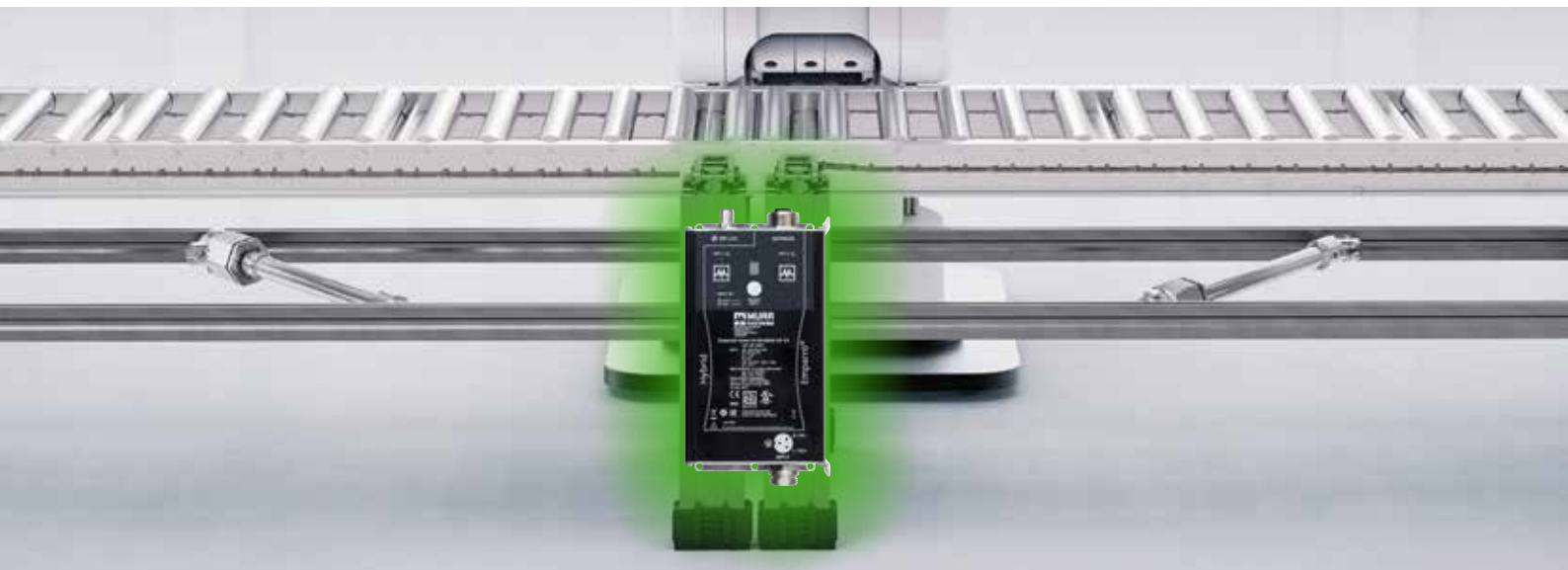


IP67 power supply **diagnostics** are visible directly on the device, taking advantage of a visible status LED. Whereas when using IP20 power supplies inside enclosures, diagnostics information is difficult to access. To get the same diagnostics information with an IP20 power supply, you would need to open the enclosure (results in higher costs, reduced IP protection).

Features for machine builders and end customers

There are many features when creating an application with on-machine power. We'll highlight the main benefits of a decentralized power concept.

Top 8 Features of IP67 Power Supplies

**1**

IP67 power supplies eliminate need for an enclosure panel

2

On-machine power supplies can be placed directly next to the loads

3

Cabling is shorter therefore reducing power loss and material costs

4

Plug-and-play installation makes cabling easier and eliminates wiring errors

5

On-machine power supplies are easy to install significantly reducing labor costs

6

IP67 power supplies bring end customers value added benefits in diagnostics and maintenance

7

Decentralized power concept supports future expansion and update needs

8

IP67 power supply streamlines machine delivery and commissioning process

Industry examples and first adopters



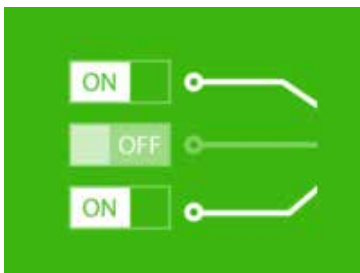
Many leading industries are embracing decentralized IP67 power supplies. The early adopters have recognized the advantages of moving the power supply onto the machine. The **automotive industry** is an example of an industry that uses IP67 power supplies built onto their machines. Commissioning is immediately simplified, and the OEM can deliver machines with pre-wired subsystems. The I/Os can also be supplied with power directly next to the load.



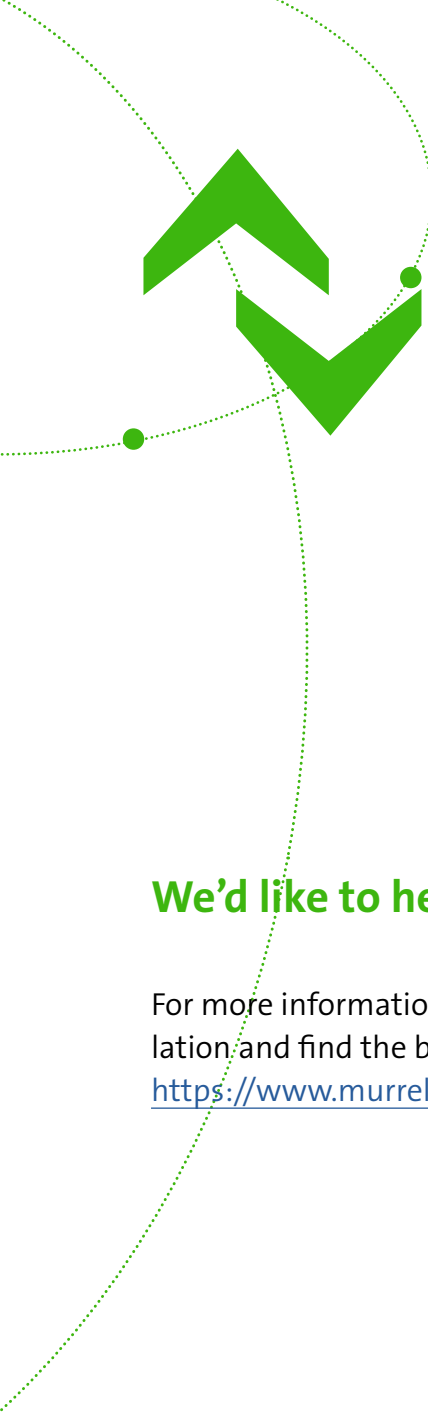
The **logistics industry** is faced with longer and longer machine lines and is also recognizing the benefit of eliminating power loss and moving the power supply as close as possible to the load, decentralizing the power supply installation. If customers are already purchasing an IP20 power supply and a current monitoring system for control panels, then an IP67 power supply with integrated load monitoring might be exactly what they are looking for.

Bonus!

The innovative Emparro67 Hybrid power supply from Murrelektronik is an all-rounder with many powerful features:



Its **load circuit monitoring** has two integrated channels for 24 VDC and increases diagnostics features and runtime. The Emparro67 Hybrid has integrated MICO functionality so sensors, actuators, or of field bus modules' current can be electronically monitored. If the actuator supply is interrupted, for example due to short-circuit, overload or cable break, the field bus will continue to be supplied by the other channel (via the sensor and module output channel). Error messages and diagnostic information can still be sent to the PLC by means of a digital alarm contact. The alarm contact can also be configured as an IO-Link port.



An **IO-Link** interface provides extensive and transparent communication. The Emparro67 Hybrid can communicate as an IO-Link device with a superior IO-Link master. It has predictive maintenance features and provides precise information by different diagnostic information about the device status. For example, when reaching its predicted maximum lifetime, a message is sent to the PLC and the device can be replaced during the next maintenance period. This helps eliminate unplanned, expensive downtimes.

We'd like to hear from you

For more information on Emparr67 Hybrid or to have an application expert assess your installation and find the best solution with you, contact us at:

<https://www.murrelektronik.com/contact/branch-offices/>



White Paper by

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About Murrelektronik

Murrelektronik is an international, family-run company in the automation technology sector with more than 2700 employees. The vision and mission of Murrelektronik is to optimize machinery and plant installations and thus generate a competitive edge for its customers. Decentralization is the company's speciality: the control layer of machinery

and plant is optimally connected to the sensor-actuator layer with proven concepts and innovative technologies. Close customer cooperation is vital to develop customized solutions for optimum machine installation. High product availability rounds off the Murrelektronik portfolio and the customer experience.