



Power supplies

Intelligent power supply directly in the field



24 V DC power supplies



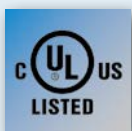
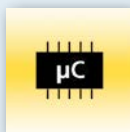
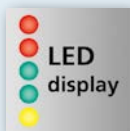
Field mounting reduces voltage losses due to long cable runs

No control cabinet required thanks to protection class IP 67

Outputs protected by electronic fuses

Output voltage adjustable, current for each output can be set separately

Status and diagnostic LEDs



Power supply directly in the field


More and more users mount control components decentrally on the machine instead of in the control cabinet, for example IO-Link masters or other field modules.

With classic power supply from the control cabinet, critical voltage drops occur due to the high currents through the long cables. To prevent this, ifm offers a powerful power supply for mounting directly in the field.

Protection in the secondary circuit

Integrated electronic fuses reliably protect the components connected to the 24 V power supply against excessive current and short circuits.



Type	Operating voltage [V AC]	Output voltage [V DC]	Output power (permanent) [W]	Number of output circuits	Plug for output circuits	Order no.
	380...480 ±15% (3-phase)	24	500	4	2 x M12, L-coded	DN4234

Further advantages and customer benefits

Adjustable outputs

The 24 V voltage of the output circuits can be set to a limited extent via buttons on the power supply. It can be slightly increased, for example, so that despite voltage drop on longer supply lines, exactly 24 V still arrives at the connected consumer. The user can also set the tripping current of the four electronic fuses. This provides maximum protection in the event of a short circuit or overload in the secondary circuit.

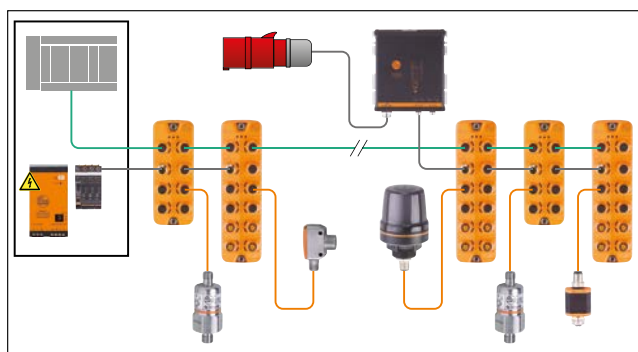
Operation and display

On the front panel, the power supply has three buttons for setting the current and voltage values. A row of different coloured LEDs also provides a quick overview of the status and allows rapid diagnosis in case of a fault. It shows the current load of the power supply unit or the individual output circuits from 0...200 %, set current and voltage values and which fuses have tripped. A fuse reset button is provided for each output circuit.

More reliability

Electronic fuses reliably detect short circuits even with high line resistances. Due to the four individually fused output circuits, a faulty circuit is selectively switched off, the intact circuits continue to function reliably. Even with high current peaks, such as when switching capacitive loads, the supply is guaranteed.





Use of the power supply directly in the field:



Further technical data

Output power	[W]	500
Operating voltage	[V AC]	380...400 ±15%
Mains frequency	[Hz]	50...60 ±6%
AC peak inrush current	[A]	1.5
Degree of efficiency at 400 V AC	[%]	95.8
Mains buffering time	[ms]	20
Ambient temperature	[°C]	-25...70

Accessories

Design	Description	Order no.
DC connection technology		
	Wirable M12 connector, L-coded	E12673
	Wirable M12 socket, L-coded,	E12672
	M12 connection cable, L-coded	E12641
	M12 connection cable, L-coded	E12653
AC connection technology		
	T-splitter 7/8" 5-pole	E12778
	Wirable connector 7/8" 5-pole	E12776
	Wirable socket 7/8" 5-pole	E12774
	Connection cable 2 m, socket	E12772
	Connection cable 5 m, socket	E12773

We reserve the right to make technical alterations without prior notice. · 09 2021



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Circuit protection with monitoring function for the 24 V circuit



Electronic 24 V DC circuit breakers

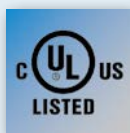
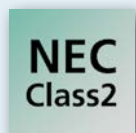
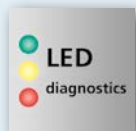


Modular and selective protection in plant and machinery

Reliable circuit protection allows reduction of wire cross-sections

Potential modules for quick and easy wiring available as an option

- **Recognition of the trigger cause (via IO-Link)**
- **Current and voltage measurement in each channel (via IO-Link)**



Safety on the 24 V side

As opposed to the 230 V primary side, the circuit protection in the secondary circuit is often neglected. Another issue is that in the event of a failure of the 24 V DC voltage supply standard mechanical circuit breakers often do not trigger. This may happen with long cables, for example. The electronic circuit breakers from ifm monitor the circuit ideally and, if required, disconnect reliably. Individual branch circuits can be selectively disconnected. This allows a reduction of wire cross-sections in the load circuit of the switched-mode power supplies. On the new adjustable protection modules, the tripping current can be set, allowing for optimum adaptation of the plant's circuits to the machinery. Thanks to the optional potential modules, the fuse block can be expanded into an intelligent wiring system. The IO-Link version also allows evaluation of important diagnostic data.



Modular installation

The system has a modular structure and consists of a supply module to feed max. 40 A. The protection modules can be mounted side by side. This is done via a simple clip mechanism, completely without any bridges, jumpers or the like. An additional feed module that can be installed in the centre or to the right of the protection elements provides for an uninterrupted replacement of the protection modules in the event of a failure. Potential modules are used to distribute the circuits and wire the ground lead. Easy mounting and minimised wiring complexity save cost and time. With the standard version the user can connect up to 10 and with the IO-Link version up to 8 circuit breaker modules to the supply module.

The new protection module DF2524 can be connected to both the IO-Link supply modules and to the standard supply modules (see table).

Feedback

In addition to the triggering mechanism, the modules feature an LED for signalling if the module has triggered, if it is active and in to what extent it is utilised. By means of a pushbutton each channel can be activated, deactivated or set. The feed module has an additional collective output to provide a warning signal if a module has triggered.

More transparency with IO-Link

The IO-Link version has the same functions; there is, however, additional information about each channel:

- effective nominal current (1 byte cyclical)
- output voltage (acyclical)
- triggering counter (acyclical)
- current device status (1 byte, cyclical)
 - short circuit
 - overload
 - undervoltage
 - limit value reached (80 % I_N)
- activation/deactivation
- reset with triggering
- reset of the tripping-counter
- min. / max. value generation of the measured current and voltage value for each channel over any period of time
- averaging of the measured current and voltage value for each channel over any period of time

The protection modules are available in the fixed sizes 2 A, 4 A, 6 A, 8 A and 10 A. Adjustable variants, 1...4 A (Class2) and 1...10 A, are also available. The fixed current values prevent subsequent misuse by changing the max. current value.

The adjustable modules enable flexible set-up.

Products

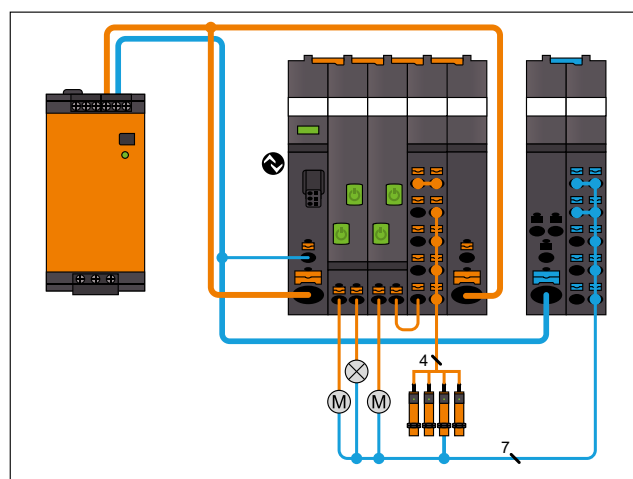
Inputs [V DC]	Nominal current [A]	Order no.	
Supply module		IO-Link	Standard
24, 40 A	–	DF2101	DF1100
Circuit protection module		IO-Link	Standard
–	2 x 2	DF2212	DF1212
–	2 x 4	DF2214	DF1214
–	2 x 6	DF2216	DF1216
–	1 x 8	DF2208	DF1208
–	1 x 10	DF2210	DF1210
–	2 x 1...10	DF2220	DF1220
–	2 x 1...4	DF2524	
GND and load modules		IO-Link	Standard
Feed module GND, 1 x 10 mm ²		DF3100	
Potential module GND, 10 x 2.5 mm ²		DF3110	
Potential module LOAD 2 x 5 x 2.5 mm ²		DF3200	
Feed module for central or ring feed		DF3210	

Further technical data

Operating voltage	[V DC]	24 (18...30)
Switch-off characteristics		Time-current characteristic
Approvals		UL508listed, NEC Class2 (for DF1212 / DF1214 DF2212 / DF2214 and DF2321)

Accessories

Description	Order no.
IO-Link connection cable, 0.5 m, M12 connector	E12613
IO-Link connection cable, 2 m, open end	E12614



For further technical details, please visit: ifm.com