Foxboro P0922YU FPS400-24

01 Supply identity and fault boundaries

Foxboro P0922YU FPS400-24 converts AC or high-voltage DC input into a regulated 24 V DC supply for Standard 200 Series baseplates. Its sealed, convection-cooled housing incorporates output supervision, current limiting and overvoltage shutdown.

Input execution

The P0922YU input automatically accepts the supported AC or high-voltage DC source. It must not be connected as though it were the low-voltage DC input P0922YC execution. Active power-factor correction shapes the AC input current, and the transformer-isolated output supplies the selected baseplate distribution cables.

Capacity allocation

The power budget combines installed FBMs, communication or control modules, termination assemblies and any internally powered field circuits. Nameplate power is not a constant rating across the complete thermal and input-voltage envelope. Preserve the applicable static-air derating and installation limits when expanding the subsystem; extra cable outlets do not create additional output capacity.

Output health

Output undervoltage and normal-voltage indications support local diagnosis, while the form C relay can operate an externally powered alarm. A healthy indication at the supply does not replace voltage measurement at a distant baseplate. Keep the sealed housing intact, retain free convection and compare source, output and load behavior before deciding which component caused a loss of power.

Conversion path	Incoming AC/HVDC → P0922YU → assigned baseplates
Independent observation	External alarm supply → form C relay → annunciator
Separate field supply	External field devices use another assigned supply

Boundary of the 400 W designation

The input operating range, thermal output table and installation rating answer different questions. Evaluate all three at the intended load; a powered supply is not proof of remaining capacity.

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02 Electrical conversion and output quality

AC input range	85–265 V AC
AC input frequency	47–63 Hz
DC input range	108–145 V DC; 125 V nominal
Input current at 85 V AC	5.6 A RMS maximum
Input current at 230 V AC	2.5 A RMS maximum
Cold-start inrush	20 A peak at 110 V AC; 40 A peak at 220 V AC
Output factory setting	24.0 V DC ±0.2 V
Maximum nominal output	400 W; input and temperature derating applies
Rated output at 120–240 V AC	24 V DC, 16.7 A before applicable derating
Rated output at 100–120 V AC	24 V DC, 14.4 A before applicable derating
Line regulation	2.0% of output voltage
Load regulation	2.0% of output voltage
Ripple/noise bandwidth	20 MHz
Output ripple/noise	100 mV peak-to-peak; 10 mV RMS maximum
Temperature coefficient	0.025% per °C
Soft-start time	3 s typical at 110 V AC; 5 s maximum
50–100% load-step recovery	Within regulation limits in 50 ms; excursion <5%
Overvoltage shutdown setting	28.0 V DC for FBM/FCM/FCP applications
Current-limit level	110% of maximum at the rated 25 °C load

Transient and steady limits

At a nominal 24 V, 2% corresponds to 0.48 V and 5% to 1.20 V. Regulation and load-step excursion describe different operating tests and must not be added together as a universal acceptance tolerance.

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03 Thermal budget and load allocation

Static-air capacity for the P0922YU input execution

Input	25 °C	40 °C	50 °C	60 °C	65 °C	70 °C
220/240 V AC	400 W	345 W	325 W	300 W	285 W	275 W
120 V AC	400 W	325 W	300 W	275 W	265 W	250 W
100 V AC	345 W	315 W	300 W	275 W	265 W	250 W
120 V DC	400 W	330 W	300 W	280 W	270 W	250 W

These are thermal limits in zero air flow. Observe applicable installation ratings as well; the 24 V DC input execution is intentionally excluded.

Thermal current budget

At 24 V, 275 W corresponds to approximately 11.46 A, while 250 W corresponds to approximately 10.42 A. These calculated values help compare a load list with the stated thermal table; they do not remove installation-rating constraints.

How does a 90 V AC source change the load budget of P0922YU FPS400-24 at 25 °C?

Starting from the 345 W value at 100 V AC, the 3 W/V reduction gives 315 W at 90 V AC. A 320 W load would exceed that derived limit even though 90 V lies inside the input operating range. Check source behavior under load rather than only its open-circuit voltage.

Distribution loss example

A combined cable-and-contact resistance of 0.10 Ω at 10 A causes a 1.0 V drop and 10 W of loss. This illustrative calculation explains why output and baseplate measurements should be taken separately; it is not an allowable cable-resistance specification.

Allocate before adding connectors

Sum actual module and termination consumption, check source and ambient conditions, and verify the downstream voltage under load. Additional branches do not increase the conversion rating.

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04 Supervision and cabinet integration

Alarm contact arrangement	SPDT / form C: NC, NO and COM
Alarm-state threshold	<22 V DC: relay de-energized
Power-OK threshold	>23.5 V DC: relay energized
DC alarm contact rating	2 A at 30 V DC maximum
AC alarm contact rating	2 A at 42.5 V AC maximum
Operating temperature	−30 to +71 °C; load derating applies
Storage temperature	−55 to +85 °C
Relative humidity	5–95%, noncondensing
Cooling method	Natural convection; no fan
Output-to-chassis isolation test	500 V AC
Input-to-chassis isolation test	1500 V AC
Calibration	No routine voltage adjustment or calibration required

Overvoltage reset

After eliminating the cause, interrupt input power under the approved procedure. The overvoltage shutdown resets in less than 30 seconds after input power is removed.

Alarm-contact loading

The relay contact ratings are 2 A at 30 V DC and 2 A at 42.5 V AC. Match the actual alarm circuit voltage and load to the appropriate rating; a current rating alone does not define a suitable alarm circuit.

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05 Service decisions and technical acceptance

Lifecycle and service scope

The current manufacturing and support phase of P0922YU FPS400-24 is unconfirmed. This reference is the AC/high-voltage DC input execution of the FPS400-24 supply. Retain the input execution, actual load allocation, baseplate power-cable system, alarm circuit and temperature-dependent capacity. A matching 24 V output alone does not establish an equivalent replacement.

Standard 200 Series baseplates

Supply the installed FBM, FCM or FCP arrangement after summing the individual module and termination-related power requirements.

Separate field-device power

Provide an independently allocated supply for external instruments; do not combine them with DIN-rail baseplates on the same FPS400-24.

Can the isolation test voltages of P0922YU FPS400-24 be used as continuous operating ratings?

No. Dielectric test values describe insulation verification, not permissible continuous voltage on the output or chassis. Use the specified input/output operating ranges and the approved grounding arrangement; any insulation testing must follow the equipment procedure.

Technical basis

Schneider Electric Foxboro DCS Standard 200 Series Power Supply - FPS400-24, PSS 41H-2FPS400 Rev. D. P0922YU is the AC or high-voltage DC input execution. Output capacity depends on input voltage, static-air temperature and the applicable installation rating; the 24 V DC input P0922YC ratings do not apply.

Other automation product references

Emerson KJ2005X1-BK1 12P4688X052 SE3007

Foxboro FBM232 P0926GW

Honeywell 900B08-0202

Separate references; no substitution or compatibility is implied.