WÖHRLE®
Stromversorgungssysteme

Technical Information

Two-phase Power Supply Z2405

Description	Z2405
	Two Phase Power Supply for DIN-Rail 24 V / 5 A with extended input range

Output	
DC Voltage	24 V DC
Rated Current	5 A
Rated Power	120 W
Overload	3s at 24V (6A, 144W)
Terminal connections	- = Output - Ground + = Output +24 V DC
Connection square	Max. 2,5mm²
Interference Voltage Ripple & Noise	< 150 mVp-p
Voltage Adj. Range	24-28V DC
Voltage Tolerance	± 2% max.
Line regulation	< 0,5% (at 200-550V AC Input, 100% load)
Load regulation	< 1% (at 200-550V AC Input, 100% load)
Rise Time	< 70 ms at rated input (100% load)
Setup time	< 2500 ms at rated input (100% load)
Hold up time (typ.)	> 10ms at 2x 230V AC (100% load) > 50ms at 2x 400V AC (100% load)
Monitoring function	LED - DC OK (lights up at Power ON) DC OK - relay contact (max. 30V / 1A) Contact closes when reaching correct output voltage

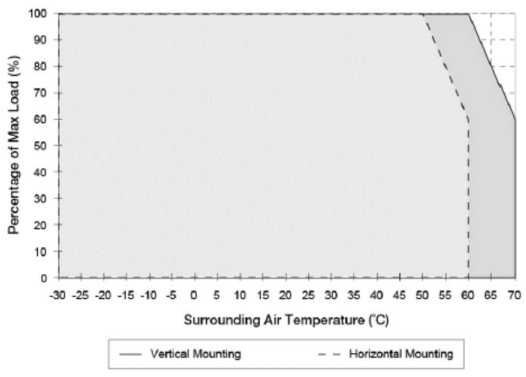
Input	
Voltage Range	180-550V AC with Derating (see derating table) 260-780V DC
Terminal connections	⏚ = Protected earth L2/N = Phase 2 / Neutral L1 = Phase 1
Terminals	Max. 8mm²
Frequency range	47-63 Hz
Efficiency / Typ.	> 90% at 400V AC
AC Current	< 1,2 A at 230V AC, <0,8A at 400V AC
Inrush Current (Cold Start)	< 50 A at 200V AC
Leakage Current	< 1 mA at 500V AC
Power loss	0% load: < 1,7W at 200V AC, < 3,2W at 500V AC 100% load: < 17W at 200V AC, < 15W at 500V AC

Protection	
Overload	> 120-160% rated output power, constant current, Hiccup Mode, automatic recovery
Overvoltage	32V ± 10%, SELV output, Hiccup Mode, automatic recovery
Overtemperature	< 80°C ambient temperature at 100% load, automatic recovery
Short Circuit	Hiccup-Mode, automatic recovery
Protection degree	IP20
Internal Fuse	3,15A T
Protection Class	Class I with PE connection

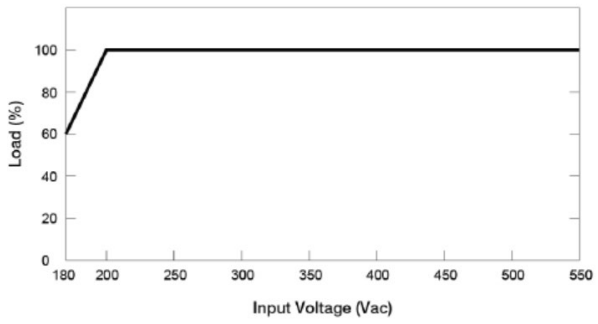
Environmental Conditions	
Operating temperature and humidity	-30 – +70°C (see derating table temperature) 5-95% rel. humidity
Storage temperature and humidity	-40 – +85°C, 5-95% rel. humidity
Shock	30G (300m/s²) for 18ms, 3 times per direction, 6 times in total, IEC 60068-2-27
Vibration	10-500 Hz at 30m/s² (3G peak), 60min all axes, IEC 60068-2-6
Pollution degree	2

Derating	
Vertical mounting	> 60°C derating with 4%/°C
Horizontal mounting	> 50°C derating with 4%/°C
Input current	< 200V AC derating with 2%/V AC
Cold start	< -10°C derating with 2,5%/°C (Example: at -30°C load should be 50% or less)

Temperature

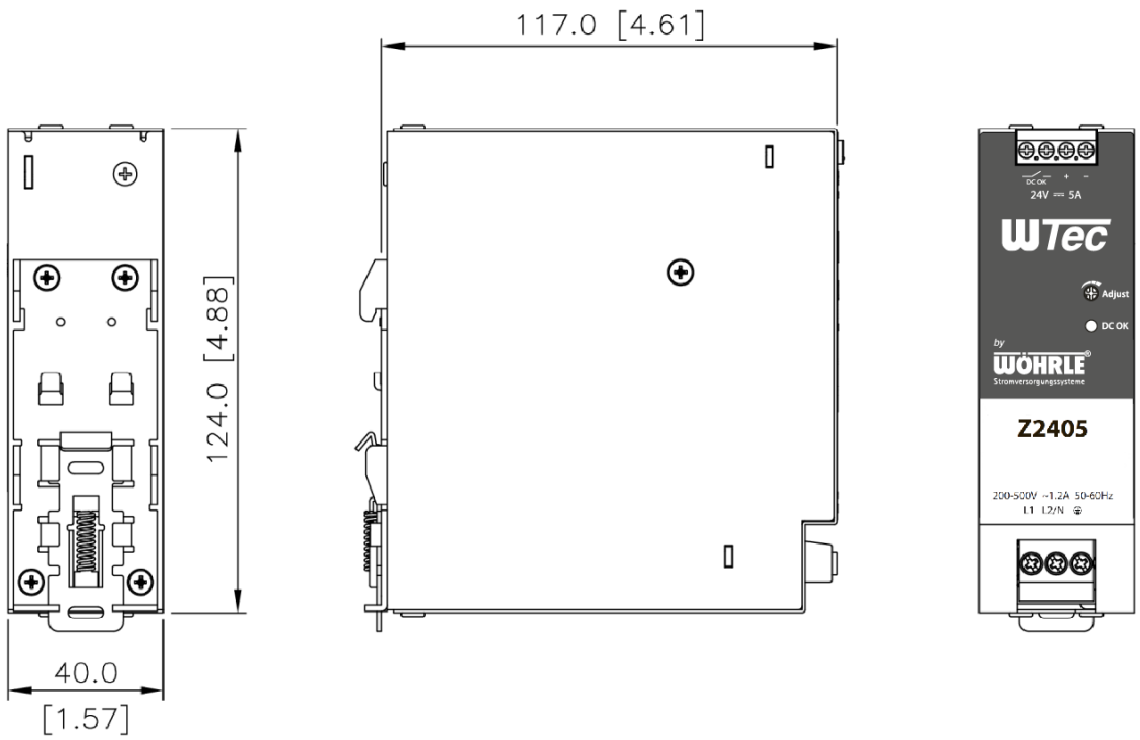


Input Voltage



Safety Standards	
Electrical Equipment of Machines	EN 60204-1 (Overvoltage Category III)
Low voltages	PELV (EN 60204-1), SELV (EN 60950-1)
	In order to enable equipotential bonding in accordance with PELV specifications, the power supply must be connected to the earth connection, e.g. in the control cabinet. The screw connection is located at the bottom right next to the connections of the input in the honeycomb structure.
Electrical safety	UL/cUL recognized: UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07 (File E307271) CB-Certification: IEC60950-1 IEC/EN 62477-1 / IEC 62103
Industrial Control Equipment	UL/cUL listed: UL 508 and CSA C22.2 Nr. 107.1 (File E236194)
CE	In compliance with EMC directive 2014/30/EU (only AC input) and low-voltage directive 2014/35/EU
Material and parts	In compliance with RoHS directive 2011/65/EU (EN 50581)
Galvanic Isolation	Input to Output: 4kV AC Input to earth: 2kV AC Output to earth: 1,5kV AC

EMC		
Emissions (CE & RE)	CISPR 32, EN 55032, CISPR 11, EN 55011, FCC Title 47: Class B	
Harmonic current emissions	IEC/EN 61000-3-2, Class A	
Voltage Fluctuations and Flicker	IEC/EN 61000-3-3	
Power supplies for low voltage with DC output	EN 61204-3	
Immunity	EN 55024, EN 61000-6-2	
Immunity against electrostatic discharge	IEC 61000-4-2	Level 4 Criterion A Air discharge: 15kV Contact discharge: 8kV
Immunity against electromagnetic fields	IEC 61000-4-3	Level 3 Criterion A 80MHz-1GHz, 10V/M, 80% Modulation (1kHz) 1.4GHz-2GHz, 3V/M, 80% Modulation (1KHz) 2GHz-2.7GHz, 1V/M, 80% Modulation (1KHz)
Immunity against transient disturbances	IEC 61000-4-4	Level 3 Criterion A 2kV
Immunity against surge voltages	IEC 61000-4-5	Level 3 Criterion A Common Mode: 2kV Differential Mode: 1kV
Immunity against conducted disturbances	IEC 61000-4-6	Level 3 Criterion A 150kHz-80MHz, 10Vrms
Immunity against power frequency magnetic fields	IEC 61000-4-8	Criterion A 30A/m
Immunity against voltage dips, short interruptions and voltage variations	IEC 61000-4-11	100% dip; 1 cycle (20ms); self recoverable
Immunity against damped sinusoids	IEC 61000-4-12	Level 3 Criterion A Common Mode: 2kV Differential Mode: 1kV

Weight, Dimensions and Connections	
	
Dimensions W x H x D in mm	40 x 124 x 117
Weight in g	620