

Ziegler

Redefine Innovative Metering

Technical Datasheet

ZAU ESX Series

POWER SUPPLY

SWITCHED MODE POWER SUPPLY

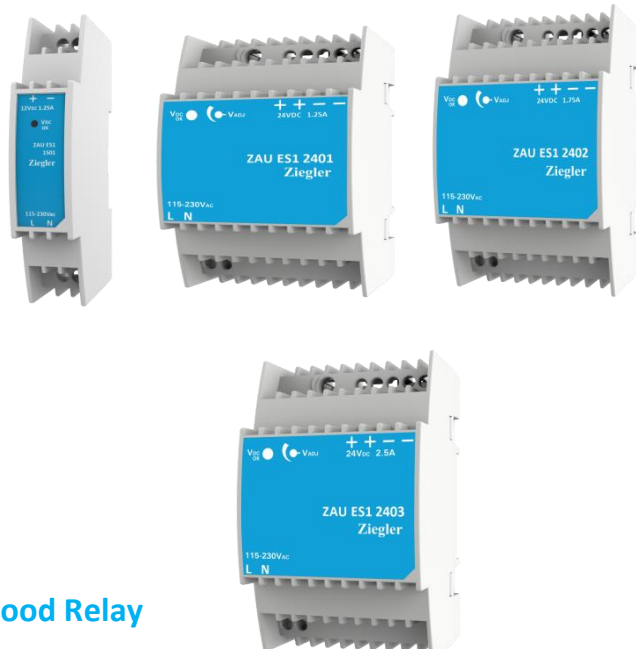
POWER SUPPLY

ZAU ESX Series

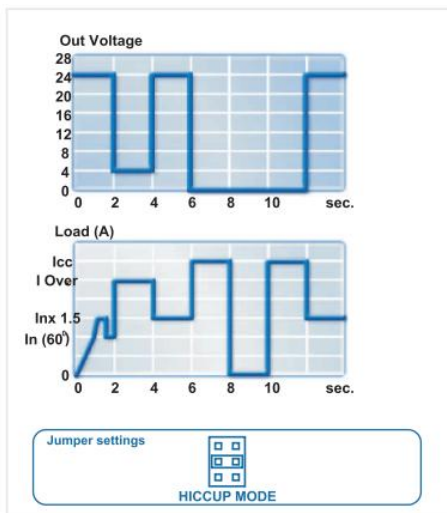
Switched Mode power supply is an electronic device that supplies electrical energy to an electric load. Power supplies are basically converters. Some power supplies are discrete, stand alone devices, whereas others are built into larger devices along with their loads.

Product Features

- Compact Design
- Efficiency upto 87%
- Available in 1Ph and 2Ph
- Universal Input AC/DC
- Adjustable Output range (in metal housing)
- Hiccup Protection mode
- Strong overload without switch- off
- Power Good Relay (in metal housing)
- Din Rail Mounting
- High MTBF > 500000

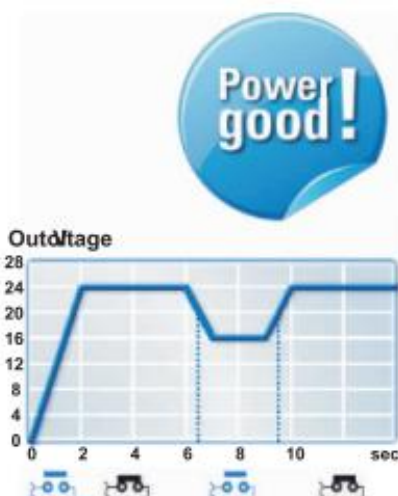


ZAU ESX - Hiccup Protection Mode & Power Good Relay



Hiccup Mode

This is default setting of all ZAU PSX series. When short-circuiting or overloading condition occurs, the output current is interrupted. The device tries to re-establish the output connections i.e. output voltage and normal condition about every 2 second till the problem is cleared.



Power Good Relay

Output voltage is continuously monitored. The ESX metal housing units are equipped with power good relay. The NO contact triggers any time with the output voltage level goes below 20VDC. This feature is particularly useful in redundant applications.

SWITCHED MODE POWER SUPPLY

POWER SUPPLY

Model	ZAU ES1 1501	ZAU ES1 1201	ZAU ES1 2401	ZAU ES1 2403
Wattage	15W	15W	36W	60W
INPUT DATA				
Input Voltage	115/230V AC	115-230V AC	115-230V AC	115-230V AC
Input Voltage Range VAC	85 - 264VAC	85 - 264VAC	85 - 264VAC	85 - 264VAC
Input Voltage Range VDC	120 - 370VDC	120 - 370VDC	120 - 370VDC	120 - 370VDC
Line regulation	<±1%	<±1%	<±0.5%	<±0.5%
Load Regulation (From 0% to 90% load)	<±1%	<±1%	<±0.5%	<±0.5%
Inrush Current (Vn and In Load) I ² t	≤ 18A	≤ 18A	≤ 36A	≤ 36A
Frequency	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Input Current	0.3A - 0.4A	0.3A - 0.4A	0.48 - 0.88A	0.8A - 1.4A
Internal Fuse	2A	2A	4A	4A
External Fuse (recommended)	10A	10A	10A	10A
OUTPUT DATA				
Output Voltage Factory Setting ±3% - (Vn)	15 VDC	12VDC	24VDC	24VDC
Adjustment range (Vadj)	-	-	22 - 27VDC	22 - 27VDC
Start up with capacitive load	-	-	-	-
Turn-On delay after applying mains voltage	1.5 Sec	1.5 Sec	1.5 Sec	1.5 Sec
Continuous Current at O/P Volt V < 40°C (In)	1.0A	1.25A	1.5A	2.5A
Continuous Current at O/P Volt V < 50°C (In)	0.75A	0.94A	1.25A	1.875A
Continuous Current at O/P Volt V < 60°C (In)	0.5A	0.625A	0.75A	1.25A
Power Boost Current (at 60°C 3min.)	1.0A	1.25A	1.5A	2.5A
Short circuit current (Icc)	-	-	-	-
Power Good Relay (Trigger at)	-	-	-	-
Hold-up Time (min. VAC) O/P Volt VDC	Typ. 50 msec	Typ. 50 msec	Typ. 30 msec	Typ. 30 msec
Residual Ripple	150 mVpp	150 mVpp	150 mVpp	150 mVpp
Efficiency (50% of In)	87%	87%	87%	87%
Dissipation power load max (W)	2.24W	2.24W	5.3W	8.9W
CLIMATIC DATA				
Ambient Temperature operation	-30 to +70°C	-30 to +70°C	-30 to +70°C	-30 to +70°C
De rating T ^a > (In)	-	-	-	-
Ambient Temperature Storage	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Humidity at 25 °C	95%	95%	95%	95%
GENERAL DATA				
Isolation Voltage (IN / OUT)	3000VAC	3000VAC	3000VAC	3000VAC
Isolation Voltage(IN / PE)	-	-	-	-

SWITCHED MODE POWER SUPPLY

POWER SUPPLY

Isolation Voltage(OUT / PE)	-	-	-	-
Protection Class (EN/IEC 60529)	IP 20	IP 20	IP 20	IP 20
Reliability (MTBF IEC 61709)	>5,00,000 h	>5,00,000 h	> 5,00,000 h	> 5,00,000 h
Pollution Degree Environment	2	2	2	2
Connection Terminal Blocks Screw Type	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
Protection class (with PE connected)	I	I	I	I
Dimension (w-h-d)	18X90X62 mm	18X90X62 mm	54X90X62 mm	54X90X62 mm
Weight	0.20 kg approx	0.20 kg approx	0.25 kg approx	0.25 kg approx

Model	ZAU ES1 2400	ZAU ES1 1203	ZAU ES1 1205	ZAU ES1 2402	ZAU ES1 1204
Wattage	15W	36W	60W	45W	45W
INPUT DATA					
Input Voltage	115-230V AC	115-230V AC	115-230V AC	115-230V AC	115-230V AC
Input Voltage Range VAC	85 - 264VAC	85 - 264VAC	85 - 264VAC	85 - 264VAC	85 - 264VAC
Input Voltage Range VDC	120 - 370VDC	120 - 370VDC	120 - 370VDC	120 - 370VDC	120 - 370VDC
Line regulation	<±0.5%	<±0.5%	<±0.5%	<±0.5%	<±0.5%
Load Regulation (From 0% to 90% load)	<±0.5%	<±0.5%	<±0.5%	<±0.5%	<±0.5%
Inrush Current (Vn and In Load) I ² t	≤ 18A	≤ 36A	≤ 36A	≤ 36A	≤ 36A
Frequency	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Input Current	0.3A - 0.4A	0.48 - 0.88A	0.8A - 1.4A	0.55A - 0.95A	0.55A - 0.95A
Internal Fuse	2A	4A	4A	4A	4A
External Fuse (recommended)	10A	10A	10A	10A	10 A
OUTPUT DATA					
Output Voltage Factory Setting ±3% - (Vn)	24 VDC	12VDC	12VDC	24VDC	12VDC
Adjustment range (Vadj)	-	10 - 14VDC	10 - 14VDC	22 - 27VDC	10 - 14VDC
Start up with capacitive load	-	-	-	-	-
Turn-On delay (after applying mains voltage)	1.5 Sec	1 sec. (max)	1 sec. (max)	1 sec. (max)	1 sec. (max)
Continuous Current at O/P Volt V < 40°C (In)	0.63A	3.0A	5.0A	1.875A	3.75A
Continuous Current at O/P Volt V < 50°C (In)	0.48A	2.25A	3.75A	1.41A	2.81A
Continuous Current at O/P Volt V < 60°C (In)	0.32A	1.5A	2.5A	0.94A	1.875A
Power Boost Current (at 60°C 3min.)	0.63A	3A	5.0A	1.8A	3.75A
Short circuit current (Icc)	-	-	-	-	-
Power Good Relay (Trigger at)	-	-	-	-	-
Hold-up Time (min. VAC) 24VDC	Typ. 50 msec	Typ. 30 msec	Typ. 30 msec	Typ. 30 msec	Typ. 30 msec
Residual Ripple	150 mVpp	150 mVpp	150 mVpp	150 mVpp	150 mVpp
Efficiency (50% of In)	87%	87%	87%	87%	87%

SWITCHED MODE POWER SUPPLY

POWER SUPPLY

Dissipation power load max (W)	2.24W	5.3W	8.9W	6.2W	6.2W
CLIMATIC DATA					
Ambient Temperature operation	-30 to +70°C	-30 to +70°C	-30 to +70°C	-30 to +70°C	-30 to +70°C
De rating T ^a > (In)	-	-	-	-	-
Ambient Temperature Storage	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Humidity at 25 °C	95%	95%	95%	95%	95%
GENERAL DATA					
Isolation Voltage (IN / OUT)	3000VAC	3000VAC	3000VAC	3000VAC	3000VAC
Isolation Voltage(IN / PE)	-	-	-	-	-
Isolation Voltage(OUT / PE)	-	-	-	-	-
Protection Class (EN/IEC 60529)	IP 20	IP 20	IP 20	IP 20	IP 20
Reliability (MTBF IEC 61709)	>5,00,000 h	> 5,00,000 h	> 5,00,000 h	> 5,00,000 h	> 5,00,000 h
Pollution Degree Environment	2	2	2	2	2
Connection Terminal Blocks Screw Type	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
Protection class (with PE connected)	I	I	I	I	I
Dimension (w-h-d)	18X90X62 mm	54X90X62 mm	54X90X62 mm	54X90X62 mm	54X90X62 mm
Weight	0.20 kg approx	0.25 kg approx	0.25 kg approx	0.25 kg approx	0.25 kg approx

Model	ZAU ES1 2405*	ZAU ES1 2408*	ZAU ES2 2405*	ZAU ES2 2408*
Wattage	95 - 120W	95-180W	95 - 120W	95-180W
INPUT DATA				
Input Voltage	100-240V AC	115-230V AC	200V - 500VAC	230-400V AC
Input Voltage Range VAC	85 - 264VAC	85 - 264VAC	187 - 550VAC	187 - 550VAC
Input Voltage Range VDC	125 - 350VDC	125 - 350VDC	264 - 780VDC	264 - 780VDC
Line regulation	<0.1%	<0.1%	<0.1%	<0.1%
Load Regulation (From 0% to 100% load)	<±1%	<±1%	<±1%	<±1%
Inrush Current (Vn and In Load) I ² t	≤ 36A	≤ 36A	≤ 36A	≤ 36A
Frequency	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Input Current	2.8A - 1.5A	2.8A - 1.5A	1.2A - 0.55A	1.5A - 1A
Internal Fuse	4A	4A	4A	4A
External Fuse (recommended)	10A	10A	10A	10A
OUTPUT DATA				
Output Voltage Factory Setting ±3% - (Vn)	24VDC	24VDC	24VDC	24VDC
Adjustment range (Vadj)	22 - 27VDC	22 - 27VDC	22 - 27VDC	22 - 27VDC
Start up with capacitive load	≤50,000μF	≤50,000μF	≤50,000μF	≤50,000μF
Turn-On delay (after applying mains voltage)	1.5 Sec	1.5 Sec	1.5 Sec	1.5 Sec

SWITCHED MODE POWER SUPPLY

POWER SUPPLY

Continuous Current at 24 V < 40°C (In)	5A	5A - 7.5A	5A	5A - 7.5A
Continuous Current at 24 V < 50°C (In)	4A	4A - 6.5A	4A	4A - 6.5A
Continuous Current at 24 V < 60°C (In)	3A	3A - 5A	3A	3A - 5A
Power Boost Current (at 24VDC 60°C 3min.)	4.5A	7.5A	4.5A	7.5A
Short circuit current (I _{cc})	-	-	-	-
Power Good Relay (Trigger at)	30VDC	30VDC	30VDC	30VDC
Hold-up Time (min. VAC) 24VDC	Typ. 20 msec	Typ. 20 msec	Typ. 20 msec	Typ. 20 msec
Residual Ripple	120 mVpp	120 mVpp	120 mVpp	120 mVpp
Efficiency (50% of In)	87%	87%	87%	87%
Dissipation power load max (W)	17W	25W	17W	25W
CLIMATIC DATA				
Ambient Temperature operation	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
De rating T ^a > (In)	>60° 2.5% °C	>60° 2.5% °C	>60° 2.5% °C	>60° 2.5% °C
Ambient Temperature Storage	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Humidity at 25 °C	95%	95%	95%	95%
GENERAL DATA				
Isolation Voltage (IN / OUT)	3000VAC	3000VAC	3000VAC	3000VAC
Isolation Voltage(IN / PE)	1505VAC	1505VAC	1605VAC	1605VAC
Isolation Voltage(OUT / PE)	500VAC	500VAC	500VAC	500VAC
Protection Class (EN/IEC 60529)	IP 20	IP 20	IP 20	IP 20
Reliability (MTBF IEC 61709)	> 5,00,000 h	> 5,00,000 h	> 5,00,000 h	> 5,00,000 h
Pollution Degree Environment	2	2	2	2
Connection Terminal Blocks Screw Type	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
Protection class (with PE connected)	I	I	I	I
Dimension (w-h-d)	55x110x105 mm	55x110x105 mm	55x110x105 mm	55x110x105 mm
Weight	0.50 kg approx	0.50 kg approx	0.50 kg approx	0.50 kg approx

* Metal Housing Power Supply

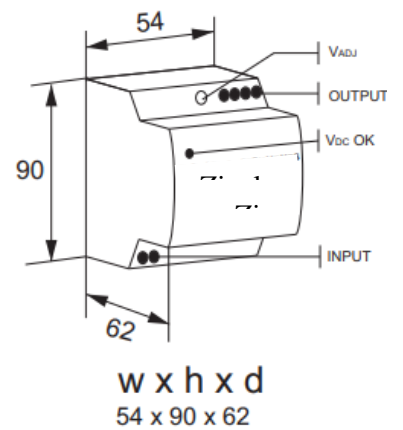
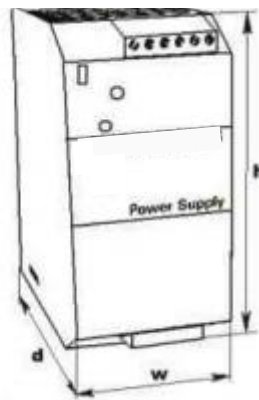
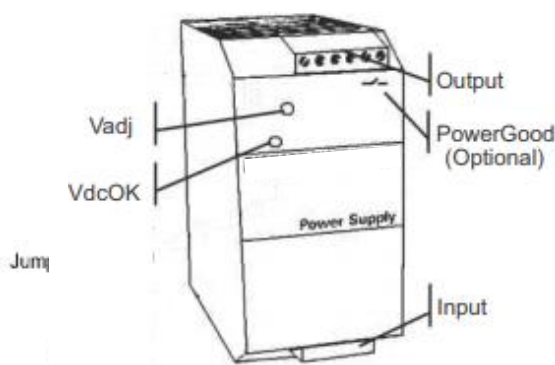
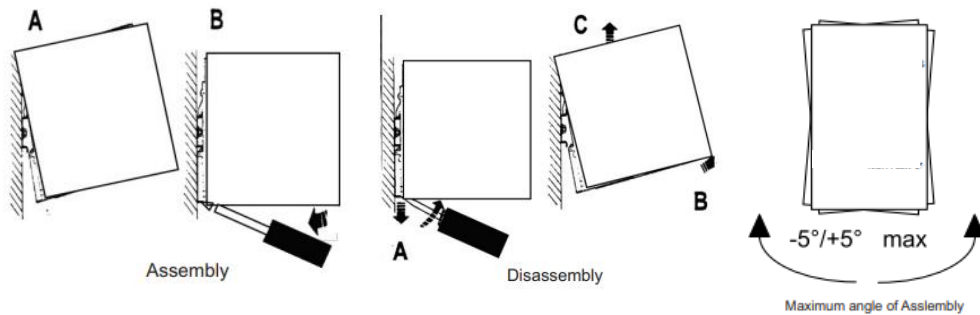
Applicable Standards

Assembling device, Installation, Input/Output	IEC 60950 / EN 50178 , SELV EN 60950-1, PELV EN 60204-1
EMC Immunity	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,
EMC Emission	EN 61000-6-4, EN 61000-3-2
Standards Conformity	EN 60204-1 Safety of Electrical Equipment Machines

SWITCHED MODE POWER SUPPLY

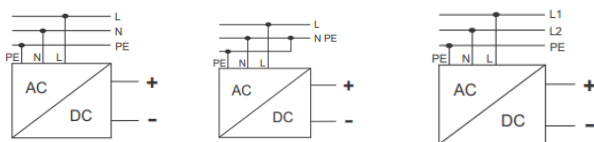
POWER SUPPLY

Rail Mounting Assemble:



Electrical Connections and Signals

Normal Connection



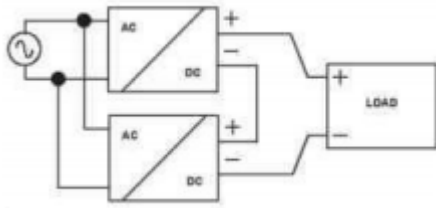
Signaling

Red led (DC ok) status:	Jumper Setting
Output voltage OK: Lights up permanently	Hiccup Mode Mode
Blink in overload and short circuit condition	Hiccup Mode

SWITCHED MODE POWER SUPPLY

POWER SUPPLY

Series Connection



When load needs higher voltage then series connection of power supply provides flexibility to full fill the load requirement by connecting meters in series adding the output voltage of the supply

Ordering Information

Example : - ZAU ES1 2403 Model -24V DC, 2.5A.

Ziegler

Redefine Innovative Metering

Ziegler Instrumentation UK Ltd.

Central Buildings, Woodland close old woods Trading Estate, Torquay Devon, TQ2 7BB, United Kingdom
Tel : +441803 616 800 | Email : info@ziegler-instrument.com | Web : ziegler-instrument.com