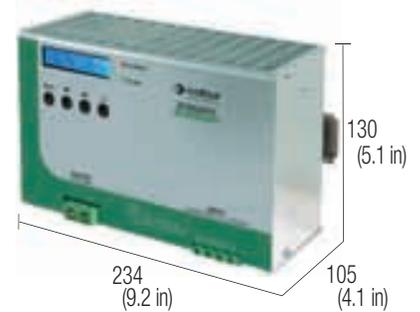


# 3-phase switching power supply 400-500 Vac output power 2400 W

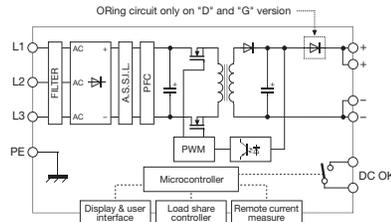
- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)



## NOTES

- The depth dimension includes the DIN rail clamp.
- (3) Over 45°C (113°F) apply a derating of about 40 W/°C
- (4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
- (5) Available from July 2011

## BLOCK DIAGRAM



Special version for DC motors

VERSIONS	
Output 24 Vdc 40 A	
Output 24 Vdc 40 A redundant version	
Output 12...15 Vdc 80 A	
Output 48 Vdc 20 A	
INPUT TECHNICAL DATA	
Input rated voltage	3x 400-500 Vac (range 340...550 Vac)
Frequency	47...63 Hz
Current @ Iout max. (Uin 400 / 500 Vac)	4.2 A / 3.5 A
Inrush peak current	< 2 A (with active inrush current limiter)
Power factor	> 0.92
Internal protection fuse	—
External protection on AC line	circuit breaker: 3x 10 A C characteristic - fuse: 3x T10 A
OUTPUT TECHNICAL DATA	
Output rated voltage	24 Vdc
Output adjustable range	11.5...29 Vdc
Continuous current	100 A @ 45°C (3)
Overload limit	150 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>150 A for 5 s (4)
Load regulation	< 1%
Ripple @ nominal ratings	≤ 200 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >10 ms
Overload / short circuit protections	programmable (see on right side)
Status display	"DC OK" green LED / "DC OK" alarm contact / "Overload" red LED / LCD display
Alarm contact threshold	programmable (see on right side)
Parallel connection	possibile
Redundant parallel connection	possibile
GENERAL TECHNICAL DATA	
Efficiency (Uin 400 / 500 Vac)	>92% / >92%
Dissipated power (Uin 400 / 500 Vac)	200 W / 200 W
Operating temperature range	-20...+60°C, con derating oltre 45°C / protezione termica (3)
Input/output isolation	3 kVac / 60 s SELV output (5)
Input/ground isolation	1.5 kVac / 60 s
Output/ground isolation	0.5 kVac / 60 s
Standard/approvals	EN60950, IEC950, UL508
EMC Standards	EN 55011, EN 61000-3-2, EN61000-4-5 Surge immunity Level IV, VDE0160
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 20 IEC529, EN60529
Connection terminal	4-6 mm <sup>2</sup> fixed screw type
Housing material	aluminium
Approx. weight	2,8 Kg (98,76 oz)
Mounting information	vertical on rail, allow 60 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—

Cod. XCSG2401C	Cod. XCSG2401D
CSG2401C (6)	CSG2401D (6)
3x 400-500 Vac (range 340...550 Vac)	
47...63 Hz	
4.2 A / 3.5 A	
< 2 A (with active inrush current limiter)	
> 0.92	
—	
circuit breaker: 3x 10 A C characteristic - fuse: 3x T10 A	
24 Vdc	48 Vdc
11.5...29 Vdc	23...58 Vdc
100 A @ 45°C (3)	50 A @ 45°C (3)
150 A for >5 s with Uout >90% Un (4)	75 A for >5 s with Uout >90% Un (4)
>150 A for 5 s (4)	>75 A for 5 s (4)
< 1%	< 1%
≤ 200 mVpp	≤ 200 mVpp
>10 ms / >10 ms	>10 ms / >10 ms
programmable (see on right side)	
"DC OK" green LED / "DC OK" alarm contact / "Overload" red LED / LCD display	
programmable (see on right side)	
possibile	
possibile	
>92% / >92%	>92% / >92%
200 W / 200 W	200 W / 200 W
-20...+60°C, con derating oltre 45°C / protezione termica (3)	
3 kVac / 60 s SELV output (5)	
1.5 kVac / 60 s	
0.5 kVac / 60 s	
EN60950, IEC950, UL508	
EN 55011, EN 61000-3-2, EN61000-4-5 Surge immunity Level IV, VDE0160	
>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F	
II / 2	
IP 20 IEC529, EN60529	
4-6 mm <sup>2</sup> fixed screw type	
aluminium	
2,8 Kg (98,76 oz)	
vertical on rail, allow 60 mm spacing between adjacent components	
PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
—	

## APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.

**Front display:** during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.

**Input protection:** the input circuit has been designed to avoid the most common problems seen in three-phase networks. It therefore has:

- 1) a special ASSIL (Active Surge Suppressor and Inrush Limiter) circuit to protect it against overvoltage in accordance with VDE0160;
- 2) a PFC circuit failure (latched shutdown) circuit;
- 3) a system for controlling lack of phase that automatically reduces output power;
- 4) an auto-restart switch-off system in the event of overvoltage and undervoltage.

**Output protection:** limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:

- 1) hiccup autoreset with limit current, equal to 150% of rated current and ON/OFF time equal to 5 secs./10 secs. (values can be altered manually);
- 2) constant power.

**Output signals:** in addition to the "DC OK" and "FAULT" LEDs, the device also has:

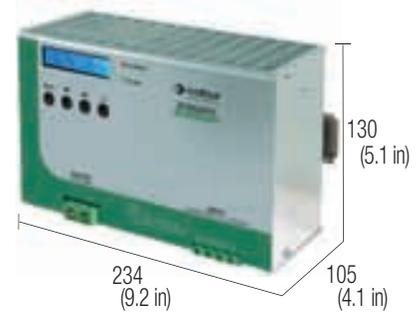
- 1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load;
- 2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, overtemperature and other parameters that can be defined by programming.

**Additional functions:** the following functions are also available:

- 1) battery charger: the acid lead battery charging function can be selected;
- 2) remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines;
- 3) remote switch-off: the power supply can be switched off and disabled from a remote position;
- 4) auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status;
- 5) temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled;
- 6) communication port: by means of an RS232 communication device, the power supply can be piloted and monitored from a remote position.

# 3-phase switching power supply 400-500 Vac output power 2400 W

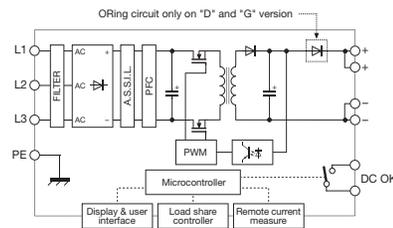
- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)



## NOTES

- The depth dimension includes the DIN rail clamp.  
 With DC input voltage, the output current must be derated by 30%  
 (3) Over 45°C (113°F) apply a derating of about 40 W/°C  
 (4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.  
 (5) Available from July 2011  
 (6) Version CSG2401G and CSG2401R is not suitable for SELV applications

## BLOCK DIAGRAM



Special version for DC motors

## VERSIONI

Uscita 72 Vdc 33 A versione ridondante (5)  
 Uscita 170 Vdc 14 A versione ridondante (5)

Cod. XCSG2401G

Cod. XCSG2401R

CSG2401G (5) (6)

CSG2401R (5) (6)

## INPUT TECHNICAL DATA

Input rated voltage  
 Frequency  
 Current @ Iout max. (Uin 400 / 500 Vac)  
 Inrush peak current  
 Power factor  
 Internal protection fuse  
 External protection on AC line

3x 400-500 Vac (range 340...550 Vac)  
 47...63 Hz  
 4.2 A / 3.5 A  
 < 2 A (with active inrush current limiter)  
 > 0.92  
 —  
 circuit breaker: 3x 10 A C characteristic - fuse: 3x T10 A

## OUTPUT TECHNICAL DATA

Output rated voltage  
 Output adjustable range  
 Continuous current  
 Overload limit  
 Short circuit peak current  
 Load regulation  
 Ripple @ nominal ratings  
 Hold up time (Uin 400 / 500 Vac)  
 Overload / short circuit protections  
 Status display

72 Vdc	170 Vdc
34.5...87 Vdc	80...190 Vdc
33 A @ 45°C (3)	14 A @ 45°C (3)
50 A per >5 s con Uout>90% Un (4)	21 A per >5 s con Uout>90% Un (4)
>50 A per 5 s (4)	>21 A per 5 s (4)
< 1%	< 1%
≤ 200 mVpp	≤ 200 mVpp
>10 ms / >10 ms	>10 ms / >10 ms

Alarm contact threshold  
 Parallel connection  
 Redundant parallel connection

programmable (see on right side)  
 "DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED / LCD display (see on right side)  
 programmable  
 possibile  
 possibile

## GENERAL TECHNICAL DATA

Efficiency (Uin 400 / 500 Vac)  
 Dissipated power (Uin 400 / 500 Vac)  
 Operating temperature range  
 Input/output isolation  
 Input/ground isolation  
 Output/ground isolation  
 Standard/approvals  
 EMC Standards

>92% / >92%  
 200 W / 200 W  
 200 W / 200 W  
 -20...+60°C, con derating oltre 45°C / protezione termica (3)  
 3 kVac / 60 s SELV output (5)  
 1.5 kVac / 60 s  
 0.5 kVac / 60 s  
 EN60950, IEC950, UL508  
 EN 55011, EN 61000-3-2, EN61000-4-5  
 Surge immunity Level IV, VDE0160  
 >500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F

MTBF @ 25°C @ nominal ratings  
 Overvoltage category/Pollution degree  
 Protection degree  
 Connection terminal  
 Housing material  
 Approx. weight  
 Mounting information

II / 2  
 IP 20 IEC529, EN60529  
 4 and 6 mm<sup>2</sup> screw type  
 aluminium  
 2,8 Kg (98,76 oz)  
 vertical on rail, allow 60 mm spacing between adjacent components

## MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5  
 Mounting rail type according to IEC60715/G32

PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB

## APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.

**Front display:** during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.

**Input protection:** the input circuit has been designed to avoid the most common problems seen in three-phase networks. It therefore has:

- 1) a special ASSIL (Active Surge Suppressor and Inrush Limiter) circuit to protect it against overvoltage in accordance with VDE0160;
- 2) a PFC circuit failure (latched shutdown) circuit;
- 3) a system for controlling lack of phase that automatically reduces output power;
- 4) an auto-restart switch-off system in the event of overvoltage and undervoltage.

**Output protection:** limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:

- 1) hiccup autoreset with limit current, equal to 150% of rated current and ON/OFF time equal to 5 secs./10 secs. (values can be altered manually);
- 2) constant power.

**Output signals:** in addition to the "DC OK" and "FAULT" LEDs, the device also has:

- 1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load;
- 2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, overtemperature and other parameters that can be defined by programming.

**Additional functions:** the following functions are also available:

- 1) battery charger: the acid lead battery charging function can be selected;
- 2) remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines;
- 3) remote switch-off: the power supply can be switched off and disabled from a remote position;
- 4) auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status;
- 5) temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled;
- 6) communication port: by means of an RS232 communication device, the power supply can be piloted and monitored from a remote position.