

**60 W and 50 W High efficiency, low profile Modular DC Power Supplies for electrical cabinets**

**Fold-Back overload characteristics for Battery charging applications and parallel working for increased load current**

**Type 78.61**

- Output 24 V DC, 60 W

**Type 78.51**

- Output 12 V DC, 50 W

- High efficiency (up to 91%)
- Low (< 0.4 W) stand-by power consumption
- Thermal protection: internal, with  $V_{out}$  shutdown - power OFF to reset
- Short circuit protection: Hiccup (auto-recovery) mode
- Overload protection: Fold-back mode
- Input fuse: Easily replaceable plus spare
- Overvoltage protection: Varistor
- Flyback topology
- ZVS (Zero-voltage-switching), quasi-resonant mode switching
- Compliant with EN 60950-1 and EN 61204-3
- Parallel working for increased load current (with OR diodes)
- Dual Polarity and Series connection permissible
- Small dimensions: 70 mm (4-modules) wide, 60 mm deep
- 35 mm rail (EN 60715) mount

Screw terminal



For outline drawing see page 17

**Output specification**

Output current (-20...+40 °C, 230 V AC input)	A	2.6	4.6
Rated current $I_N$ (50 °C, full input operating range)	A	2.5	4.2
Rated voltage	V	24	12
Rated power	W	60	50
Output power (-20...+40 °C, 230 V AC input)	W	68	55
Peak current capability for 3 ms*	A	8	12
Output voltage adjust	V	24...28	12...15
Voltage variation (from no-load to full-load)		< 1%	< 1%
Voltage ripple @ full load**	mV	< 200	< 200
Hold-up time @ full load:	with 100 V AC input ms	> 20	> 30
	with 260 V AC input ms	> 130	> 150

**Input specification**

Nominal voltage ( $U_N$ )	V AC (50/60 Hz)	110...240	110...240
	V DC (not polarized)	220	220
Operating range	V AC (50/60 Hz)	88...265	88...265
	V DC	140...370	140...370
Max power consumption (@ 100 V AC, 50 Hz)	VA	90	89
	W	67.5	58.3
Stand-by power consumption	W	< 0.4	< 0.4
Power factor		0.75	0.65
Max current consumption (@ 88 V AC)	A	0.9	0.85
Max. inrush current (peak @ 265 V) for 3 ms	A	30	30
Replaceable input fuse		1.6 A - T	1.6 A - T

**Technical data**

Efficiency (@ 230 V AC)	%	91	90
MTTF	h	> 500 · 10 <sup>3</sup>	> 400 · 10 <sup>3</sup>
Start-up delay	s	< 1	< 1
Dielectric strength between input/output	V AC	3000 (class II)	3000 (class II)
Dielectric strength between input/PE	V AC	1500 (class I)	1500 (class I)
Ambient temperature range***	°C	-20...+70	-20...+70
Protection category		IP 20	IP 20

**Approvals** (according to type)



- 24 V DC, 60 W output
- Output adjustable between 24-28 V
- ZVS technology
- Suitable for battery charging



- 12 V DC, 50 W output
- Output adjustable between 12-15 V
- ZVS technology
- Suitable for battery charging

Replaceable fuse + spare



\* (see diagrams P78)

\*\* peak to peak, 100 Hz component, with 100 V AC input

\*\*\* (see derating diagrams L78)

suitable for battery charging (see details page 11)



**Industrial Switch Mode DC Power Supplies:  
120 W and 130 W**
**Fold-Back overload characteristics for Battery  
charging applications and parallel working  
for increased load current**
**Type 78.1C**

- Output 24 V DC, 120 W

**Type 78.1D**

- Output 24 V DC, 130 W
- Double stage active Power Factor Correction
- High efficiency (up to 90%)
- Low stand-by power consumption
- Forward topology
- Thermal protection: internal with pre-alert alarm via LED and auxiliary contact, and with  $V_{out}$  safety shutdown - power OFF to reset
- Overload indication: Pre-alert alarm via LED and auxiliary contact indication
- Boost current: Without time limit, with LED and auxiliary contact indication
- Overload protection: Fold-back mode
- Short circuit protection: Hiccup (auto-recovery) mode
- Input fuse: Easily replaceable plus spare
- Overvoltage protection: Varistor
- Compliant with EN 60950-1 and 61204-3
- Parallel working for increased load current (with OR diodes)
- Dual Polarity and Series connection permissible
- 35 mm rail (EN 60715) mount

**78.1C**


- 24 V DC, 120 W output
- Output adjustable between 24-28 V

**78.1D**


- 24 V DC, 130 W output
- Output adjustable between 24-28 V
- Double stage with active PFC (Power Factor Correction)

 Replaceable fuse  
+ spare


 Thermal protection  
with LED indication

 Auxiliary contact  
signalling


\* (see diagrams P78)

\*\* peak to peak, 100 Hz component, with 110 V AC input

\*\*\* (see derating diagrams L78)

 suitable for battery charging (see details page 11)

**F**

For outline drawing see page 17

**Output specification**

Output current (-20...+40 °C, 230 V AC input)	A	5.4	5.4
Rated current $I_N$ (50 °C, full input operating range)	A	5	5.4
Rated voltage	V	24	24
Rated power	W	120	130
Output power (-20...+40 °C, 230 V AC input)	W	130	130
Peak current capability for 5 ms*	A	15	10
Output voltage adjust	V DC	24...28	24...28
Voltage variation (from no-load to full-load)		< 1%	< 1%
Voltage ripple @ full load**	mV	< 100	< 100
Hold-up time @ full load:	with 110 V AC input ms	> 10	> 20
	with 260 V AC input ms	> 80	> 20

**Input specification**

Nominal voltage ( $U_N$ )	V AC (50/60 Hz)	120...240	110...240
	V DC	220	110...240
Operating range	V AC (50/60 Hz)	110...265	88...265
	V DC	155...275 (polarized)	95...275 (non-polarized)
Drop out DC Voltage	V	140 (with $I_{output} = 2.5$ A)	80
Max power consumption (@ minimum V AC operating range)	VA	195 (@ 60 Hz)	145 (@ 50 Hz)
	W	137 (@ 60 Hz)	145 (@ 50 Hz)
Stand-by power consumption	W	< 2.1	< 3.3
Power factor		0.7	0.998
Max current consumption	A	1.7 (@ 110 V AC)	1.6 (@ 88 V AC)
Max. inrush current (peak @ 265 V) for 3 ms	A	10	12
Replaceable input fuse		2.5 A - T	2.5 A - T

**Technical data**

Efficiency (@ 230 V AC)	%	90	89
MTTF	h	> 500 · 10 <sup>3</sup>	> 400 · 10 <sup>3</sup>
Start-up delay	s	< 1	< 1
Dielectric strength between input/output	V AC	2500 (class II)	2500 (class II)
Dielectric strength between input/PE	V AC	1500 (class I)	1500 (class I)
Ambient temperature range***	°C	-20...+70	-20...+70
Protection category		IP 20	IP 20

**Approvals (according to type)**
