

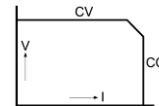
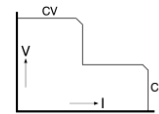


## SM3300 - Series 3300 W DC POWER SUPPLIES



### One or Three phase input

Models	Voltage range	Current range
SM 18-220	0 – 18 V	0 – 220 A
SM 66-AR-110 Autoranging output	0 – 33 V 0 – 66 V	0 – 110 A 0 – 55 A
SM 100-AR-75 Autoranging output	0 – 50 V 0 – 100 V	0 – 75 A 0 – 37.5 A
SM 330-AR-22 Autoranging output	0 – 165 V 0 – 330 V	0 – 22 A 0 – 11 A
SM660-AR-11 Autoranging output	0 – 330 V 0 – 660 V	0 – 11 A 0 – 5.5 A



### Features

- Designed for long life at full power
- Excellent dynamic response to load changes
- Comprehensive overload and short-circuit protection
- EMC performance beyond CE (low emission, high immunity)
- Temperature-controlled fans for low audible noise
- Durable digital encoders for voltage and current adjustment

### Functionalities

- Operation on single and three phase input voltages
- Built-in Ethernet interface with browser-based web interface
- Large front-panel display with menu-driven operation
- Plug-and-play optional interface modules
- Available options: High Speed Programming, Two-Quadrant Output - Power Sink, and Software control and Interfaces,

	SM 18-220	SM 66-AR-110	SM 100-AR-75	SM 330-AR-22	SM 660-AR-11
<b>DC Power terminals</b>					
voltage	0 - 18 V	0 - 66 V	0 - 100 V	0 - 330 V	0-660V
current	0 - 220 A	0 - 110 A	0 - 75 A	0 - 22 A	0-11 A
<b>AC Input</b>					
1 or 3 phase, 48 - 62 Hz	180-528 V	180-528 V	180-528 V	180-528 V	180-528 V
rated voltage range	200 - 480 V	200 - 480 V	200 - 480 V	200 - 480 V	200 - 480 V
rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
rated current	Max. 16 A	Max. 16 A	Max. 16 A	Max. 16 A	Max. 16 A
current (400 V / 3 ph, 3300W)	5.8 A	5.6 A	5.6 A	5.6 A	5.6 A
power factor, 3300W, 1750W	0.94, 0.92	0.94, 0.92	0.94, 0.92	0.94, 0.92	0.94, 0.92
<i>Power Derating vs input</i>					
<i>Single phase:</i>					
230 V : P <sub>out</sub> max (W), I <sub>in</sub> (A)	3050, 16	3100, 16	3100, 16	3200, 16	3200, 16
205 V : P <sub>out</sub> max (W), I <sub>in</sub> (A)	2650, 16	2700, 16	2700, 16	2800, 16	2800, 16
180 V : P <sub>out</sub> max (W), I <sub>in</sub> (A)	2300, 16	2400, 16	2400, 16	2400, 16	2400, 16
<i>Three phase</i>					
190 V : P <sub>out</sub> max (W), I <sub>in</sub> (A)	3300, 12.5	3300, 12.5	3300, 12.5	3300, 12.5	3300, 12.5
180 V : P <sub>out</sub> max (W), I <sub>in</sub> (A)	3100, 12.5	3100, 12.5	3100, 12.5	3100, 12.5	3100, 12.5
power factor single phase	0.99	0.99	0.99	0.99	0.99
internal fuses	20 AT	20 AT	20 AT	20 AT	20 AT
standby input power (V <sub>o</sub> =I <sub>o</sub> =0)	30 W	30 W	30 W	30 W	30 W
standby input power (V <sub>o</sub> =V <sub>max</sub> )	60 W	50 W	50 W	50 W	60 W
<b>Efficiency</b>					
400 V AC, 3 ph input, full load	89 %	90 %	90 %	91 %	92 %
<b>Regulation</b>					
Load 0 - 100% <b>CV</b>	2.5 mV	5 mV	5 mV	5 mV	5 mV
Line 180 - 528 V AC <b>CV</b> (external voltage sense)	0.2 mV	1 mV	1 mV	3 mV	4 mV
Load 0 - 100% <b>CC</b>	12 mA	6 mA	2 mA	1.2 mA	1.2 mA
Line 180 - 528 V AC <b>CC</b> (internal voltage sense, after warm-up)	3 mA	1 mA	0.5 mA	0.2 mA	0.2 mA
		33 / 66V	50 / 100 V	165 / 330 V	330 / 660 V
<b>Ripple + noise</b>					
rms (BW=300 kHz) <b>CV</b>	3 mV	7 mV	7 mV	10 mV	15 mV
p-p (BW=20 MHz) <b>CV</b>	12 mV	18 mV	22 mV	50 mV	120 mV
rms (BW=300 kHz) <b>CC</b>	50 mA	15 / 7.5 mA	6 / 2 mA	4.5 / 1.5 mA	1.8 / 0.6 mA
p-p (BW=20 MHz) <b>CC</b> <i>CC-ripple at full load</i>	250 mA	90 / 45 mA	60 / 20 mA	24 / 8 mA	7.5 / 2.5 mA
<b>Programming &amp; monitoring accuracy</b> (excluding INT MOD ANA)					
Voltage	± 0.1%	± 0.1%	± 0.1%	± 0.1%	± 0.1%
Current	± 0.18%	± 0.25%	± 0.25%	± 0.15%	± 0.15%
<b>Temp. coeff., per °C<sup>1</sup></b> <b>CV</b> <b>CC</b>			35.10 <sup>-6</sup> 60.10 <sup>-6</sup>		
<b>Stability<sup>1</sup></b> after 1hr warm-up during 8 hrs <b>CV</b> <b>CC</b> t <sub>amb</sub> = 25 ± 1 °C, V <sub>in</sub> = 400 VAC (Internal voltage sensing for CC-stab.)			6.10 <sup>-5</sup> 9.10 <sup>-5</sup>		

<b>Programming speed<sup>2</sup></b> Standard Version (resistive load)	SM 18-220	SM 66-AR-110	SM 100-AR-75	SM 330-AR-22	SM 660-AR-11
<b>Rise time (10 - 90%)</b>					
output voltage step	0 → 15 / 18 V	0 → 33 V	0 → 50V	0 → 165 V	0 → 330 V
time, (load = 3300W)	4 / 5.5 ms	1.6 ms	3.6 ms	3.8 ms	4.2 ms
time, (load = 330 W)	2.2 / 2.6 ms	1 ms	2 ms	2 ms	2.5 ms
output voltage step	-	0 → 66 V	0 → 100 V	0 → 330 V	0 → 660 V
time, (load = 3300W)	-	7 ms	15 ms	15 ms	15 ms
time, (load = 330 W)	-	3.7 ms	8 ms	8 ms	7.5 ms
<b>Fall time (90 - 10%)</b>					
output voltage step	15 / 18 V → 0 V	33 V → 0 V	50 V → 0 V	165 V → 0 V	330 V → 0 V
time, (load = 3300W)	6 / 8 ms	3 ms	6 ms	6 ms	6 ms
time, (load = 330 W)	52 / 75 ms	33 ms	65 ms	65 ms	70 ms
output voltage step	-	66 V → 0 V	100 V → 0 V	330 V → 0 V	660 V → 0 V
time, (load = 3300W)	-	11 ms	26 ms	25 ms	28 ms
time, (load = 330 W)	-	100 ms	260 ms	250 ms	270 ms

Programming speed <sup>2</sup> High Speed Version (resistive load)	SM 18-220 Option P300	SM 66-AR-110 Option P302	SM 100-AR-75 Option P303	SM 330-AR-22 Option P304	SM 660-AR-11 Option P305
<b>Rise time (10 - 90%)</b>					
output voltage step	0 → 15 / 18 V	0 → 33 V	0 → 50V	0 → 165 V	0 → 330 V
time, (load = 3300W)	0.17 / 0.24 ms	0.34 ms	0.46 ms	0.38 ms	0.8 ms
time, (load = 330 W)	0.13 / 0.15 ms	0.33 ms	0.46 ms	0.35 ms	0.7 ms
output voltage step	-	0 → 66 V	0 → 100 V	0 → 330 V	0 → 660 V
time, (load = 3300W)	-	0.44 ms	0.53 ms	1.6 ms	2.8 ms
time, (load = 330 W)	-	0.35 ms	0.47 ms	0.8 ms	2.0 ms
Ripple @ full load Typical (rms / pp)	15 mV / 50 mV	25 mV / 70 mV	35 mV / 120 mV	50 mV / 120 mV	60 mV / 250 mV
<b>Output Capacitance</b> (typical)	750 µF	315 µF	95 µF	31 µF	15 µF
<b>Fall time (90 - 10%)</b>					
output voltage step	15 / 18 V → 0 V	33 V → 0 V	50 V → 0 V	165 V → 0 V	330 V → 0 V
time, (load = 3300W)	0.19 / 0.27 ms	0.34 ms	0.42 ms	0.45 ms	0.82 ms
time, (load = 330 W)	0.52 / 0.75 ms	1.6 ms	1.4 ms	4.3 ms	8 ms
output voltage step	-	66 V → 0 V	100 V → 0 V	330 V → 0 V	660 V → 0 V
time, (load = 3300W)	-	0.58 ms	0.53 ms	2.1 ms	3.4 ms
time, (load = 330 W)	-	5.7 ms	5 ms	17 ms	30 ms

	SM 18-220	SM 66-AR-110	SM 100-AR-75	SM 330-AR-22	SM 660-AR-11
<b>Recovery time</b> range		33 V / 66 V	50 V / 100 V	165 V / 330 V	330 V / 660 V
recovery within	50 mV	100 mV	100 mV	500 mV	800 / 500 mV
di/dt of load step	2.7 A/µs	1.7 / 0.7 A/µs	1.1 / 0.5 A/µs	0.35 / 0.17 A/µs	0.16 / 0.08 A/µs
output voltage	15V	30V / 60V	45V / 90V	150 / 300 V	300 / 600 V
time, @ 50 - 100% load step	100 µs	100 µs	100 µs	100 µs	100 µs
max. deviation	250 mV	260 / 180 mV	180 / 80 mV	1.8 / 1.4 V	2.2 / 1.8 V
<b>Output impedance</b>					
CV, 0-1 kHz	< 0.8 mΩ	< 3 mΩ	< 1.8 mΩ	< 30 mΩ	< 60 mΩ
CV, 1-100 kHz	< 12 mΩ	< 25 mΩ	< 18 mΩ	< 250 mΩ	< 600 mΩ
<b>Pulsating load</b>					
max. tolerable AC component of load current					
f > 1 kHz	25 A <sub>rms</sub>	20 A <sub>rms</sub>	11 A <sub>rms</sub>	<i>t.b.d.</i>	<i>t.b.d.</i>
f < 1 kHz	220 A <sub>peak</sub>	110 A <sub>peak</sub>	75 A <sub>peak</sub>	22 A <sub>peak</sub>	11 A <sub>peak</sub>

<b>Insulation</b>					
AC power terminals / DC power term.		3750 V <sub>rms</sub> (1min.)		3750 V <sub>rms</sub> (1min.)	3750 V <sub>rms</sub> (1min.)
Creepage / clearance		8 mm		8 mm	8 mm
AC power terminals / case		2500 V <sub>rms</sub>		2500 V <sub>rms</sub>	2500 V <sub>rms</sub>
DC power terminals / case		1000 V DC <sup>3</sup>		1330 V DC <sup>3</sup>	1400 V DC <sup>3</sup>
<b>Safety</b>	cTUVus / EN 60950 / EN 61010				
<b>EMC</b>	<b>EN 61326-1</b> , class B equipment (for use in domestic establishments) <b>EN 61326-1</b> , equipment for use in industrial and domestic establishments				
<b>Operating Temperature at full load</b>	- 20 to + 50 °C derate output to 75% at 60 °C				
<b>Humidity</b>	maximum 95% RH, non-condensing, up to 40 °C maximum 75% RH, non-condensing, up to 50 °C				
<b>Storage temperature</b>	- 40 to + 70 °C				
<b>Thermal protection</b>	output shuts down in case of insufficient cooling				
<b>MTBF</b>	500 000 hrs				

	SM 18-220	SM 66-AR-110	SM 100-AR-75	SM 330-AR-22	SM 660-AR-11
<b>Hold-Up time</b> (@ 400 VAC input)					
V <sub>out</sub> = 100%, P <sub>out</sub> = 3300 W	6 ms	12 ms	12 ms	12 ms	12 ms
I <sub>out</sub> = 100%, P <sub>out</sub> = 3300 W	13 ms	13 ms	13 ms	13 ms	13 ms
V <sub>out</sub> = 100%, P <sub>out</sub> = 1750 W	18 ms	24 ms	24 ms	24 ms	24 ms
<b>Turn on delay</b> after mains switch on	1.4 s				
<b>Inrush current</b>	15 A				

Notes: 1. Measured at full load. 2. Signal latency depends on the interface used & data traffic. 3. See "Safety instructions" in the product manual. 4. With optional Interface. For details see 'Datasheet Interfaces SM3300 series'.

	SM 18-220	SM 66-AR-110	SM 100-AR-75	SM 330-AR-22	SM 660-AR-11
<b>Series operation</b> Max. total voltage Master / Slave operation <sup>4</sup>	1000 V <sup>3</sup> yes	1000 V <sup>3</sup> yes	1000 V <sup>3</sup> yes	1330 V <sup>3</sup> yes	1330 V <sup>3</sup> yes
<b>Parallel operation</b> Normal Master / Slave operation <sup>4</sup>	no limit maximum 8 units				
<b>Remote sensing</b> max. voltage drop per load lead	2 V				
<b>Adjustable limits</b> Voltage Current	0 - 101 % 0 - 101 %				
<b>Potentiometers</b> Front panel control knob resolution	15 bits				
<b>Meters</b> Voltage scale Current scale accuracy read output read limit setting	4 digit 0.00 - 18.00 V 0.0 - 220.0 A 0.2% + 2 digit 0.3% + 2 digit	4 digit 0.00 - 66.00 V 0.0 - 110.0 A 0.2% + 2 digit 0.3% + 2 digit	4 digit 0.0 - 100.0 V 0.00 - 75.00 A 0.2% + 2 digit 0.3% + 2 digit	4 digit 0.0 - 330.0 V 0.00 - 22.00 A 0.2% + 2 digit 0.3% + 2 digit	4 digit 0.0 - 660.0 V 0.00 - 11.00 A 0.2% + 2 digit 0.3% + 2 digit

<b>Mounting</b>	stacking of units allowed, air flow is from left to right
<b>AC Terminals (CON D)</b>	screw terminals for wire 2.5 - 4 mm <sup>2</sup> , 3 phase + earth (no neutral)
<b>DC Terminals (CON B1 &amp; B2)</b>	M8 bolts
<b>Programming connectors (LAN)</b>	standard with RJ45-connector for Ethernet at rear panel, 100 Mb/s, full-duplex
<b>Interlock (CON A)</b>	input for contact at rear panel
<b>Cooling</b> Audio noise level  Air flow	low noise blower, fan speed adapts to temperature of internal system ca. 50 dBA at full load, 25 °C ambient temperature, 1 m distance ca. 57 dBA at full load, 50 °C ambient temperature, 1 m distance From left to right
<b>Enclosure</b> degree of protection	IP20
<b>Dimensions</b> Front panel: h x w Behind front panel: h x w x d	88.1 x 483 mm (19", 2 U) 86 x 448 x 455 mm (excluding feet) with optional interfaces the required depth is 500...530mm
<b>Weight</b>	15 kg

CV = Constant Voltage  
CC = Constant Current

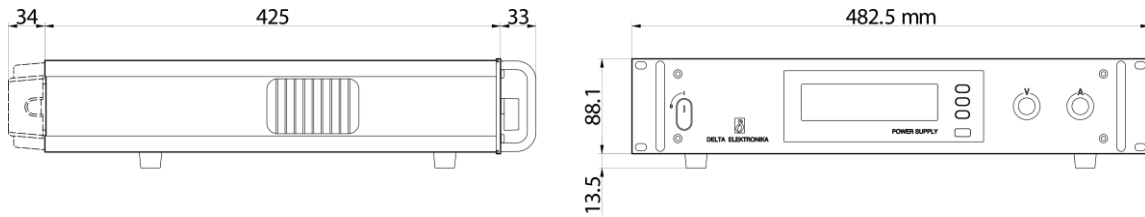
Specifications measured at  
 $t_{amb} = 25 \pm 5 \text{ }^{\circ}\text{C}$  and  $V_{in} = 400 \text{ VAC}$ ,  
50 Hz unless otherwise noted.

The information in this document is  
subject to change without notice.

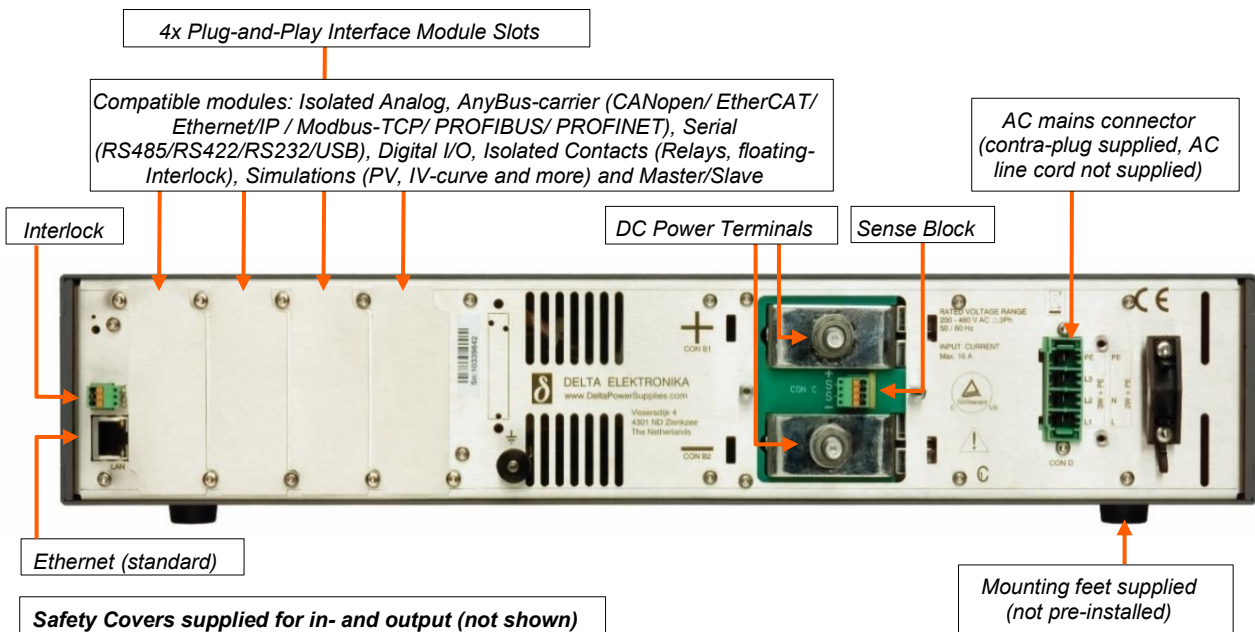
Notes:

1. Measured at full load.
2. Signal latency depends on the interface used and data traffic.
3. See "Safety Instructions" in the product manual.
4. With optional 'plug-and-play' interface. For details see 'Datasheet Interfaces SM3300 series'.

**Dimensions**



**Rear view**



## Typical Applications

- PV-Simulation and inverter testing
- Automotive battery simulations
- PWM-controlled DC motor testing
- Car testing systems
- Controlled battery (dis)charging
- Accurate current sources
- ATE in industrial production lines
- Lasers
- Aerospace
- Plasma chambers
- Sustainable energy
- Military

## Standard Features



### Digital CV- and CC-Settings

Reliable, long-life digital encoders are implemented at the front panel. Includes total front panel lock (also for CV- / CC-knobs) and a coarse or fine pitch adjustment depending on the turning speed.



### Ethernet Interface

Ethernet interface for programming and monitoring



### Sequencer

Arbitrary Waveform generator or standalone automation.



### High Voltage Isolation

A high DC output isolation allows floating operation up to 1000 V for SM18-220, SM66-AR-110 and SM100-AR-75, and up to 1330V and 1400 V for SM330-AR-22 and SM660-AR-11.



### USB-Input

*Feature not yet available.*  
Front and rear panel USB inputs (Host / Type-A) are planned for the exchange of settings and waveforms.  
A web interface is available for uploading sequences.

## Options



### High Speed Programming

A 10 to 20 times higher programming speed (down to 0.2ms rise time at full load) and lower output capacitance. Excellent for laser applications, test systems or as current source with low parallel capacitance as used in plasma chambers. For more information, see the programming speeds in the programming speed table in this data sheet.

Option Codes:

- SM 18-220 – P300
- SM 66-AR-110 – P302
- SM 100-AR-75 – P303
- SM 330-AR-22 – P304
- SM 660-AR-11 – P305



### Two-Quadrant Output Power Sink

Two quadrant operation maintains the DC output voltage constant regardless the output power is positive or negative. Ideal for PWM-speed controlled DC-Motors and ATE systems.

See the [Power Sink data sheet](#) for details.

Option Codes:

- SM 18-220 – P306
- SM 66-AR-110 – P308
- SM 100-AR-75 – P309
- SM 330-AR-22 – P310
- SM 660-AR-11 – P311

## Interfaces



### Plug-and-play extension modules

The interfacing and functional capabilities of the power supply can be extended at any time by inserting plug-and-play modules. Four slots are available at the rear of the power supply unit.

See the [Interfaces data sheet](#) for details.

Modules:

- **Analog programming**  
(INT-MOD-ANA)  
High speed and accuracy
- **Anybus carrier**  
(INT-MOD-ANY)  
Carrier for AnyBus CompactCom  
40 fieldbus inserts:  
CANopen, EtherCAT, Ethernet/IP,  
Modbus-TCP, PROFIBUS,  
PROFINET
- **Digital I/O**  
(INT-MOD-DIG)  
Interacts with sequencer
- **Isolated contacts**  
(INT-MOD-CON)  
Relay and interlock contacts
- **Serial communication**  
(INT-MOD-SER)  
RS232, RS485, RS422, USB
- **Simulation interface**  
(INT-MOD-SIM)  
For PV-simulation, custom IV-curve,  
leadless sense, internal resistance  
and foldback current limit.
- **Master/Slave**  
(INT-MOD-M/S)  
Series/parallel output configuration

## Ordering Information

A complete overview of base-unit order codes, options, optional interface modules, and Anybus options is provided in the SM3300 Order Codes document on our website. For product details, downloads, and quotation requests, please visit the SM3300 series page or contact Delta Elektronika or your local authorized distributor.

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T: +31 111 413656  
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W: [www.DeltaPowerSupplies.com](http://www.DeltaPowerSupplies.com)

## Online resources

- [SM3300 product page](#)
- [SM3300 order codes](#)
- [Contact Delta Elektronika](#)
- [Authorized distributors](#)



Scan for SM3300 product information

