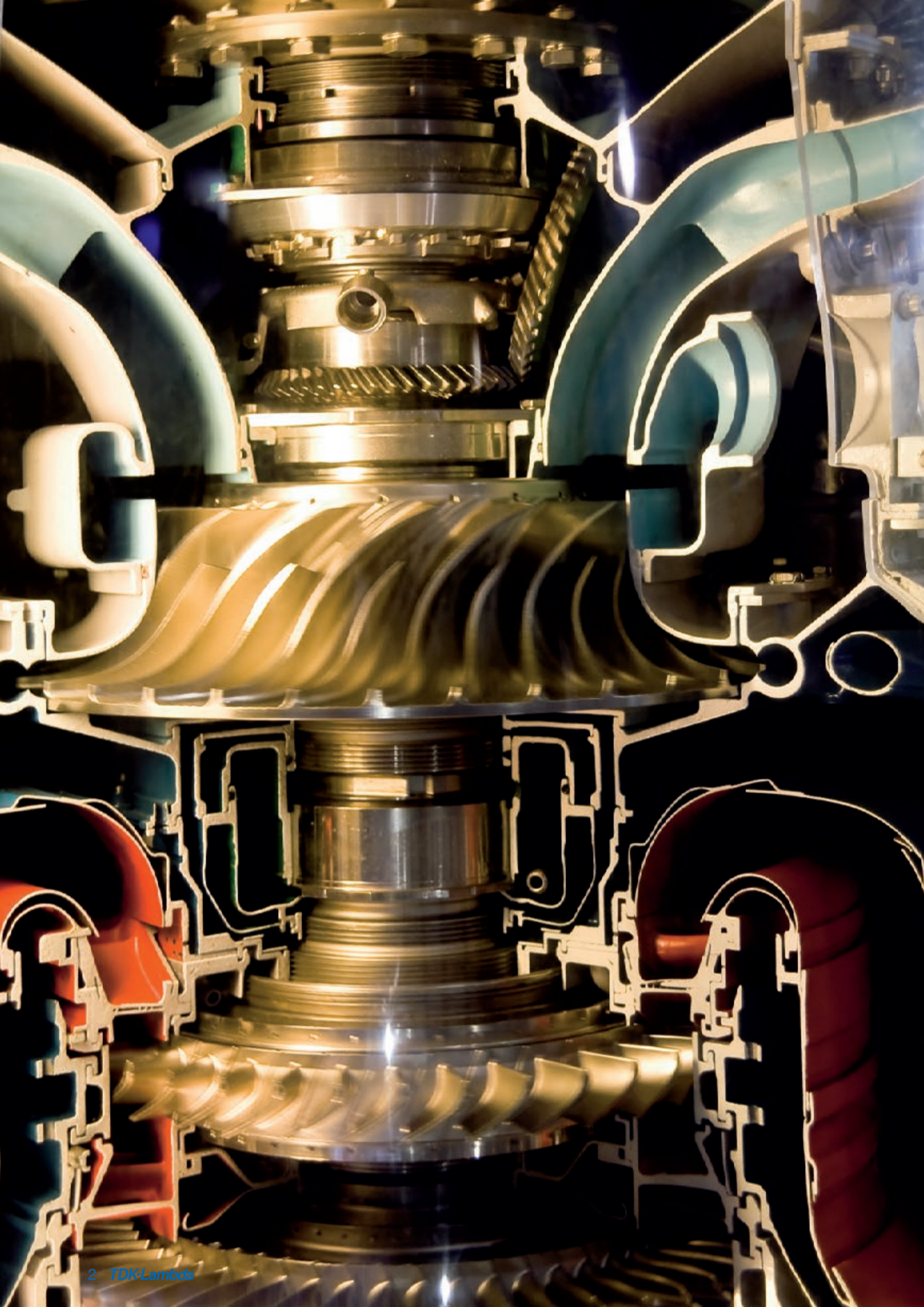
Programmable Power Supplies

Automotive

TDK·Lambda

EMEA - Edition 1



Programmable Power Supplies

Special models for automotive applications

TDK-Lambda's series of programmable DC power supplies offer a wide variety of integrated functions and features. Delivering high power density and excellent reliability backed by a 5 year warranty its the best solution for many different applications in test & measurement and industrial control.

The Genesys™ Fast-Speed and Power Sink models include features specifically for automotive requirements.

Genesys™ with Fast Speed

Genesys™ Fast-Speed Models are especially designed for automotive test simulation and similar ATE applications where faster output dynamics are required.

Features

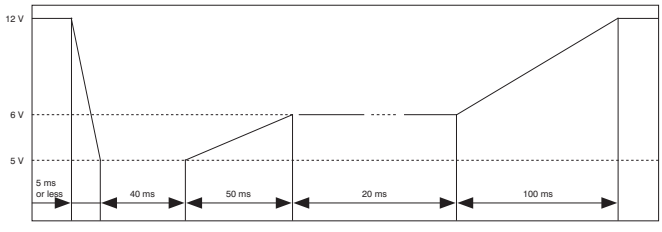
- Up-and down programming time less than 2
- Increased Dynamics – up to 35 times faster than standard version
- Lower Output capacitance
- 5 year warranty

Applications

- Automotive Test Application
- Engine Control
- Powertrain Control (including hybrid drive technologies and electric drives)
- Vehicle Dynamics (e.g.: HIL, ESP, damping control)
- Comfort Electronics
- Interior Systems
- Infotainment
- Noise Cancelation
- Diagnosis

GEN 3.3 / 5 kW in 2U

Model Fast Speed	Output Voltage [V DC]	Output Current [A]	Output Power [W]
GEN20-165-F	0~20	0~165	3300
GEN20-250-F	0~20	0~250	5000
GEN30-110-F	0~30	0~110	3300
GEN30-170-F	0~30	0~170	5100
GEN40-85-F	0~40	0~85	3400
GEN40-125-F	0~40	0~125	5000
GEN60-85-F	0~60	0~85	5100



Simulation for Starter Motor Characteristics

Specifications

Genesys™ GEN 3.3 kW Fast Speed

Specifications Fast Speed	GEN	20-165-F	30-110-F	40-85-F
Fast Speed rating				
Output Voltage	[V]	20	30	40
Output Current	[A]	165	110	85
Output Power	[W]	3300	3300	3400
Constant Voltage Mode				
Ripple and noise p-p 20 MHz *1,5	[mV]	200	200	200
Ripple RMS 5 Hz~1 MHz *5	[mV]	50	50	50
Up-prog. response time, 0~Vo Rated *2	[ms]	2	1	4.2
Down-prog. response time, Full-load *2	[ms]	2	1	1.5
Down-prog. response time, No-load *3	[ms]	20	40	40
Constant Current Mode				
Ripple RMS 5 Hz~1 MHz *4,5	[mA]	500	400	300
Output Capacitance (typ.)	[μF]	550	926	626
Mechanical				
Dimensions (W x H x D)		19" x 2U x 498 mm		
Weight	[kg]	Less than 13 kg		

Genesys™ GEN 5 kW Fast Speed

Specifications Fast Speed	GEN	20-250-F	30-170-F	40-125-F	60-85-F
Fast Speed rating					
Output Voltage	[V]	20	30	40	60
Output Current	[A]	250	170	125	85
Output Power	[W]	5000	5100	5000	5100
Constant Voltage Mode					
Ripple and noise p-p 20 MHz *1,5	[mV]	400	200	200	200
Ripple RMS 5 Hz~1 MHz *5	[mV]	60	30	30	30
Up-prog. response time, 0~Vo Rated *2	[ms]	1.8	1	1.8	1.7
Down-prog. response time, Full-load *2	[ms]	1	0.3	0.5	0.5
Down-prog. response time, No-load *3	[ms]	25	40	30	75
Constant Current Mode					
Ripple RMS 5 Hz~1 MHz *4,5	[mA]	800	700	300	200
Output Capacitance (typ.)	[μF]	2480	1116	626	626
Mechanical					
Dimensions (W x H x D)		19" x 2U x 518 mm			
Weight	[kg]	Less than 16 kg			

*1 For 8 V~300 V models: Measured with JEITA RC-9131A (1:1) probe.
*2 From 10 % to 90 % or 90 % to 10 % of Rated Output Voltage/Current, resistive load (Depending on the kind of output load effected the output rise and fall time)
*3 From 90 % to 10 % of Rated Output Voltage.
*4 The ripple is measured at 10~100 % of rated output voltage and rated output current. In CC-Mode used low inductive cabling
*5 Tambient: = 25~50°C

How to order

Power Supply Identification GEN 3.3 / 5kW 2U with Fast Speed

GEN	20	–	165	–		–		–	F
Series name	Output Voltage (0~20 V)		Output Current (0~165 A)		Option: LAN IEEE IS510 IS420		AC Input-Options: 1P230 (Single Phase 230 V AC) – for 3.3kW only 3P208 (Three Phase 208 V AC) 3P400 (Three Phase 400 V AC)		

Factory Option GEN 3.3 / 5 kW	**P/N:**
Standard: RS-232/RS-485 Interface, analog Interface (non-isolated)	-
LAN Interface (Complies with LXI class C)	LAN
IEEE 488.2 (GPIB) Interface	IEEE
0-5 V/10 V: analog Interface (isolated)	IS510
4-20 mA: analog Interface (isolated)	IS420
Fast Speed (3.3 / 5 kW)	F

Genesys™ with Power Sink Option

Genesys™ 750 W and 1500 W models with a Power Sink Option (PSINK) can absorb energy from the load.

Features

- Maintains output voltage setting regardless of whether output power is positive or negative (source and sink)
- Can absorb 200 W peak power
- 5 year warranty

Applications

- Ideal solution for testing electric motors with PWM-speed control. These systems often return power to the power supply during braking conditions.
- ATE systems requiring fast down programming at no load conditions.
- Testing capacitors and batteries.
- Automotive Motor Test eg. power window drives, mirror and seat adjustment.

GEN 750 / 1500 W in 1U

Model Power Sink Option	Output Voltage [V DC]	Output Current [A]	Output Power [W]
GEN12.5-60 GEN12.5-120	0~12.5	0~60 0~120	750 1500
GEN20-38 GEN20-76	0~20	0~38 0~76	760 1520
GEN30-25 GEN30-50	0~30	0~25 0~50	750 1500
GEN40-19 GEN40-38	0~40	0~19 0~38	760 1520
GEN60-12.5 GEN60-25	0~60	0~12.5 0~25	750 1500

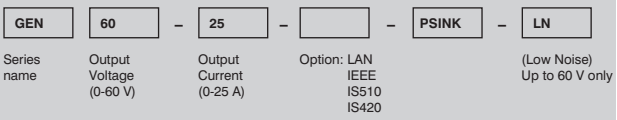
Specifications

Genesys™ 750 / 1500 W with Power Sink Option

Specifications		750 W Power Sink	1500 W Power Sink
Sink power rating			
Max. peak power (thermal limited) Tamb = 25 °C	[W]	200	
Max. peak power (thermal limited) Tamb = 50 °C	[W]	100	
Max. sink peak power duration	[s]	30	
Recovery time for max. peak power	[s]	1200	900
Max. continues power, Tamb = 25 °C	[W]	45	55
Max. continues power, Tamb = 50 °C	[W]	30	35
Power derate above 25 °C	[% / °C]	1.33	1.5
Duty cycle for use at peak power			
Psink = 80 W, Tamb = 25 °C	[s]	ton <= 10 s, toff >= 10 s	
Psink = 80 W, Tamb = 25 °C	[s]	ton <= 20 s, toff >= 21 s	
Psink = 80 W, Tamb = 25 °C	[s]	ton <= 30 s, toff >= 36 s	
Psink = 120 W, Tamb = 25 °C	[s]	ton <= 10 s, toff >= 22 s	
Psink = 120 W, Tamb = 25 °C	[s]	ton <= 20 s, toff >= 50 s	
Psink = 120 W, Tamb = 25 °C	[s]	ton <= 30 s, toff >= 90 s	
Psink = 160 W, Tamb = 25 °C	[s]	ton <= 10 s, toff >= 40 s	
Psink = 160 W, Tamb = 25 °C	[s]	ton <= 20 s, toff >= 90 s	
Psink = 160 W, Tamb = 25 °C	[s]	ton <= 30 s, toff >= 170 s	
Power derate above 25 °C	[% / °C]	2	
Protection		Electronic power limit, over current protection, thermal overload protection	
Programming down speed at no load			
Fall time (90 % – 10 %)	[ms]	<3	
Recovery time / deviation **Load current switches from positive to negative**		please see official datasheet	
Mechanical			
Dimensions (W x H x D)		19" x 1U x 498 mm	
Weight	[kg]	7	8.5

How to order

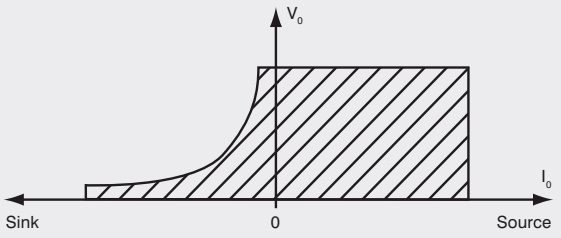
Power Supply Identification GEN 750 / 1500W with Power Sink



Factory Option GEN 750/1500 W	**P/N:**
Standard: RS-232/RS-485 Interface, analog Interface (non-isolated)	-
LAN Interface (Complies with LXI class C)	LAN
IEEE 488.2 (GPIB) Interface	IEEE
0-5 V/10 V: analog Interface (isolated)	IS510
4-20 mA: analog Interface (isolated)	IS420
Power Sink (750/1500 W, 12.5-60 V models)	PSINK

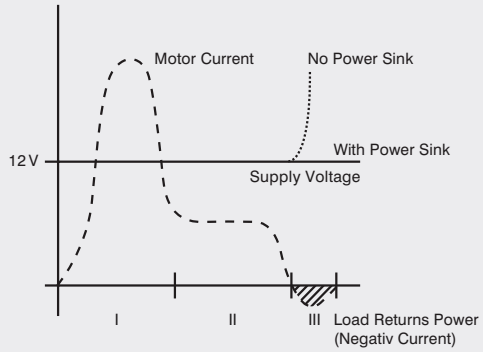
Genesys™ with Power Sink Option

Source and Sink



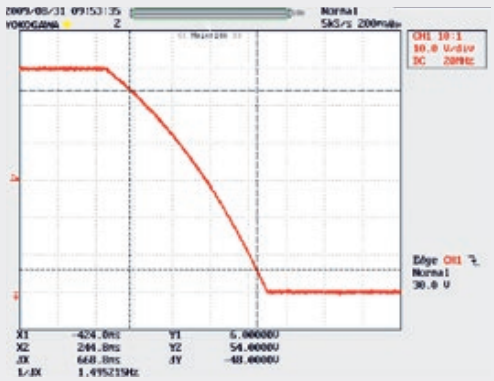
Source Power supply can drive current into the load
Sink Power supply can absorb current from the active load

Typical load current PWM – controlled DC motor



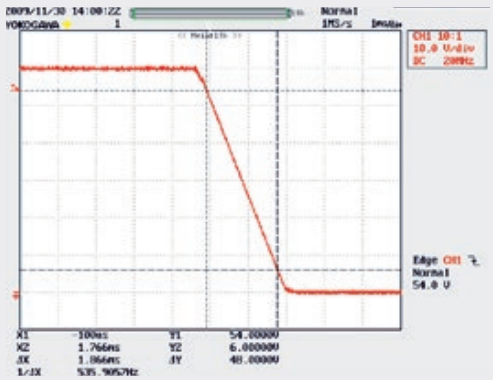
Model GEN 60-25 no Power Sink

Programming fall time: 668 ms



Model GEN 60-25 with Power Sink

Programming fall time: < 1.9 ms



Programmable Power Supply Range

Genesys™ Series – Exceptional Reliability and Performance up to 1500V

Product features

- Benchtop and rack mounted (19")
- Auto-restart/safe-start user-selectable
- Interfaces: RS232 & RS485, analog control & monitoring
- Optional: LAN, IEEE, Power Sink and Fast Speed
- Extension: ***I-SINK*** function (electronic power sink) These modular load concept enables the required power handling to be firmware configured to match the customer's requirement.

Specifications

- 750, 1500, 2400 W models in 1U
- 3300, 5000 W models in 2U
- 10000, 15000 W models in 3U
- Active/passive power factor correction (single-phase & three-phase AC input)
- Output voltage up to 1500V, output current up to 1000 A
- Up to 93% efficiency
- 5 years warranty

Z+ Series – high density, highly flexible a lot to offer in 2U

For low power requirements

Product features

- Same package size (2U format) for all models
- Benchtop and rack mounted (19")
- 16 bit resolution and extremely fast programming response
- Integrated Arbitrary waveform generation with internal storage for up to four individual sequencing curves
- High functionality for a wide variety of test applications
- Extensively equipped (including software package)
- Interface: USB, RS232 & RS485, analog control & monitoring
- Optional: LAN, IEEE, isolated analog interfaces & front panel output sockets

Specifications

- 200, 400, 600, 800 W models in 2U
- Input voltage: 85–265 V AC single phase, 47-63 Hz
- Output voltage 10, 20, 36, 60, 100, 160, 320, 375, 650 V DC
- Up to 89% efficiency
- User programmable signal pins
- 5 years warranty

More about power supplies at:
www.emea.tdk-lambda.com

Please contact your local sales office to find the best solution to your application.

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