

DOBLE F6150e/sv TECHNICAL SPECIFICATIONS

The F6150e/sv line of Power System Simulators is designed for simulation tests on relay and protection schemes.

CURRENT GENERATOR (12 TOTAL)

Description	Convertible V/I Sources	Current sources
Application	For High power at low current applications, Electromechanical relay testing, busbar protection, Main 1 & Main 2 dynamic and transient tests. Used with the Current sources for more than 6 source applications.	All Current protections

Current Settings

6-phase AC (L-N)	6X 0...1.5 A	6X 0...35 A
3-phase AC (L-N)	3X 0...3 A	3X 0...70 A
1-phase AC (LL-LN)	1X 0...9 A	1x 0...210 A
DC (LL-LN)	1 X 0... 6.36 A	1X 0...140 A
Available Range	0.5 A, 1 A, 1.5 A, 3 A, 9 A	8.75 A, 17.5 A, 35 A, 70 A, 105 A, 210 A

Power

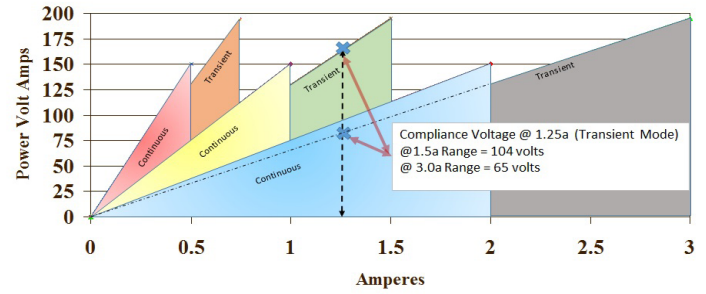
6-phase AC (L-N)	6x1.5A @ 97.5 VA Short Duration** 6X1A @ 75 VA Continuous	6X35A @ 131.25 VA Long Duration* 6X17.5A @ 87.5 VA Continuous
3-phase AC (L-N)	3X3A @ 195 VA Short Duration** 3X2A @ 150 VA Continuous	3X70A @ 262.5 VA Long Duration* 3x35 A @ 175 VA Continuous
1-phase AC (LL-LN)	1X9A @ 585 VA Short Duration** 1X6A @ 450 VA Continuous	1x210 A @ 787.5 VA Long Duration* 1x105 A @ 625 VA Continuous
DC (LL-LN)	1X6.36A @ 585 W Short Duration** 1X4.24A @ 450 W Continuous	1X140A @ 787.5 W Long Duration* 1x70A @ 625 W Continuous

VOLTAGE GENERATOR (6 TOTAL)

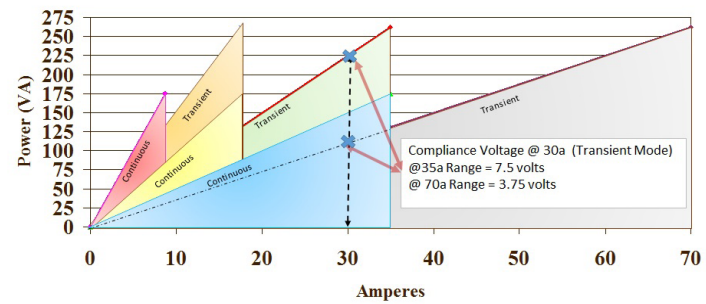
Description	Voltage Sources
6-phase AC (L-N)	6 X 150 V @ 75VA
3-phase AC (L-N)	3 X 300 V @ 150VA
1-phase AC (LL-LN)	1 X 600 V @ 300VA
Available Range	75V, 150V, 300V
DC (L-N)	3X 424V @ 150W

GRAPHICAL VIEW

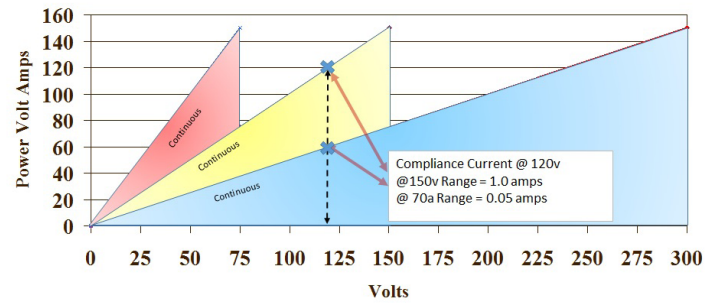
Convertible V/I Sources Output Current



Current Sources Output Current



Voltage Generator Output Voltage



LOW LEVEL SOURCES

Number	12
Accuracy	± 0.25% of reading
Resolution	331 uV/bit
Range	
Voltage Sources	6.7 VRMS at full scale
Enhanced Current Sources	3.48 VRMS at full scale
Transient Source	6.96 VRMS at full scale

All values are shown with F6005 option:

*Long Duration - 45 second duration

**Short Duration - 90 cycles

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LOGIC INPUTS (VOLTAGE OR CONTACT SENSE)

Description	Isolated Inputs	Paired Inputs
Inputs	2 (First Strike)	3 Pairs (6)
Voltage Sense	250 V RMS AC / 300 V dc	250 V RMS AC / 300 V dc
Open Circuit Test Voltage	12 V dc	4 V dc
Short Circuit Test Current	20 mA dc	>50 mA dc
Response Time	0.1 msec max pickup / dropout	0.1 msec max pickup / dropout
Input Impedance	150K Ω	150K Ω
Isolation	± 500 V peak	± 500 V peak

LOGIC OUTPUTS

Description	FET (High Speed Electronic)	Relay
Number	4	4
Isolation Voltage	± 500 V peak	± 500 V peak
Response Time	0.1msec pick up / dropout	<10 msec pick up / dropout
Maximum (Make/ Break Current)	0.5 amps	(Breaking cap AC: 2000 VA with Vmax 250 V, Imax 8 A) (Breaking cap DC: 50 W with Vmax 300 V, Imax 8 A)
Input Voltage	250 V RMS	250 V RMS

VARIABLE OUTPUT BATTERY SIMULATOR

Range	6 - 300 V dc
Resolution	0.3 V
Power	90 W, 1.5 A max
50/60 Hz Ripple	<0.2% of Range
Accuracy	< $\pm 5\%$

METERING FUNCTIONS

DC Meter Inputs

Input Range	0 - ± 10 V dc / 0 - ± 20 mA dc
Typical	<0.003%
Guaranteed	<0.05%

AC Sources

Typical	<0.02% of metering loads
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Logic Input As Counters

Frequency	10 kHz
Pulse width	>175 μ sec

POWER CONSUMPTION

F6150e/sv at Full Power	2600W
F6150e/sv at Idle	140W

GPS ACCURACY

With F6895 (Antenna and Receiver) ± 50 nanoseconds

ANALOG INPUT MEASUREMENT AIM

Recording	8 external Analog or Digital Signals
Internal Source recording	12 Sources
Ranges	250 mV, 2.5 V, 25 V, 250 V RMS
Bandwidth	DC, 0-5kHz
Input Impedance	150K Ω
Max Input Voltage	250 V RMS AC / 300 V dc
Isolation	± 500 V peak channel to channel
Accuracy	
Typical	$\pm 0.06\%$
Maximum	$\pm 0.15\%$

AC AMPLITUDE ACCURACY @ 50-60 HZ @ 20° - 30° C

Typical	Guaranteed
0.02% of reading + .01% of range	0.09% of reading + .04% of range

Playback Rate for Transient Test

10 kHz

CONVERTIBLE SOURCE IN CURRENT MODE @ 20° - 30° C

Guaranteed

<0.5%

TIMERS AND TRIGGERS

Timers Number	8
Max Recording Time	<24 Hours
Accuracy	$\pm 0.0005\%$ of reading, ± 50 μ sec
Resolution	100 μ sec

PHASE ANGLE @ 50/60 HZ

Range	Accuracy	Resolution
$\pm 360^\circ - 0^\circ$	$\pm 0.25^\circ$	$\pm 0.1^\circ$

DISTORTION @ 50 /60HZ V & I SOURCES TOTAL HARMONIC DISTORTION (THD)

Typical	Guaranteed
<0.02%	<0.1%

FREQUENCY

Bandwidth	Range	Resolution
DC - 3 kHz at Full Power	DC, 0.1 Hz - 2.0 kHz Continuous Full Load	0.001 Hz

Accuracy

Typical	@ 20° - 30° C	@ 0° - 50° C
0.5 ppm	1.5 ppm	10 ppm

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GENERAL SPECIFICATIONS	
Enclosure	High-impact, molded, flame-retardant ABS-meets National Safe Transit Association testing specification No.1A for immunity to severe shock and vibration
Mechanical	IEC 60068-2-27 Shock (15g/11ms, half sine) IEC 60068-2-6 Vibration (10-150 Hz, 20m/s ²) IEC 60068-2-6 Drop Test
Weight	42lb,19.05kg (front cover and strap included)
Dimensions	15 X 9.5 X 18 in 38 X 24 X 45.7 cm
Calibration	Certification traceable to N.I.S.T. standards
Environmental	IEC 60068-2-2 Dry Heat (+85°C storage; + 50°C Rating Operating), IEC 60068-2-1 Cold (-50°C storage; 0°C operating), IEC 60068-2-30 Damp Heat (+55°C, 6 cycles, 95% humidity), NEMA Enclose Rating Type 1IEC Enclosure IP20
EMC Emissions	FCC 47 CFR Part 15 Class A (USA), EN55011:1998/A1:1999/A2:2002 Group 1 Class A ISM(EU), AS/NZS CISPR 11:2004 Class A ISM (Australia), ICES-001 Issue 3 ISM (Canada)
EMC Immunity	EN 61000-6-2:2005; IEC 61000-4-2/3/4/5/6/11
Quality Assurance Management System	Third Party certification to ISO 9001:2000
Humidity	Up to 95% relative humidity, non-condensing
Electrostatic Discharge Immunity	IEC 801-2 I.E.C. performance level 1 @ 10kV: normal performance within specifications. I.E.C. performance level 2 @ 20kV: no permanent damage
Surge Withstand Capability	ANSI/IEEE c37.90. The simulator functions as a source during surge withstand capability tests, when the ANSI/IEEE specified isolating circuit is interposed between the simulator and the test relay
Line Power Supply	105-264 V, 47-63 Hz
Safety	EN 61010-1 third edition; UL 61010-1; CSA 27.2 # 61010-1 third edition
Communication Interfaces (Ethernet, Wi-Fi*, USB)	Ethernet or USB control to PC, Wi-Fi (802.11 B+G bands, 30 - 80ft, 9 - 24m)

**Optional (Wi-Fi Requires Purchase of F6803 Option)*



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Specifications are subject to change without notice.
Doble is ISO certified.
Doble is an ESCO Technologies Company.
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