

# DOBLE F6150e TECHNICAL SPECIFICATIONS

The F6150e 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

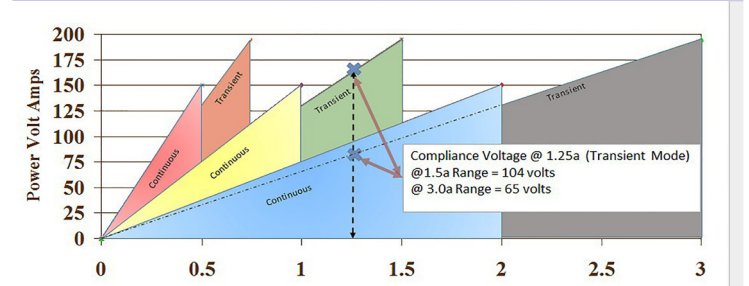
All values are shown with F6005 option:

\*Long Duration - 45 second duration

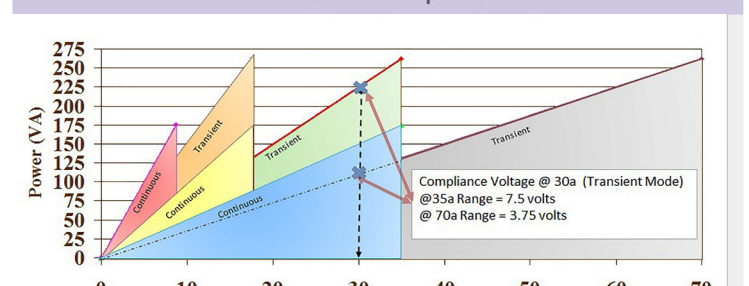
\*\*Short Duration - 90 cycles

## GRAPHICAL VIEW

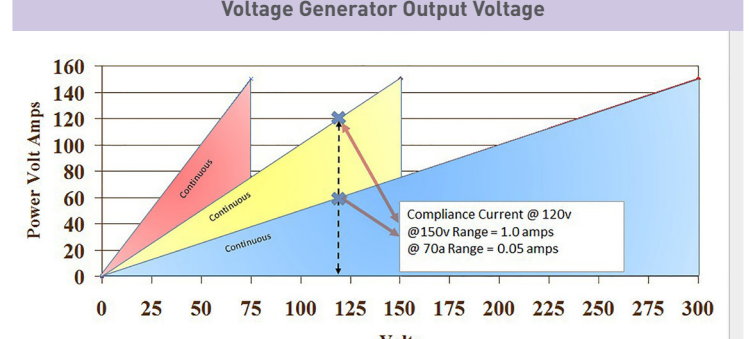
### Convertible V/I Sources Output Current



### Current Sources Output Current



### Voltage Generator Output Voltage



## LOW LEVEL SOURCES

Number	12
Accuracy	± 0.25% of reading
Resolution	331 uV/bit
<b>Range</b>	
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

## DOBLE F6150e TECHNICAL SPECIFICATIONS

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	150KΩ	150KΩ
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 msecpick 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	<±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

Logic Input As Counters	
Frequency	10 kHz
Pulse width	>175 µsec

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	150KΩ
Max Input Voltage	250 V RMS AC / 300 V dc
Isolation	±500 V peak channel to channel
Accuracy	
Typical	±0.06%
Maximum	±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	±0.0005% of reading, ±50 µsec
Resolution	100 µsec

PHASE ANGLE @ 50/60 HZ		
Range	Accuracy	Resolution
±360° - 0°	± 0.25°	± 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

DISTORTION @ 50 /60HZ V & I SOURCES TOTAL HARMONIC DISTORTION (THD)		
Typical	Guaranteed	
<0.02%	<0.1%	

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

## DOBLE F6150e TECHNICAL SPECIFICATIONS

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 <sup>2</sup> ) 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 1 IEC 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)*



**Doble Engineering Company**  
Worldwide Headquarters  
85 Walnut Street, Watertown, MA 02472 USA  
tel +1 617 926 4900 | fax +1 617 926 0528  
[www.doble.com](http://www.doble.com)

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Doble is ISO certified.  
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