

# ELP-34205

## HIGH CURRENT 600VDC ELECTRONIC LOADS



POSITIVE PROBLEM SOLVING **+ =**

With wide voltage and current ranges the ELP-34205 is an excellent series of general purpose electronic loads.

Dual setting and measurement ranges combined with 5 digit displays provide for high resolution. Dynamic operation with adjustable rise, fall and plateau times enable real world loads to be accurately simulated. Dedicated short circuit, OCP and OPP tests allow power supply behaviour and protection mechanisms to be characterised. Commonly used load set-ups can be easily and quickly saved and recalled from the front panel. Should remote control be required then LAN, USB, RS-232 or GPIB cards can be specified.

- + 9 Different Operating Modes**
- + 5 Digit Displays for V, I & W**
- + Short Circuit Test Function**
- + Adjustable Slew Rates**
- + Dual Setting Ranges**
- + 800VDC Option**

# ELP-34205

## HIGH CURRENT 600VDC ELECTRONIC LOADS



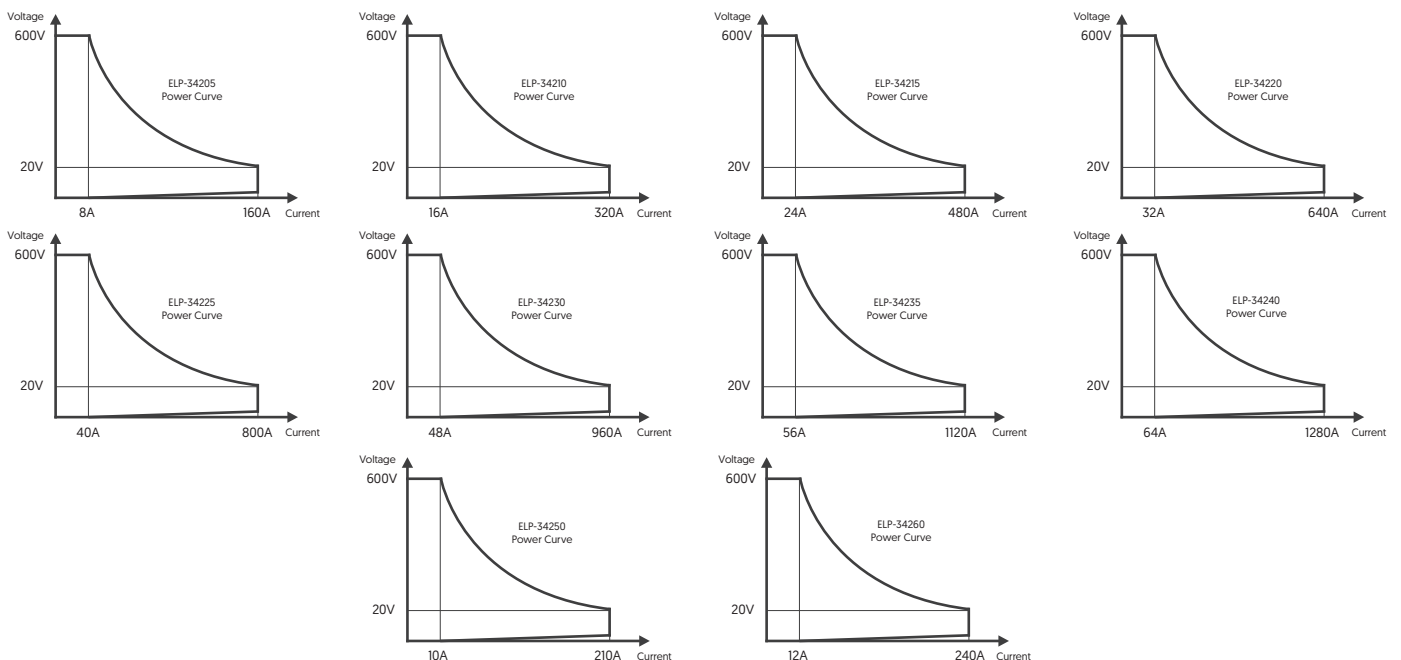
### SELECTION TABLE

Part Number	Range 1 Max Power	Range 1 Max Voltage	Range 1 Current	Range 2 Max Power	Range 2 Max Voltage	Range 2 Current
ELP-34205	5kW	600VDC	0 - 16A	5kW	600VDC	0 - 160A
ELP-34210	10kW	600VDC	0 - 32A	10kW	600VDC	0 - 320A
ELP-34215	15kW	600VDC	0 - 48A	15kW	600VDC	0 - 480A
ELP-34220	20kW	600VDC	0 - 64A	20kW	600VDC	0 - 640A
ELP-34225	25kW	600VDC	0 - 80A	25kW	600VDC	0 - 800A
ELP-34230	30kW	600VDC	0 - 96A	30kW	600VDC	0 - 960A
ELP-34235	35kW	600VDC	0 - 112A	35kW	600VDC	0 - 1120A
ELP-34240	40kW	600VDC	0 - 128A	40kW	600VDC	0 - 1280A
ELP-34250	50kW	600VDC	0 - 21A	50kW	600VDC	0 - 210A
ELP-34260	60kW	600VDC	0 - 24A	60kW	600VDC	0 - 240A

### CHARACTERISED VALUES

The ELP-34205 series is able to operate at maximum current across most of its voltage range. This allows one system to test many different types of devices. When operating below 20V, the maximum amount of current that the load can sink decreases. The values for this derating at low voltages are provided below.

CURRENT										
VOLTAGE	ELP-34205	ELP-34210	ELP-34215	ELP-34220	ELP-34225	ELP-34230	ELP-34235	ELP-34240	ELP-34250	ELP-34260
20V	160A	320A	480A	640A	800A	960A	1120A	1280A	210A	240A
18V	144A	288A	432A	576A	720A	864A	1008A	1152A	189A	216A
16V	128A	256A	384A	512A	640A	768A	896A	1024A	168A	192A
14V	112A	224A	336A	448A	560A	672A	784A	896A	147A	168A
12V	96A	192A	288A	384A	480A	576A	672A	768A	126A	144A
10V	80A	160A	240A	320A	400A	480A	560A	640A	105A	120A
8V	64A	128A	192A	256A	320A	384A	448A	512A	84A	96A
6V	48A	96A	144A	192A	240A	288A	336A	384A	63A	72A
4V	32A	64A	96A	128A	160A	192A	224A	256A	42A	48A
2V	16A	32A	48A	64A	80A	96A	112A	128A	21A	24A
1V	8A	16A	24A	32A	40A	48A	56A	64A	10A	12A



# ELP-34205

## HIGH CURRENT 600VDC ELECTRONIC LOADS



## HIGHLIGHTED STANDARD FEATURES



### FRONT PANEL MEMORY

150-state memory is available as standard, which allows quick initialisation and limit-setting of the unit. This makes the ELP-34105 both dependable, and mobile as an on-site load tester.



### 2x/4x SEQUENCING FUNCTION

A sequencing function means that stored settings can be implemented against time, enabling the unit to carry out state-dependant and complex test routines without the need for a computer interface.



### BATTERY DISCHARGE TESTS

The ELP-34205 series has a total of 5 battery discharge modes. These simplify test set up for users, whilst avoiding conditions which could result in permanent battery damage due to over or under voltage.

## OPTIONS

CODE	DESCRIPTION
/V800	Voltage range of load expanded from 600Vdc to 800Vdc
/LT	IEEE488.2 (GPIB) interface card
/RS232	RS-232 interface card
/USB	USB interface card
/LAN	LAN interface card
/802	Analogue and digital control interfaces
/0001	1m IEEE 488.2 cable
/0002	2m IEEE 488.2 cable
/0003	2m RS-232 cable
/1KAxM	1000A load cable (1m - 5m available, please specify)

## HIGHLIGHTED OPTION



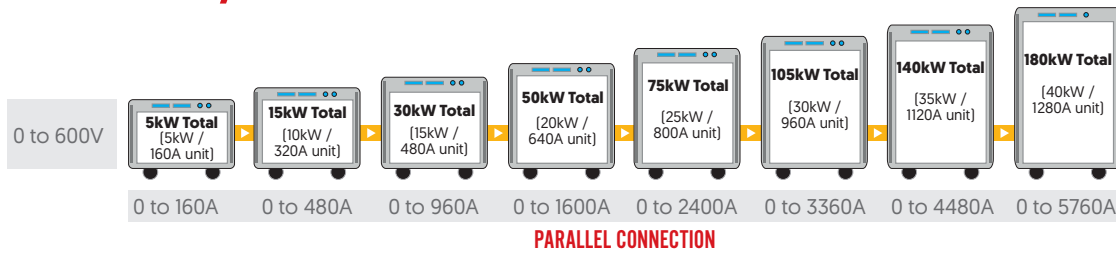
### RETROFITABLE INTERFACES

LAN, USB, RS-232 and GPIB interface cards can be easily retro-fitted or even swapped in the field by the user. As highlighted below, this is possible by simply removing the two screws and replacing the interface.





## MASTER/SLAVE FUNCTIONALITY



Up to eight units from the ELP-34205 series can be arranged in parallel configurations. It is possible to connect 5kW to 40kW models with different nominal values, up to a maximum of 320kW. For example, a 5kW system and a 40kW system can be operated together. The diagram above shows eight different models from the ELP-34205 family operating in parallel together. 50kW and 60kW models can be operated in parallel connection up to 480kW, but only with models of the exact same specifications.

Each unit is able to operate independently, so that systems can be expanded or broken up as needs dictate. This approach is useful for test houses and research labs who regularly test different sized power devices. When operating in master/slave operation, a number of test modes are not available. Please see the table below for more information.

ELP-34105 Operating or Test Mode	Independent Unit	Units in Master/Slave
CC Mode	✓	✓
CV Mode	✓	✓
CR Mode	✓	✓
CP Mode	✓	✓
CV+CC Mode	✓	✗
CV+CP Mode	✓	✗
MPPT Mode	✓	✗
Dynamic Mode	✓	✓
Short Mode	✓	✗
Recall/Store	✓	✗
External I/O Interface	✓	✗
OCP	✓	✗
OPP	✓	✗
Auto Sequence	✓	✗
Battery Test 1	✓	✗
Battery Test 2	✓	✗
Battery Test 3	✓	✗
Battery Test 4	✓	✗
Battery Test 5	✓	✗

## TECHNICAL DATA

	ELP - 34205		ELP - 34210		ELP - 34215		ELP - 34220	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Load Voltage (ON/OFF)	0.4 - 100V / 0 - 100V							
Min Voltage at Full Current	20V at 160A		20V at 320A		20V at 480A		20V at 640A	
Short Circuit Current	160A		320A		480A		640A	
Max. Power Consumption	600W		1000W		1450W		1900W	
Weight	100kg		130kg		170kg		220kg	
Operating Temperature	0 to 40°C, all measurements taken at 25°C± 5°C, except where noted							
Dimensions (W × H × D)	647 × 469 × 766mm		647 × 469 × 766mm		647 × 736 × 766mm		647 × 889 × 766mm	
Safety & EMC	CE							
OV, OC, OP Protection	105%							
Over Temp. Protection	Yes							

### CC MODE

Range	16A	160A	32A	320A	48A	480A	64A	640A
Resolution	0.267mA	2.67mA	0.534mA	5.34mA	0.8mA	8mA	1.067mA	10.67mA
Accuracy	± [0.1% of setting + 0.2% of range]							

### CR MODE

Range	15000 - 3.75Ω	3.75 - 0.0378Ω	12500 - 1.875Ω	1.875 - 0.0192Ω	15000 - 1.25Ω	1.25 - 0.0126Ω	11250-0.9375Ω	0.9375-0.0096Ω
Resolution	4.4μS	63μS	8.8μS	0.032mΩ	13.3μS	0.021mΩ	17.7μS	0.016mΩ
Accuracy	± 0.2% of [setting + range]							

### CV MODE

Range	600V							
Resolution	10mV							
Accuracy	± 0.05% of [setting + range]							

### CP MODE

Range	0.5kW	5kW	1kW	10kW	1.5kW	15kW	2kW	20kW
Resolution	8.334mW	83.34mW	16.7mW	167mW	25mW	250mW	33.4mW	334mW
Accuracy	± 0.5% of [setting + range]							

### CV + CC MODE

Range	600V	160A	600V	320A	600V	480A	600V	640A
Resolution	10mV	2.67mA	10mV	5.34mA	10mV	8mA	10mV	10.67mA
Accuracy	± 0.5% of [setting + range]							

### CV + CP MODE

Range	600V	5kW	600V	10kW	600V	15kW	600V	20kW
Resolution	10mV	83.34mW	10mV	167mW	10mV	250mW	10mV	334mW
Accuracy	± 0.5% of [setting + range]							

### MPPT MODE

Algorithm	P&O + Scanning							
Load Mode	CC, CR,CV [MPPT C, R, V]							
Sampling Interval	10ms-2000ms ; resolution 1ms							
P&O Interval	10ms-2000ms ; resolution 1ms							



## TECHNICAL DATA

	ELP - 34205		ELP - 34210		ELP - 34215		ELP - 34220	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Over Power Protection	105%							
Over Current Protection	105%							
Over Voltage Protection	105%							
Over Temp. Protection	Yes							

### 5-DIGIT VOLTMETER

	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V
Range	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V
Resolution	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
Accuracy	± 0.025% of (reading + range)							

### 5-DIGIT AMMETER

	0 - 16A	16 - 160A	0 - 32A	32 - 320A	0 - 48A	48 - 480A	0 - 64A	64 - 640A
Range	0 - 16A	16 - 160A	0 - 32A	32 - 320A	0 - 48A	48 - 480A	0 - 64A	64 - 640A
Resolution	0.267mA	2.67mA	0.534mA	5.34mA	0.8mA	8mA	1.067mA	10.67mA
Accuracy	± 0.1% of (reading + range)							

### 5-DIGIT POWERMETER

	0.5kW	5kW	1kW	10kW	1.5kW	15kW	2kW	20kW
Range	0.5kW	5kW	1kW	10kW	1.5kW	15kW	2kW	20kW
Resolution	0.1W	1W	0.1W	1W	0.1W	1W	0.1W	1W
Accuracy	± 0.125% of (reading + range)							

### DYNAMIC OPERATION

Thigh & Tlow	0.05 - 9.999 / 99.99 / 999.9 / 9999ms							
Resolution	0.001 / 0.01 / 0.1 / 1mS							
Accuracy	1µS / 10µS / 100µS / 1mS + 50ppm							
Slew Rate Range	12.8-800mA/µs	128mA - 8A/µs	25.6mA-1.6A/µs	256mA-16A/µs	38.4mA-2.4A/µs	384mA-24A/µs	51.2mA-3.2A/µs	512mA-32A/µs
Slew Rate Resolution	3.2mA/µs	32mA/µs	6.4mA/µs	64mA/µs	9.6mA/µs	96mA/µs	12.8mA/µs	128mA/µs
Minimum Rise Time	Typically 20µs							
Current Range	0 - 16A	16 - 160A	0 - 32A	32 - 320A	0 - 48A	48 - 480A	0 - 64A	64 - 640A
Current Resolution	0.267mA	2.67mA	0.534mA	5.34mA	0.8mA	8mA	1.067mA	10.67mA
Accuracy	± [0.1% of setting + 0.2% of range]							

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.

## TECHNICAL DATA

	ELP - 34225		ELP - 34230		ELP - 34235		ELP - 34240	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Load Voltage [ON/OFF]	0.4 - 100V / 0 - 100V							
Min Voltage at Full Current	20V at 800A		20V at 960A		20V at 1120A		20V at 1280A	
Short Circuit Current	800A		960A		1120A		1280A	
Max. Power Consumption	2350W		2800W		3250W		3700W	
Weight	280kg		340kg		390kg		430kg	
Operating Temperature	0 to 40°C, all measurements taken at 25°C± 5°C, except where noted							
Dimensions [W × H × D]	647 × 1048 × 766mm		647 × 1201 × 766mm		647 × 1353 × 766mm		647 × 1509 × 766mm	
Safety & EMC	CE							
OV, OC, OP Protection	105%							
Over Temp. Protection	Yes							

### CC MODE

Range	80A	800A	96A	960A	112A	1120A	128A	1280A
Resolution	1.334mA	13.34mA	1.6mA	16mA	1.792mA	17.92mA	2.048mA	20.48mA
Accuracy	± [0.1% of setting + 0.2% of range]							

### CR MODE

Range	11250 - 0.75Ω	0.75 - 0.0078Ω	12500 - 0.625Ω	0.625-0.0066Ω	6428-0.5357Ω	0.5357-0.009Ω	5625-0.4687Ω	0.4687-0.0078Ω
Resolution	22.2μS	0.013mΩ	26.6μS	0.011mΩ	31.1μS	0.009mΩ	35.3μS	0.007875μS
Accuracy	± 0.2% of [setting + range]							

### CV MODE

Range	600V							
Resolution	10mV							
Accuracy	± 0.05% of [setting + range]							

### CP MODE

Range	2.5kW	25kW	3kW	30kW	3.5kW	35kW	4kW	40kW
Resolution	41.7mW	417mW	50mW	500mW	56mW	560mW	64mW	640W
Accuracy	± 0.5% of [setting + range]							

### CV + CC MODE

Range	600V	800A	600V	960A	600V	1120A	600V	1280A
Resolution	10mV	13.34mA	10mV	16mA	10mV	17.92mA	10mV	20.48mA
Accuracy	± 1.0% of [setting + range]							

### CV + CP MODE

Range	600V	25kW	600V	30kW	600V	35kW	600V	40kW
Resolution	10mV	417mW	10mV	500mW	10mV	560mW	10mV	640mW
Accuracy	± 1.0% of [setting + range]							

### MPPT MODE

Algorithm	P&O + Scanning							
Load Mode	CC, CR,CV [MPPT C, R, V]							
Sampling Interval	10ms-2000ms ; resolution 1ms							
P&O Interval	10ms-2000ms ; resolution 1ms							



## TECHNICAL DATA

	ELP - 34225		ELP - 34230		ELP - 34235		ELP - 34240	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Over Power Protection	105%							
Over Current Protection	105%				104%			
Over Voltage Protection	105%							
Over Temp. Protection	Yes							
5-DIGIT VOLTMETER								
Range	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V	0 - 60V	60 - 600V
Resolution	1mV	10mV	1mV	10mV	1mV	10mV	1mV	10mV
Accuracy	± 0.025% of (reading + range)							
5-DIGIT AMMETER								
Range	0 - 80A	80 - 800A	0 - 96A	96 - 960A	0 - 112A	112 - 1120A	0 - 128A	128 - 1280A
Resolution	1.334mA	13.34mA	1.6mA	16mA	1.792mA	17.92mA	2.048mA	20.48mA
Accuracy	± 0.1% of (reading + range)							
5-DIGIT POWERMETER								
Range	2.5kW	25kW	3kW	30kW	3.5kW	35kW	4kW	40kW
Resolution	0.1W	1W	0.1W	1W	0.1W	1W	0.1W	1W
Accuracy	± 0.125% of (reading + range)							
DYNAMIC OPERATION								
Thigh & Tlow	0.05 - 9.999 / 99.99 / 999.9 / 9999ms							
Resolution	0.001 / 0.01 / 0.1 / 1mS							
Accuracy	1µS / 10µS / 100µS / 1mS + 50ppm							
Slew Rate Range	64mA - 4A/µs	640mA-40A/µs	76.8mA-4.8A/µs	768mA-48A/µs	89.6mA-5.6A/µs	896mA-56A/µs	102mA - 6.4A/µs	1.024A-64A/µs
Slew Rate Resolution	16mA/µs	160mA/µs	19.2mA/µs	192mA/µs	22.4mA/µs	224mA/µs	25.6mA/µs	256mA/µs
Minimum Rise Time	Typically 20µs							
Current Range	0 - 80A	80 - 800A	0 - 96A	96 - 960A	0 - 112A	112 - 1120A	0 - 128A	128 - 1280A
Current Resolution	1.334mA	13.34mA	1.6mA	16mA	22.4mA	224mA	2.048mA	20.48mA
Accuracy	± [0.1% of setting + 0.2% of range]							

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



## TECHNICAL DATA

	ELP - 34250		ELP - 34260	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Load Voltage [ON/OFF]	0.4 - 100V / 0 - 99V			
Min Voltage at Full Current	20V at 210A		20V at 240A	
Short Circuit Current	210A		240A	
Max. Power Consumption	5450W		6200W	
Weight	510kg		630kg	
Operating Temperature	0 to 40°C, all measurements taken at 25°C± 5°C, except where noted			
Dimensions [W × H × D]	853 × 1360 × 766mm		853 × 1513 × 766mm	
Safety & EMC	CE			
OV, OC, OP Protection	105%			
Over Temp. Protection	Yes			

### CC MODE

Range	21A	210A	24A	240A
Resolution	0.35mA	3.5mA	0.4mA	4mA
Accuracy	± [0.1% of setting + 0.2% of range]			

### CR MODE

Range	0.0286-2.857Ω	2.857 - 8751Ω	0.0834 - 2.5Ω	2.5 - 7500Ω
Resolution	47.7μΩ	5.83μS	41.7μΩ	6.66μS
Accuracy	± 0.2% of [setting + range]			

### CV MODE

Range	600V			
Resolution	10mV			
Accuracy	± 0.05% of [setting + range]			

### CP MODE

Range	5kW	50kW	6kW	60kW
Resolution	80mW	800mW	100mW	1W
Accuracy	± 0.5% of [setting + range]			

### CV + CC MODE

Range	600V	210A	600V	240A
Resolution	10mV	3.5mA	10mV	4mA
Accuracy	± 1.0% of [setting + range]			

### CV + CP MODE

Range	600V	50kW	600V	60kW
Resolution	10mV	800mW	10mV	1W
Accuracy	± 1.0% of [setting + range]			

### MPPT MODE

Algorithm	P&O + Scanning			
Load Mode	CC, CR,CV [MPPT C, R, V]			
Sampling Interval	10ms-2000ms ; resolution 1ms			
P&O Interval	10ms-2000ms ; resolution 1ms			



## TECHNICAL DATA

	ELP - 34250		ELP - 34260	
	RANGE 1	RANGE 2	RANGE 1	RANGE 2
Over Power Protection	105%			
Over Current Protection	105%			
Over Voltage Protection	105%			
Over Temp. Protection	Yes			
5-DIGIT VOLTMETER				
Range	0 - 60V	60 - 600V	0 - 60V	60 - 600V
Resolution	1mV	10mV	1mV	10mV
Accuracy	± 0.025% of (reading + range)			
5-DIGIT AMMETER				
Range	0 - 21A	21 - 210A	0 - 24A	24 - 240A
Resolution	0.35mA	3.5mA	0.4mA	4mA
Accuracy	± 0.1% of (reading + range)			
5-DIGIT POWERMETER				
Range	5kW	50kW	6kW	60kW
Resolution	0.1W	1W	0.1W	1W
Accuracy	± 0.125% of (reading + range)			
DYNAMIC OPERATION				
Thigh & Tlow	0.05 - 9.999 / 99.99 / 999.9 / 9999ms			
Resolution	0.001 / 0.01 / 0.1 / 1mS			
Accuracy	1µS / 10µS / 100µS / 1mS + 50ppm			
Slew Rate Range	16.8mA-1.05A/µs	168mA-10.5A/µs	19.2mA - 1.2A/µs	192mA-12A/µs
Slew Rate Resolution	4.2mA/µs	42mA/µs	4.8mA/µs	48mA/µs
Minimum Rise Time	Typically 20µs			
Current Range	0 - 21A	21 - 210A	0 - 24A	24 - 240A
Current Resolution	0.35mA	3.5mA	0.4mA	4mA
Accuracy	± [0.1% of setting + 0.2% of range]			

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



“  
WE ARE  
POSITIVE  
PEOPLE  
”

ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world's leading technology brands.



Tel: +44 (0) 1246 452909  
Sales: 0800 612 95 75  
sales@etps.co.uk  
www.etps.co.uk

ETPS Ltd  
Unit 14, The Bridge  
Beresford Way, Chesterfield  
S41 9FG



POSITIVE PROBLEM SOLVING