

# ODEN A

Primary Current Injection Test System



# ODEN A



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## Primary current injection test system

A powerful test system designed for primary injection testing of protective relay equipment and circuit breakers. It is also used to test the transformation ratio of current transformers and for other applications that require high variable currents. Up to 8 kA can be generated.

The ODEN<sup>TM</sup>A system consists of a control unit together with one or two current units. All parts are portable, and ODEN A can be quickly assembled and connected. There are two versions of the current unit: S and X, S and X are identical except that X has an additional 30/60 V output.

## Application

Oden A can be used in a number of applications where high current is required:

### Primary current injection testing of protective systems

### Breaker testing

### Testing current transformers

### Heat runs

Example of test objects are joints, circuit breakers and disconnectors.

### Testing of safety-ground devices

Personal safety grounds must be tested at rated current, a task for which ODEN A is well suited.

### Testing integrity of ground grids

One way to make this test is by injecting current between a reference ground and the ground to be tested and measuring the voltage drop and the percentage of current flowing through the ground grid. The type X current unit included with ODEN A is designed for this type of application.

## Optional accessories

See also Optional accessories for ODEN AT

### TM200

External timer

See the TM200 product pages for more information.



Timer TM200



Cable application



Multi-cable high current cable set 6 x 120 mm<sup>2</sup>

## Specifications ODEN A

Specifications are valid at nominal input voltage and an ambient temperature of +25°C, (77°F). Specifications are subject to change without notice.

### System designation

An ODEN A-system consists of a control unit and one or two current units. There are two different versions of the current units: S-unit (standard) and X-unit (extra 30/60 V outlet). The system designation indicates the number and version of current units included.

Example: ODEN A/2X

X = Version of current unit (S, or X)

2 = Number of current units

### Environment

<i>Application field</i>	The instrument is intended for use in high-voltage substations and industrial environments.
<i>Temperature</i>	
<i>Operating</i>	-20°C to +50°C (-4°F to +122°F)
<i>Storage &amp; trans-</i>	-40°C to +55°C (-40°F to +127°F)
<i>Humidity</i>	5% – 95% RH, non-condensing

### CE-marking

<i>LVD</i>	Low Voltage Directive 73/23/EEC am. by 93/68/EEC
<i>EMC</i>	EMC Directive 89/336/EEC am. by 91/263/EEC, 92/31/EEC and 93/68/EEC

### General

<i>Mains voltage</i>	240/400 V AC, 50/60 Hz
<i>Mains inlet</i>	IEC 60309-2, 63 A
<i>Input current</i>	Output current x open circuit voltage / input voltage
<i>Dimensions</i>	
<i>Control unit A</i>	570 x 310 x 230 mm (22.4" x 12.2" x 9")
<i>Current unit S, X</i>	570 x 310 x 155 mm (22.4" x 12.2" x 6")
<i>Weight</i>	
<i>Control unit A</i>	20 kg (44.1 lbs)
<i>Current unit S</i>	42 kg (92.6 lbs)
<i>Current unit X</i>	45 kg (99.3 lbs)

## Outputs

### ODEN A, 240 V mains voltage, 50/60 Hz

	<i>Open circuit voltage</i>	<i>Max. continuous current<sup>3)</sup></i>	<i>Max. current, 3 minutes<sup>3)</sup></i>	<i>Max. current, 1 sec<sup>3)</sup></i>
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#### ODEN A/1S

6 V	1000 A	2000 A	6000 A
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#### ODEN A/2S

6 V	1680 A	3600 A	8000 A
12 V	1000 A	2000 A	4000 A

#### ODEN A/1X

<i>High current output</i>	6 V	1000 A	2000 A	6000 A
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#### Output 0 – 30/60 V

<i>30 V range</i>	30 V	160 A	300 A	600 A
<i>60 V range</i>	60 V	80 A	150 A	300 A

#### ODEN A/2X

<i>High current output</i>	6 V	1680 A	3600 A	8000 A
	12 V	840 A	1500 A	4000 A

#### Output 0 – 30/60 V

<i>30 V range</i>	30 V	320 A	600 A	1200 A
<i>30 V range</i>	60 V	160 A	300 A	600 A
<i>60 V range</i>	120 V	80 A	150 A	300 A

### ODEN A, 400 V mains voltage, 50/60 Hz

	<i>Open circuit voltage</i>	<i>Max. continuous current<sup>3)</sup></i>	<i>Max. current, 3 minutes<sup>3)</sup></i>	<i>Max. current, 1 sec<sup>3)</sup></i>
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#### ODEN A/1S

6 V	1000 A	2000 A	7000 A
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#### ODEN A/2S

6 V	1900 A	4000 A	8000 A
12 V	630 A	1500 A	4000 A

#### ODEN A/1X

<i>High current output</i>	6 V	1000 A	2000 A	7000 A
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#### Output 0 – 30/60 V

<i>30 V range</i>	30 V	160 A	300 A	600 A
<i>60 V range</i>	60 V	80 A	150 A	300 A

#### ODEN A/2X

<i>High current output</i>	6 V	1900 A	4000 A	8000 A
	12 V	630 A	1500 A	4000 A

#### Output 0 – 30/60 V

<i>30 V range</i>	30 V	250 A	600 A	1200 A
<i>30 V range</i>	60 V	125 A	225 A	600 A
<i>60 V range</i>	120 V	60 A	115 A	300 A

1) Current units connected in parallel

2) Current units connected in series

3) Maximum possible current is also limited by the impedance in the test circuit. The current value can not exceed output voltage / impedance value.

## Ordering information

A cart (Art.No. 50-00092) is always included with purchase of a complete ODEN system. The cable set(s) for connection to the object under test must however be stated as a separate item in the order. Cable for connecting current units in series is included with purchase of a current unit.

<b>ODEN A/1S</b>		Art.No.
240 V Mains voltage		<b>BH-32411</b>
400 V Mains voltage		<b>BH-34011</b>
<b>ODEN A/2S</b>		
240 V Mains voltage		<b>BH-32412</b>
400 V Mains voltage		<b>BH-34012</b>
<b>ODEN A/1X</b>		
240 V Mains voltage		<b>BH-32421</b>
400 V Mains voltage		<b>BH-34021</b>
<b>ODEN A/2X</b>		
240 V Mains voltage		<b>BH-32422</b>
400 V Mains voltage		<b>BH-34022</b>
<b>Optional accessories</b>		
HCP2000		<b>AA-90160</b>
TM200		<b>BE-29090</b>
Current Transformer Switchbox		<b>BH-90130</b>
High Current Serial Bar		<b>BH-90102</b>
Multi-cable high current cable sets		
<i>Length</i>	<i>Impedance (Twisted-pair cables)</i>	
Cross section area: 240 mm <sup>2</sup> (2x120)		
2 x 0.5 m (1.6 ft)	0.21 mΩ	<b>GA-12205</b>
2 x 1 m (3.3 ft)	0.32 mΩ	<b>GA-12210</b>
2 x 1.5 m (4.9 ft)	0.42 mΩ	<b>GA-12215</b>
2 x 2 m (6.6 ft)	0.53 mΩ	<b>GA-12220</b>
Cross section area: 360 mm <sup>2</sup> (3x120)		
2 x 0.5 m (1.6 ft)	0.18 mΩ	<b>GA-12305</b>
2 x 1 m (3.3 ft)	0.25 mΩ	<b>GA-12310</b>
2 x 1.5 m (4.9 ft)	0.32 mΩ	<b>GA-12315</b>
2 x 2 m (6.6 ft)	0.39 mΩ	<b>GA-12320</b>
Cross section area: 480 mm <sup>2</sup> (4x120)		
2 x 0.5 m (1.6 ft)	0.16 mΩ	<b>GA-12405</b>
2 x 1 m (3.3 ft)	0.21 mΩ	<b>GA-12410</b>
2 x 1.5 m (4.9 ft)	0.27 mΩ	<b>GA-12415</b>
2 x 2 m (6.6 ft)	0.32 mΩ	<b>GA-12420</b>
Cross section area: 720 mm <sup>2</sup> (6x120)		
2 x 0.5 m (1.6 ft)	0.14 mΩ	<b>GA-12605</b>
2 x 1 m (3.3 ft)	0.18 mΩ	<b>GA-12610</b>
2 x 1.5 m (4.9 ft)	0.21 mΩ	<b>GA-12615</b>
2 x 2 m (6.56 ft)	0.25 mΩ	<b>GA-12620</b>
Cable set, 2 x 5 m (16 ft), 120 mm <sup>2</sup>		
Cross section area: 120 mm <sup>2</sup>		
Weight: 15.2 kg (33.5 lbs)		
Impedance: 2.2 mΩ		<b>GA-12052</b>
Cable set, 2 x 5 m (16 ft), 25 mm <sup>2</sup>		
Cross section area: 25 mm <sup>2</sup>		
For the 30/60 V output of current unit X.		
Weight: 4 kg (8.8 lbs)		<b>GA-02052</b>

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