FLUKE®

i200/i200s

AC Current Clamp

Instruction Sheet

Introducing the i200/i200s

The i200 is a single range 200A clamp-on AC Current Clamp with current output via safety shrouded banana plugs.
The i200s is a dual range 20A and 200A clamp-on AC Current Clamp with voltage output via a safety insulated BNC connector.
A dual banana to BNC adapter is supplied to allow the i200s to be connected to multimeters with banana input.

Unpacking

The following items should be included in your Current Clamp box:

- Current Clamp
- Dual Banana to BNC Adapter model PM9081 (only with i200s)
- Instruction Sheet (this paper)

Check the contents of the shipping box for completeness. If something in the box has been damaged or missing, contact your distributor or the nearest FLUKE sales or service office immediately.

Safety Information

Read First: Safety Information.
To ensure safe operation and service of the current clamp, follow these instructions:

- Read the operating instructions before use and follow all safety instructions.
- Use the Current Clamp only as specified in the operating instructions, otherwise the clamp's safety features may not protect you.
- Adhere to local and national safety codes. Individual protective equipment must be used to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Do not hold the Current Clamp anywhere beyond the tactile barrier, see Figure 1.
- Before each use, inspect the Current Clamp. Look for cracks or missing portions of the clamp housing or output cable insulation. Also look for loose or weakened components. Pay particular attention to the insulation surrounding the jaws.
- Check the magnetic mating surfaces of the clamp jaws; these should be free of dust, dirt, rust and other foreign matter.
- Never use the clamp on a circuit with voltages higher than 600 V CAT III.
  - CAT III equipment is designed to protect against transients in equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.
- Use extreme caution when working around bare conductors or bus bars. Contact with the conductor could result in electric shock.
- Use caution when working with voltages above 60 V dc, 30 V ac rms or 42 V ac peak. Such voltages pose a shock hazard.

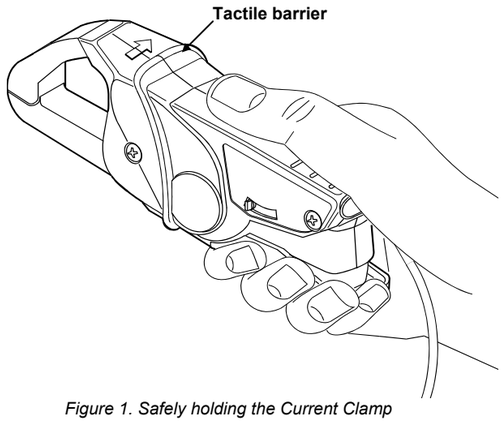

Figure 1. Safely holding the Current Clamp

Symbols

	May be used on HAZARDOUS LIVE conductors.
	Product is protected by double insulation.
	Risk of Danger. Important information. See Instruction Sheet.
	Risk of Electric Shock.
CE	Conforms to relevant European standards.
	Earth ground.

Specifications

SAFETY

Input jaws & output floating voltage to ground	Complies with American industry standards UL61010B-1 & UL61010B-2-032 and European standards EN/IEC 61010-1 2nd Edition & EN/IEC 61010-02-032 for 600V CAT III, pollution degree 2.
EMC	Complies with standards EN/IEC 50081-1 & EN/IEC 50082-2

ELECTRICAL SPECIFICATIONS

All Electrical Specifications are valid at the following reference conditions:

- *Ambient temperature* *23±3°C (73±3°F)*
- *Relative Humidity* *20 to 75%*
- *Frequency* *48 to 65 Hz*
- *Continuous external field* *< 40 A/m*
- *Load impedance* *i200: 0.2Ω …15Ω*
  i200s: >1 MΩ // 100 pF
- *The current may not contain any DC component*
- *No influence from adjacent currents*
- *The conductor must be centered within the jaw aperture*

20A Range (i200s only)

Measuring range	0.1 to 24A
Maximum current	24A
Crest factor *	< 3
Maximum non-destructive current	200A (Frequency ≤ 1 kHz and crest factor < 3)
Output signal	100 mV/A
Output impedance	≤ 20 Ω @ 1 kHz
Basic accuracy	
48 Hz to 65 Hz	≤ 2% + 0.5A
Additional error:	
40 Hz to 48 Hz and 65 Hz to 1 kHz	+ < 10%
1 kHz to 10 kHz	+ < 15%
Phase shift	Unspecified

200A Range	**i200**	**i200s**
Measuring range	0.5 to 240A	0.5 to 240A
Maximum current	240A	240A
Crest factor *	< 3	< 3
Maximum non-destructive current	@ Frequency ≤ 1 kHz and crest factor < 3	
Continuous	200A	
10 min ON /30 min OFF	240A	
Output signal	1 mA/A	10 mV/A
Output impedance	-	≤ 10 Ω @ 1 kHz
Basic accuracy		
48 Hz to 65 Hz		
0.5A to 10A	≤ 3% + 0.5A	≤ 3.5% + 0.5A
10A to 40A	≤ 2.5% + 0.5A	≤ 3% + 0.5A
40A to 100A	≤ 2% + 0.5A	≤ 2.5% + 0.5A
100A to 240A	≤ 1% + 0.5A	≤ 1.5% + 0.5A
Additional error:		
40 Hz to 48 Hz and 65 Hz to 1 kHz	+ < 3%	+ < 3%
1 kHz to 10 kHz	+ < 12%	+ < 12%
Phase shift		
0.5A to 10A	Unspecified	Unspecified
10A to 40A	≤ 5 °	≤ 6 °
40A to 100A	≤ 3 °	≤ 4 °
100A to 240A	≤ 2.5 °	≤ 3 °

All ranges		**i200**	**i200s**
Load on output		0.2...15 Ω	>1 MΩ // < 100 pF
Load Influence		Current: < 1%	-
		Phase: < 1°	-
Bandwidth	-1.5 dB	40 Hz to 10 kHz	40 Hz to 10 kHz
	-3dB	40 kHz	40 kHz
Additional errors			
With temperature		≤ 0.15 % / 10 K	
With position of conductor in the clamp aperture		≤ 0.5 % @ 50 Hz	
With adjacent conductors		≤ 15 mA / A @ 50 Hz	

* This is the maximum permissible ratio between the peak value of a superimposed transient and the ac rms value.

GENERAL

Clamp Dimensions		135 x 50 x 30 mm (5.3 x 2 x 1.2 in)
Protection index		IP40
Jaw Opening		21 mm (0.82 in)
Height of open Jaws		69 mm (2.7 in)
Maximum conductor size		∅ 20 mm (0.8 in) or busbar 20 x 5 mm (0.8 x 0.2 in)
Weight		180 g (6.4 oz)
Cable length	i200	1.5 m (59 in)
	i200s	2m (79 in)
Temperature		
Operating		-10 to +55°C (+14 to +131°F)
Non-operating		-40 to + 70°C (-40 to +158°F)
Relative Humidity		
Operating		85%, up to +30°C (+86°F) 75%, up to +55°C (+131°F)
Altitude		
Operating		to 2000 m (6500 ft)
Non-operating		to 12000 m (40000 ft)
EMC		EN/IEC 50081-1 EN/IEC 50082-2 (3V/m, 2.74V/yd)

Instrument Compatibility

The i200s is compatible with any Fluke ScopeMeter test tool, Power Harmonics Analyzer, Oscilloscope, Multimeter, or other voltage measurement device that has the following features:

- BNC input connector. The Dual Banana to BNC Adapter included in the package, can be used to connect to standard inputs on multimeters. For the 120 series ScopeMeters, use the BB120 Shielded Banana to BNC Adapter.
- Input accuracy of 2% or better to take full advantage of the accuracy of the Current Clamp.
- Input impedance of greater than or equal to 1 MΩ, and for full bandwidth and accuracy, a maximum input capacity of 100 pF.
- A pass- band of more than four times the frequency of the waveform to be measured.

The i200 is compatible with any Fluke Multimeter or any other current measurement device that has the following features:

- Banana inputs.
- Input accuracy of 2% or better to take full advantage of the accuracy of the Current Clamp.
- Input impedance of 0.2Ω …15Ω
- A pass-band of more than four times the frequency of the waveform to be measured.

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July 1998, Rev. 5, 08/05

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