

# Clamp-on Current Transformers



metering monitoring measuring managing energy power metering monitoring measuring managing energy power



**Currents from 1mA to 15,000 Amp**  
**A Complete Range for all Applications**  
**Physical and Electrical Specifications to suit all Applications**

There are five basic types, with popular devices available ex-stock. All can be manufactured to customer's exact specification.

## • AC Current Transformers

**AC Current Input**  
– **AC Current Output**

Current Transformers.  
Hand-held and openable.

Traditional Current Transformers manufactured as a Clamp-on device for portable applications. Ideal for use with electronic kWh Meters or other devices with an AC Current input. Frequency range extends from 45Hz to beyond 5kHz.

Medium & Large Models are available with 1 Amp, 5 Amp & other outputs, and with single or 3 range primaries. **M** series mini Clip-on CTs are not available with 5 Amp output. Open circuit protection available on 1 Amp models.

Medium and Large Models are also available with a combined Current & Voltage Output.

## • AC Current Transducers

**AC Current Input**  
– **AC Voltage Output**

The widest range, optimised for modern electronic instruments.

By providing a AC Voltage Output, the Clamp-on CT becomes inherently open circuit protected. A 1 Volt (or even better 100mV) output allows the clamp to operate under optimum conditions.

On Medium and Large models, the **.UE** is the basic device, single range only and normally with a 1 Volt output. **.U** are improved models with outputs up to 5 Volt, and are available as single or 3 range devices.

By standardising on a 1 Volt AC output (or even less) from a Clamp-on CT, the user is assured of the widest range of full scale input currents - from 1 Amp to 3000 Amp.

Identified as **xx.U** or **xx.UE**; also available as **xx.UM** versions for low current measurement. **xx.3U** etc is a 3 range device, switch selectable.

## • AC Current Transducers

**AC Current Input**  
– **DC Voltage Output**

Special models for Data Logging & Recording.

With an integral AC → DC transducer.

By including an AC to DC converter transducer within the clamp-on CT, and powering the electronics from the measured current, this range of Clamp-on CTs is ideal for use with Data Loggers, Chart Recorders, Computer Data Acquisition Systems, etc - in fact any equipment which has a DC Voltage input and needs to monitor and/or log current trends.

Identified as **xx.D** (1 range) or **xx.3D** (3 range). **xx.DM** are designed for lower currents.

## • AC/DC Hall Effect Clamps

**AC/DC Current Input**  
– **AC/DC Voltage Output**

For DC and mixed AC plus DC measurement

A Hall Effect cell is mounted within the magnetic circuit of the Clamp-on CT, and the necessary conditioning electronics within the handle. This range of Clamp-on CTs provides an output which is a direct image of the current from DC to 1kHz (or even higher for some models).

**.1C** models are for OEM use and require an external DC power supply, and are supplied to customer specified input & outputs. **.2C** and **.3C** are powered by an integral battery.

The Large battery powered models are all dual range,

## • Injection Clamps

Instead of measuring a current, clamp-on CTs can be used to inject a signal into an external conductor. Applications include tracing cables or pipework, identifying individual cables, etc. All models can be supplied with custom windings for this application.

### Popular and readily available models

Small	M1, M2, M3 & M4	Medium	US, S & SM	Large	E, H & P
<b>AC Current Output</b>					
M1 200A:200mA M1 100A:1A M1 200A:1A		US 1000A:1A US 1000A:5A	S 1000A:1A S 1000A:5A S 1200A:1A S 1200A:5A	E16 1000A:1A E16 1500A:1A E32 2000A:1A E32 3000A:1A	H16 1000A:1A H16 1500A:1A H32 2000A:1A H32 3000A:1A P16 1000A:1A P16 1500A:1A P32 2000A:1A P32 3000A:1A
M1.M 100A:100mA M1.M 10A:2mA			SM 1000A:1A SM 1000A:5A	Also available with 5 Amp output	
<b>AC Voltage Output</b>					
M1.U 100A:0.1V M1.U 100A:1V M1.U 200A:2V	M1.UM 1A:1V M1.UM 5A:1V M1.UM 20A:1V M1.UM 50A:1V	US.U 1000A:1V US.U 1000A:5V US.UE 1000A:1V	SM.U 1000A:1V SM.UE 1000A:1V SM.UM 1A:1V SM.UM 25A:1V	E16.U 1000A:1V E16.U 1500A:5V E16.UE 1500A:11/2V	H16.U 100A:1V H16.U 1500A:1V H16.UE 1500A:11/2V H32.U 3000A:1V H32.U 3000A:5V H32.UE 3000A:1V
All AC voltage output models are also available as 3 Range versions. Identified as xx.U3 or xx.UE3.		S.U 1000A:1V S.UE 1000A:1V S.UM 1A:1V S.UM 25A:1V		E32.U 3000A:1V E32.U 3000A:5V E32.UE 3000A:1V	P16.U 1000A:1V P16.U 1500A:1V P16.UE 1500A:11/2V P32.U 3000A:1V P32.U 3000A:1V P32.UE 3000A:1V
<b>DC Voltage Output</b>					
M2.D 100A:1V M2.DM 25A:1V M2.DM 100A:1V		US.3D 25,50,100A:1V US.3D 250,500,1000A:1V S.3D 25,50,100A:1V S.3D 250,500,1000A:1V		E16.3D 250,500,1000A:1V E16.3D 500,1000,1500A:1V E32.3D 500,1000,1500A:1V E32.3D 1000,2000,3000A:1V	Also available as H and P models for larger sizes.
<b>Hall Effect AC/DC</b>					
Small clamp-on CTs are NOT Available		S.1C OEM Model From 200A:1V to 1500A:11/2V S.2C From 100A:1V to 800A:800mV S.3C 1000A:1V or 100A, 1000A:1V S.C 2000A:2V or 200A, 2000A:2V		H20.3C xxx,2000A:2V H40.3C xxx,4000A:2V H50.3C xxx,5000A:2V	P20.3C xxx,2000A:2V P40.3C xxx,4000A:2V P50.3C xxx,5000A:2V P75.3C xxx,7500A:2V Also available as single range .1C OEM models.

A very wide range of alternative inputs and outputs are available for all the above models

AC only

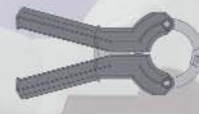
**M1** 1mA  
**M2** to 17x11 or 13x15  
**M3** 300A  
**M4** bars

General purpose clip-on CT for low currents. The M2 & M4 versions are in a longer case & have space for PCBs inside the case or a range switch.



**US** 1A  
to 43mm cables  
1000A 44x12 or 30x33  
bars

General purpose Clamp-on CT, optimised for use on insulated cables. Features a swinging jaw to ease access to closely bunched cables.



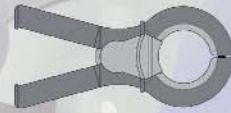
**S** 500mA  
to 50 mm cables  
1200A 51x12 or  
41x36 bars

Mid-range Clamp-on CT. Designed for use on insulated cables and un-insulated bus bars.



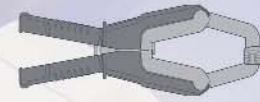
**SM** 100mA  
to 54 mm cables  
1200A 50x5 or 30x20  
bars

High accuracy CT. Advanced design ensures enhanced linearity down to low currents. Patented jaw opening system provides enhanced safety on un-insulated cables or bars.

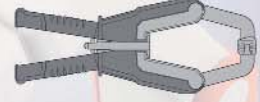


**E16** 10A  
to 54 mm cables  
1500A 103x20 or  
128x18 bars

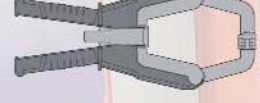
Medium current Clamp-on CTs, optimised for measurement on both bus-bars and cables.



**H16** 10A  
to 68 mm cables  
1500A 100x45 or  
123x35 bars



**P16** 10A  
to 80 mm cables  
1500A 100x56 or  
124x46 bars

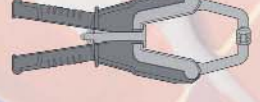


**E32** 25A  
to 58 mm cables  
3000A 100x32 or  
130x19 bars

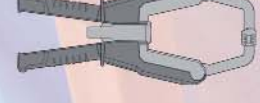


**H32** 25A  
to 70 mm cables  
3000A 100x46 or  
126x35 bars

High current Clamp-on CTs, optimised for measurement on both bus-bars and cables.



**P32** 25A  
to 83 mm cables  
3000A 100x58 or  
126x47 bars



**SC** 500mA  
to 50 mm cables  
2000A 51x12 or 41x36  
bars

Medium Current Hall-Effect Clamp-on CT. Available both battery powered for portable use or externally powered for OEM applications.



**Hxx.C** 10A  
to 72 mm cables  
5000A DC 100x58 or  
126x47 bars

High Current Hall-Effect Clamp-on CT. Available both battery powered for portable use or externally powered for OEM applications.



**Pxx.C** 10A  
to 83 mm cables  
7500A DC 100x64 or  
122x54 bars



**C104** 100A  
to 104 x 104 mm  
15kA aperture

High Current Hall-Effect current transducer for permanent or temporary installation over existing cables or bars. Available custom calibrated with AC or DC auxiliary power connection.



AC/DC Hall Effect

Clamp-on CTs are compact hand-held devices offering non-contact current measurement for all types of portable instrumentation, including DMMs, Oscilloscopes and all types of recorders and analysers.

Full detailed specifications are available on request for any variation.

## Selecting Clamps

### Small – to 300 Amp

**M2** & **M4** have a slightly larger case, allowing space for switches (for range changing) or for internal electronics.

**M3** & **M4** are specifically designed to allow use on un-insulated cables at voltages up to 600 volt to ground.

### Medium – to 1200 Amp

The **S** series is recommended for general purpose measurement on currents up to 1200 Amp.

The **SM** series is recommended for high accuracy applications.

### Large – to 3000 Amp

**E16**, **H16** & **P16** are recommended for the measurement of currents up to 1500 Amp. For higher currents up to 3000 Amp, the **E32**, **H32** & **P32** should be used.

## OEM Applications

All clamps can be supplied customised for OEM applications. Options include winding ratios & output signals, output connection, case colour, etc. A technical advice service is available to allow manufacturers obtain the maximum performance from any clamp model or range of models.

## Hall Effect Clamps

Hall Effect Clamps are available in 2 different forms:

As a battery powered unit for use with multimeters, oscilloscopes, etc. These would normally be fitted with 4mm safety sockets for output. The **SC** is available as a single or dual range device, the **H & P** models are dual range as standard.

As an externally powered unit for OEM use. Input range and output signal can be specified.

Although specifically designed for use on DC systems, their frequency response extends to 10 kHz for certain models.

## Frequency Range

All AC clamps are designed for use on AC power circuits and, with a few exceptions, are suitable for measurement of harmonics up to 5 kHz or 10 kHz.

For measurement of high frequency signals, the maximum current will need to be reduced to prevent excessive heating and, where the output is a current, the burden reduced in proportion to the frequency increase.

## Safety

All clamp-on CTs fully comply with the relevant safety standards. Maximum operating voltages depend on the model being used and are detailed in the individual specifications.

## Accuracy

Clamp-on CTs are designed for portable use. They are much less affected by stray magnetic fields (from adjacent conductors) than Rogowski flexible current sensors.

The larger models (**SM**, **E**, **H** & **P**) offer Class 0.5 accuracy at higher currents, with the highest accuracy available from the **SM** which has been specially designed for such applications.

## Output Connections

Standard output connection for all AC clamp-on CTs is by 4mm safety sockets. At request, clamps can be supplied with captive cables – either unterminated or with a connector fitted. Standard connectors include 4mm Safety Plugs,

## Size & Weight

Model	Dimensions mm	Weight gms
<b>M1</b>	97 x 43 x 23	120
<b>M2</b>	116 x 43 x 23	120
<b>M3</b>	102 x 42.5 x 23.5	175
<b>M4</b>	123 x 42.5 x 23.5	188
<b>US</b>	215 x 90 x 40	500
<b>S</b>	216 x 102 x 40	620
<b>SM</b>	225 x 105 x 44	650
<b>E16</b>	336 x 120 x 52	1900
<b>H16</b>	336 x 133 x 52	2000
<b>P16</b>	336 x 148 x 52	2200
<b>E32</b>	333 x 120 x 52	1400
<b>H32</b>	333 x 133 x 52	1600
<b>P32</b>	333 x 148 x 52	1800
<b>SC</b>	213 x 86 x 40	800
<b>Hxx.C</b>	336 x 127 x 42	2000
<b>Pxx.C</b>	336 x 137 x 42	2200
<b>C104</b>	219 x 215 x 62	3500

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