

Quick and Safe Expert Ground-Loop Testing



**Clamp-on
ground
resistance
testers**

**IP
40**

600 V CAT IV

**OLED Screen visible over
an angle of 180° and in all
lighting conditions**

- Display of the ground voltage*
- Force compensation system*
- Automatic Pre-Hold mode
- Automatic calibration of jaw opening
- Possibility of recalibration without returning to the factory
- Programmable alarms on Ω , A and V
- Dangerous Voltage alarm
- Loop resistance measurement from 0.01 to 1,500 Ω
- Ground inductance measurement from 10 to 500 μH
- Leakage current measurement from 0.2 mA to 40 A
- Storage of up to 2,000 time/date-stamped measurements
- GTC and DataView[®] analysis and report generation software

*Patents pending

Bluetooth[®]



A clamp unlike any other

Ergonomics

The rugged **C.A 6416** and **C.A 6417** clamps are designed for day-to-day use. Their weight has been limited by using high-performance magnetic materials. To ensure more comfortable use, the clamp's jaw benefits from a new feature: a force compensation system installed on the trigger. Minimal effort is required to keep the clamp open in order to optimize handling of the product while reducing user fatigue.

As an additional safety feature, a protective guard prevents the hand slipping during measurements. The moulded-silicone rotary switch is easy to operate even when wearing safety gloves. The large function keys on the front of the clamp give direct access to the various functions.



The measuring head is the key component of the ground clamp which guarantees the performance of the product. These Chauvin Arnoux® ground clamps comprise two independent, shielded magnetic circuits which ensure excellent rejection of measurement noise. The smooth finish of the surfaces in contact prevents the accumulation of particles which might affect the measurements. Lastly, the centring system ensures optimum alignment of the 2 parts of the head in order to offer measurements that remain accurate over time.

Applications

Ground measurements in urban areas are often difficult because it is not possible to set up ground stakes. These ground clamps can be used to perform selective measurements on a parallel ground system without disconnecting conductors or even setting up stakes.

In the case of regularly-spaced ground connections or an underground ground loop, the use of ground clamps to measure low values allows you to check the continuity of the loop conductor tested.

Measurement of grounds in parallel on MV/LV installations

To ensure the quality of the ground present on the whole distribution network, an extended ground is set up using all the local grounds in parallel: grounds of electricity poles, building grounds, etc.

Ground measurements in urban areas and/or on buildings with Faraday cages

On buildings in urban areas where the grounding system comprises numerous ground connections in parallel and in buildings equipped with sensitive electronic equipment, a network of ground conductors connected to multiple grounds helps to equalize the potential of the chassis-grounds, particularly in the event of storms.

Measurements on telecommunications lines

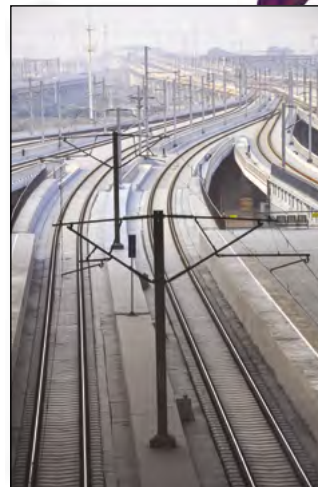
To protect their line from disturbances, the telecommunications line provider isolates the cable by means of a conducting sheath connected to the ground over its whole length. Indeed, under the influence of external electromagnetic fields, telecommunication cables, which comprise several conductors, are subject to a stray current which disturbs the devices connected. This current, called the common mode, often drains to ground.

Measurements in the rail sector

Railways are particularly well protected against lightning and voltage surges. The poles bearing the catenary, the rails and sometimes even the fences are connected to the ground. In addition, to obtain a lower ground resistance, the poles, rails and fences are interconnected to create a network of multiple grounds set up in parallel.

Ground measurement on buried or surface pipelines

The ground connection of the pipeline is checked with a ground clamp by ground-loop and low-current or leakage-current measurements. In the case of pipelines, the presence of several independent but neighbouring ground networks may cause a significant difference in potential leading to dangerous stray currents. In order to prevent this, specific connections are set up to interconnect the various ground networks, thus guaranteeing their equipotentiality.



Technical specifications

C.A 6416		C.A 6417	
Loop ohmmeter 1,500-count display	Measurement ranges (Ω) / Resolution (Ω) / Accuracy		
	0.010 to 0.099 / 0.001 / ±1.5 % ±0.01		
	0.10 to 0.99 / 0.01 / ±1.5 % ±2 r		
	1.0 to 49.9 / 0.1 / ±1.5 % ±r		
	50.0 to 99.5 / 0.5 / ±2 % ±r		
	100 to 199 / 1 / ±3 % ±r		
	200 to 395 / 5 / ±5 % ±r		
	400 to 590 / 10 / ±10 % ±r		
	600 to 1,150 / 50 / Approx. 20 %		
1,200 to 1,500 / 50 / Approx. 25 %			
Frequencies	Measurement frequency 2,083 Hz / Transposition frequency 50, 60, 128 or 2,083 Hz		
Loop inductance measurement	Measurement ranges (μH) / Resolution (μH) / Accuracy		
	10 to 100 / 1 / ±5 % ±r		
	100 to 500 / 1 / ±3 % ±r		
Ground voltage	Measurement ranges (V) / Resolution (V)		
	0.1 to 4.9 / 0.1		
	5.0 to 49.5 / 0.5		
	50.0 to 75.0 / 1		
Ammeter 4,000-count display	Measurement ranges (A) / Resolution (A) / Accuracy		
	0.200 to 0.999 mA / 1 μA / ±2 % ±50 μA		
	1.000 to 2.990 mA - 3.00 to 9.99 mA / 10 μA / ±2 % ±50 μA		
	10.00 to 29.90 mA - 30.0 to 99.9 mA / 100 μA / ±2 % ±r		
	100.0 to 299.0 mA - 0.300 to 0.990 A / 1 mA / ±2 % ±r		
	1.000 to 2.990 A - 3.00 to 39.99 A / 10 mA / ±2 % ±r		
Setup			
Modes	Standard or advanced		
Alarms	Configurable on Z, V and A		
Buzzer	Active		
HOLD	Manual or automatic PRE-HOLD		
Automatic power-off	Active / Inactive		
General specifications			
Display	152-segment OLED. Active area 48 x 39 mm		
Max. clamping diameter	Ø 35 mm		
Storage	300 time/date-stamped measurements	2,000 time/date-stamped measurements	
Communication	-	Bluetooth class 2	
Power supply	4 x 1.5 V LR6 (AA) alkaline batteries or 4 x NiMH batteries		
Battery life	1,440 measurements of 30 seconds each		
Calibration	Automatic at start-up		
Electrical safety	IEC 61010 600 V CAT IV		
Protection	IP40		
Dimensions	55 x 95 x 262 mm		
Weight	Approx. 935 g with batteries		

To order

C.A 6416 > P01122015

1 clamp delivered in a carrying case with 4 x 1.5 V batteries, 1 CD-Rom containing the operating manual in 5 languages

C.A 6417 > P01122016

1 clamp delivered in a carrying case with 4 x 1.5 V batteries, 1 CD-Rom containing the operating manual in 5 languages and the software with a simplified GTT driver

Accessories & replacement parts

CL1 calibration loop > P01122301
 DataView® > P01102095
 Bluetooth modem USB > P01102112
 Hard case > P01298080



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