

HT77N - HT78

AC AMPEROMETRIC CLAMPS FOR MEASUREMENT OF LEAKAGE CURRENTS

HT77N and HT78 are amperometric clamps designed for accurate measurements of very low values of AC currents and, therefore, they are mainly used in searching and determining leakage currents which typically cause the tripping of differential devices in civil and industrial electric systems. These models are also provided with a built-in low-pass filter to eliminate the harmonic components and with an analogue output with DC voltage for connection of any external data loggers (HT78 only). HT78, thanks to an internal, big-sized clamp (108mm), allows easy measurement of leakage currents even on (single-phase and/or three-phase, 4-wire) installations with big cross-section cables.

FUNCTIONS	HT77N	HT78
Measurement in TRMS	•	•
AC Current	•100A	•3000A
Low-pass filter	• (100Hz)	• (150Hz)
Analogue DC output		•
Data HOLD	•	•
Auto HOLD	•	
Peak HOLD	•	
Autorange	•	
Bargraph	•	
Backlight	•	
Auto Power OFF	•	•

TECHNICAL SPECIFICATIONS	HT77N	HT78
AC TRMS current		
Measuring range:	0.001mA ÷ 100A	0.1mA ÷ 3000A
Resolution:	0.001mA ÷ 0.1A	0.1mA ÷ 1A
Basic accuracy:	±(1.0%rdg + 8dgt)	±(1.5%rdg + 8dgt)
Protection:	max 120Arms	3000Arms
Analogue DC output (HT78 only)		
Conversion ratio:		1mV/1mA ÷ 1mV/10A
Full scale for each conversion ratio:		300mV
Basic accuracy:		±(1.5%FS)

GENERAL SPECIFICATIONS	
Display:	LCD, 4 digits, 6000 dots (HT77N) LCD, 4 digits, 3200 dots (HT78)
Conversion type:	TRMS
Power supply:	2x1.5V battery type AAA LR03
AutoPowerOFF:	after 20 minutes of idleness (HT77N) after 10 minutes of idleness (HT78)
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 300V (HT77N) CAT II 600V, CAT III 300V (HT78)
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Clamp inner diameter:	40mm (HT77), 108mm (HT78)
Dimensions (LxWxH):	202x75x42mm (HT77N) 341x194x52mm (HT78)
Weight (with batteries):	265g (HT77N) 1.9kg (HT78)

ACCESSORIES	
Standard	
Carrying bag	
Batteries	
Wrist belt (HT78 only)	
User manual	



HT77N
HP00077N

HT78
HP000078



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1. ELECTRICAL SPECIFICATIONS

Accuracy is gives as [% readings + number of digits] at 23°C ± 5°C ; <80%HR

AC TRMS Current

Range	Resolution	Accuracy (50 ÷ 60Hz)	Accuracy (61 ÷ 400Hz)	Overload protection
6.000mA (*)	0.001mA	±(1.0%rdg + 8dgt)	±(2.0%rdg + 11dgt)	120Arms 600Vrms
60.00mA	0.01mA			
600.0mA	0.1mA			
6.000A	0.001A			
60.00A	0.01A	0 ÷ 50A ± (1.0% rdg+8dgt) 50 ÷ 60A ± (5.0% rdg+6dgt) 60 ÷ 100A ± (8.0% rdg+6dgt)	0 ÷ 40A ± (2.0%rdg+9dgt) 40 ÷ 100A ± (30%rdg+9dgt)	
100.0A	0.1A			

(*) With this capacity there may be an instability of 3 digits in readings

Frequency range: 50 ÷ 400Hz

Error due of position cable not in center of jaws: ±1%rdg

Error due to the influence of an external magnetic field of an adjacent conductor: 0.0005% (typical value)

Response time PEAK HOLD feature: 50ms

Additional error due to the Crest Factor (CF) of non-sinusoidal signals:

C.F: 1.0 ÷ 2.0 → Add 6.0%rdg

C.F: 2.0 ÷ 2.5 → Add 7.0%rdg

C.F: 2.5 ÷ 3.0 → Add 9.0%rdg

Max. Crest Factor:

1.6 with 6600 ~ 5000 digits

2.0 with 5000 ~ 3000 digits

3.0 with 3000 ~ 0 digits

AC TRMS Current with internal low pass filter

Range	Resolution	Accuracy (50 ÷ 60Hz)	Accuracy (61 ÷ 400Hz)	Overload protection
6.000mA (*)	0.001mA	± (2% rdg+8dgt)	not specified	120Arms 600Vrms
60.00mA	0.01mA			
600.0mA	0.1mA			
6.000A	0.001A			
60.00A	0.01A	0 ÷ 50A ± (2.0%rdg+8dgt) 50 ÷ 60A ± (6.0%rdg+8dgt) 60 ÷ 100A ± (9.0%rdg+8dgt)		
100.0A	0.1A			

(*) With this capacity there may be an instability of 3 digits in readings

Characteristic attenuation: approx. -24dB/oct

Cutting frequency: approx. 100Hz





2. GENERAL SPECIFICATIONS

Features

Block of readings at display:	Data HOLD
Automatic block of readings at display:	Auto HOLD (for continuous digit oscillation)
Block of peak readings:	Peak HOLD
Low pass filter:	100Hz to erase harmonic components
Comparator with sound emission:	0.25, 0.75, 3.25mA thresholds compliance to IEC60950-1
Backlight:	automatic detectable sensor

Mechanical specifications

Dimensions (L x W x H):	200 x 70 x 40mm
Weight (including batteries):	265g
Max conductor size:	40mm

Power supply

Power supply:	2x1.5V batteries type AAA LR03
Life battery:	about 60 hours of continuous operation
Auto Power OFF:	after 20 minutes of idleness

Display

Features:	LCD, 4 dgt, 6000 points, bargraph, backlight and decimal point
Sampling rate:	4 times/s
Over range indication:	"OL" message at display
Conversion mode:	TRMS

Climatic conditions

Reference temperature:	23° ± 5°C
Operating temperature:	0 ÷ 50 °C
Operating humidity:	<80%RH
Storage temperature:	-20 ÷ 60 °C
Storage humidity:	<80%RH

Reference standards

Comply with:	IEC/EN61010-1
Insulation:	double insulation
Pollution level:	2
Max height of use:	2000m
Installation category:	CAT III 300V

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC and to EMC directive 2004/108/EEC