



Digital Multimeters

ASYC® Series
ADVANCED SAFETY CONCEPT

ITT

ITT Instruments

ITT

To ensure your safety and to guarantee your measurements

A multimeter is not only an instrument for the laboratory. It is, above all, a tool to be relied on to work accurately in difficult conditions, without endangering the user.

In order to combine all the aspects of safety, reliability and accuracy, ITT Instruments analyzed the crucial elements of a multimeter and developed unique technical solutions for each of them.

The result is ASYC, Advanced Safety Concept, destined to become synonymous with safety and performance.

Every multimeter bearing the ASYC label incorporates the seven key features described opposite. Each of them offer an immediate practical advantage in terms of safety and measurement quality.

ASYC and ITT Instruments : a double guarantee of technological perfection.

Advanced housing design has screw-free assembly and is waterproof due to a patented low-pressure double-seal design.
Ideal for all outdoor applications.

Housing moulded in VO grade self-extinguishing material.
Meets the most stringent international standards.

VDE/GS certificated:



An approval, recognised by all international authorities, which endorses safety performance.

Safe, flexible test leads.

Shrouded plug design protects the user from live metal parts. Large cross-section wire (1 mm²) reduces heating during high current measurement.





The battery and fuse compartment is sealed, both externally and internally, using a patented double seal design. This fully protects the electronics at the heart of the instrument. Double protection for the user and the internal circuits.

Access to the battery and fuse compartment using the instrument stand as a tool (patented feature). This avoids possible accidents, as the user must first disconnect the leads, prior to removing the cover.

SECUR'X lead locking device (patented feature). As its name indicates, this system is essential to safety: it prevents the test leads being disconnected accidentally (very important for current measurement on inductive loads).

In addition to these seven points, the MX 50 series has an unique eighth feature: **SAFETY ALERT®**. This safety alarm gives a warning sound when the measured signal exceeds the limit of the specified range (10 A AC or DC for current, 750 V AC or 1000 V DC for voltage). This automatic tone alerts the user in time to avoid any potential hazard.



■ Combined analogue/digital multimeters with 5000 counts plus fast analogue display. Automatic or manual range selection modes.

Up to 6 display modes
 16 functions
 38 measurement ranges

Analogue bargraph with four operating modes:

■ **Fast response 50 segment bargraph** gives a 2% resolution and accurate correlation between the analogue and digital displays.

Parallax reading errors are avoided by the close proximity of the bargraph to its reference scale (about 0.5 mm). The digital and analogue indications are exactly the same.

■ **Bargraph with auto ZOOM mode**

A five times magnification gives a high resolution 250 segment display with automatic sliding scale to enhance signal analysis.

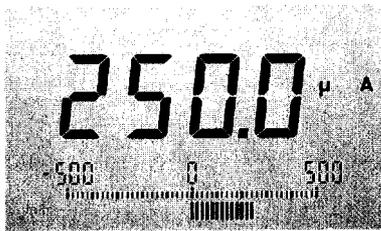


In this mode, the 0.4% resolution is virtually identical to a normal analogue multimeter, but with much higher accuracy and repeatability.



■ **Centre-zero bargraph mode**

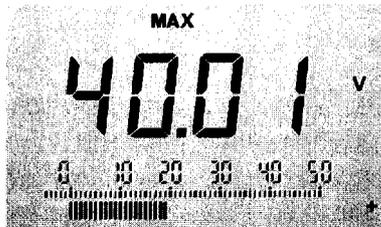
Functions in the same way as a centre-zero galvanometer.



This function is ideal for rapid polarity detection, adjustments of FM discriminators, or as null-detector in bridge-circuits balancing.

■ **Bargraph : LIVE TREND MEMORY MODE™**

While the digital display shows a stored or relative value, the bargraph gives the current absolute value of the input signal.



Recording the value of a signal at any given moment is very useful in many applications. While this would normally prevent the display of the current value, the LIVE TREND MEMORY MODE™ allows both the current and recorded values to be displayed simultaneously.

■ **Logic level detection**

The LOGIC function detects and displays the following states:



LO: Low level; HI: High level; OPEN: Open circuit.

The visual indication can be accompanied by an audible tone: LO: Low frequency, HI: High frequency.

■ **Adapter facility ADP**

Dedicated 500 mV high impedance input with combined analogue/digital display plus ZOOM and centre-zero modes.

Suitable for all active or passive accessories which have a mV-output proportional to the physical value being measured.

■ **MIN/MAX recording mode**

This surveillance mode, offered by the MX 51 and MX 52, automatically records the MIN and MAX values. These limits can be reviewed on the digit display while the bargraph shows the current value, due to the LIVE TREND MEMORY MODE™.

■ **Storage function**

Five different measurement values can be stored by the MX 51 and MX 52 for subsequent analysis.

■ **Relative measurements**

The MX 51 and MX 52 allow relative readings to be displayed. Once a reference value has been set, the digital display shows the deviation from this reference, while the bargraph shows the current absolute value of the input signal using the LIVE TREND MEMORY MODE™.

■ **RMS measurements**

The MX 52 has a built-in RMS converter. Crest factor: 3.

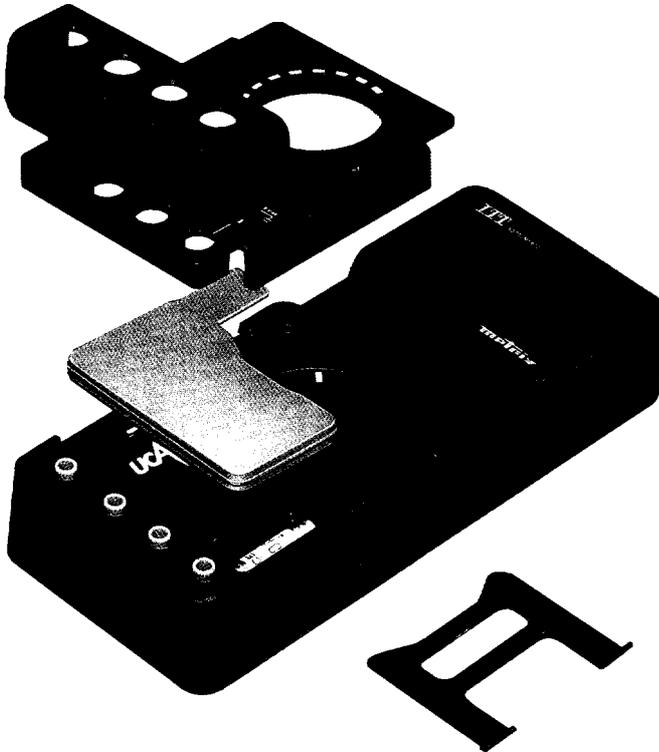
■ **dB measurements**

The MX 52 measures absolute or relative dB levels over the range -40 db to + 60 dB.

■ **Frequency Meter**

The reciprocal frequency meter in the MX 52 is autoranging up to 500 kHz in AC voltage or current measurements.

To replace the battery or fuses, one only needs to open the specially designed waterproof compartment.



Developed and tested to IP standards for heavy duty use.

The ASYC series multimeters meet the IP 667 and MIL T 28800 standards. The mechanical ruggedness and total sealing, which fully protect the interior of the multimeter for life, are assured by the ITT patented design.

The waterproof design concept of the ASYC multimeters assures the performance whatever the environment.

The housing was designed to be resistant to a variety of chemical agents such as petrol, kerosene, fuel oil, isopropyl alcohol, hydraulic liquids and certain acids.

The mechanical ruggedness is achieved by a sturdy patented housing made of self-extinguishing VO grade thermoplastic with shockproof construction. The resistance to shocks can be reinforced by using a flexible rubber shock absorber with an optional handle.

The ASYC series was also designed to resist electrical overload. All the ranges are protected, including the current ranges by high breaking capacity fuses. The voltage input can withstand transients of 6 kV/10 μ s without damage.

Extended battery life with auto switch-off mode

The MX 50 series incorporates an auto switch-off function and a battery life greater than 500 h, giving around 1 year's typical use.

ACCESSORIES FOR THE ASYC MULTIMETER SERIES

ACCESSORY	REFERENCE	BASIC SPECIFICATION	RESOLUTION	ACCURACY
A High voltage probe	HT 203	3 kV AC/DC	1 V	3%
B High voltage probe	HT 212	30 kV DC 50 Hz	10 V	5%
C HF probe	HT 208	100 k - 750 MHz	> 250 mV	
D Temperature probe (in the case)	HK 210	- 25 °C to 350 °C	1 mV/°C	0.5% + 0.5 °C
E Tachometric probe	HA 1237	> 500 °C		1% + 2 °C
		100 to 60 000 t/min	1 to 100 t/mV	1%

CURRENT MEASUREMENT AC AND DC

ACCESSORY	REFERENCE	BASIC SPECIFICATION	RESOLUTION	JAW SIZE	ACCURACY
F Clamp-on AC	AM 12	300 AC	1 mA/A	15 mm	1%
G Clamp-on AC	AM 14	300 AC	1 mV/A	15 mm	1%
H Clamp-on AC	AM 15	1000 A AC	1 mA/A	50 mm	1%
I Clamp-on AC/DC	AM 1000	1000 A DC/600 A AC	1 mV/A	43 mm	2%
J Clamp-on AC	HA 768	1000 A AC	1 mA/A	100 mm	1%

SHUNTS

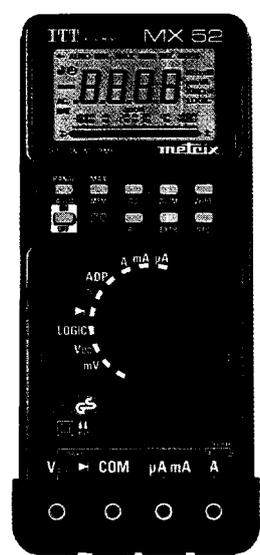
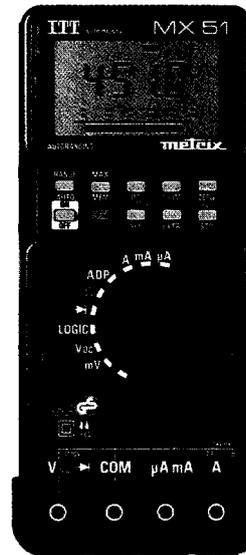
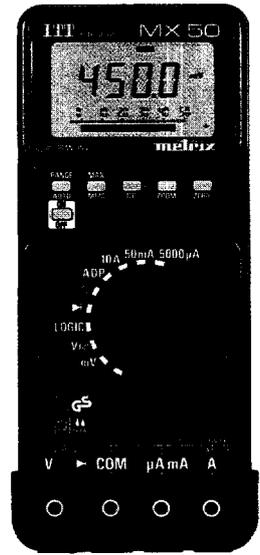
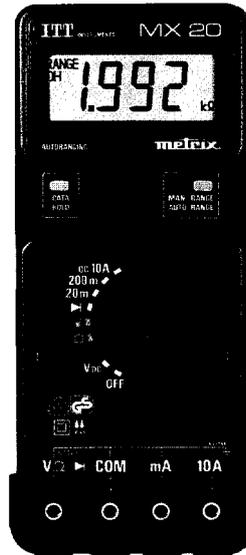
ACCESSORY	REFERENCE	BASIC SPECIFICATION	RESOLUTION	ACCURACY
K Shunt 30 A	HA 171	30 A/300 mV	10 mA	0.5%
L Shunt 50 A	HA 512	50 A/50 mV	100 mA	0.5%
M Shunt 300 A	HA 300	300 A/30 mV	1 A	0.5%
N Shunt 500 A	HA 1029	500 A/50 mV	1 A	0.5%

OTHER ACCESSORIES

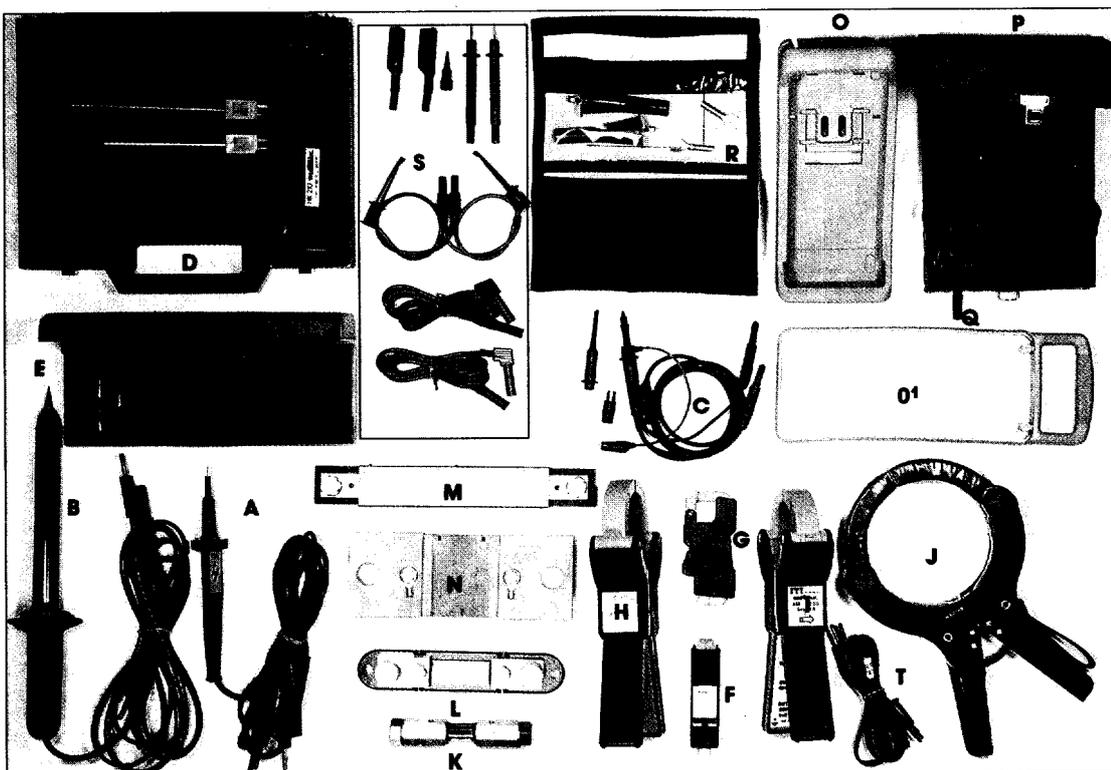
O Shock absorber: MC 160	Q Test lead set	S Test lead set for electronic use: HG 208 (with case)
O ₁ Shock absorber handle: MC 159	R Test lead set for electrotechnical use: HG 207	T Connection leads for clamps
P Carrying case: AE 193		

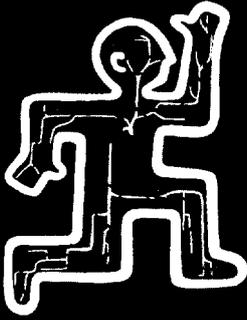
Designed to last, a comprehensive range for all users.

Six professional models MX 20 - MX 50 - MX 51 - MX 51 Ex - MX 52 S to meet virtually all electrical, electronic and industrial applications.



	MX20	MX50	MX51	MX51 Ex	MX52	MX52S
Basic accuracy	0.5%	0.5%	0.1%	0.1%	0.1%	0.1%
Bargraph		•	•	•	•	•
ZOOM mode		•	•	•	•	•
ZERO mode		•	•	•	•	•
LIVE TREND MEMORY MODE™		•	•	•	•	•
Logic function		•	•	•	•	•
MIN/MAX recording			•	•	•	•
Storage of five readings			•	•	•	•
Relative mode			•	•	•	•
RMS conversion					•	•
Frequency measurements					•	•
dB level					•	•
Measurement 4 - 20 mA with 0.1% accuracy on 50 mA DC range				•		•
Intrinsic safety Ex ib IIC T6				•		
HBC fuse protection	•	•	•	•	•	•



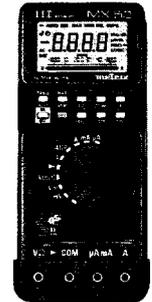


MX 20

MX 50

MX 51 / MX 51

MX 52 / MX 52 S



Display	2000 counts (17 mm)	5000 counts (13 mm) and 50 division bargraph		
V DC	(200 mV) 0,5%R + 4 c 0,8%R + 4 c	0,5% R + 1 c	0,1% R + 1 c	0,1% R + 1 c
	Ranges 200 mV 2 V 20 V 200 V 1000 V	Ranges 500 mV 5 V 50 V 500 V 1000 V	Resolution 100 µV 1 mV 10 mV 100 mV 1 V	Input impedance > 1000 MΩ 11 MΩ 10 MΩ 10 MΩ 10 MΩ
V AC	2 V to 750 V	500 mV, 5 V, 50 V, 500 V, 750 V		
5 to 100% of the range Input capacitance < 100 pF	40 Hz 400 Hz 1000 Hz 5000 Hz 20000 Hz	1% R + 8 c 1,2% R + 3 c 2,2% R + 3 c	0,75% R + 3 c 1,7% R + 3 c	RMS AC (Crest factor 3) 0,75% R + 2 c 0,75% R + 2 c 1,7% R + 2 c 3% R + 2 c
Voltage protection	1100 Vp	1100 Vp - 6 kV / 10 µs × 5 / s - IEE 587 - Audible alarm SAFETY ALERT® if range exceeded		
I DC	Ranges - 20 mA (1,2% R + 1 c) 200 mA (1,2% R + 1 c)	Ranges - 5000 µA (1% R + 1 c) 50 mA (1,2% R + 2 c)	Ranges 500 µA (1,2% R + 2 c) 5000 µA (1% R + 1 c) *50 mA (1,2% R + 2 c) 500 mA (1% R + 1 c) 5 A (1,2% R + 2 c)	Resolution 0,1 µA 1 µA 10 µA 100 µA 1 mA 10 mA
				Voltage drop 60 mV 500 mV 60 mV 800 mV 200 mV 400 mV
				MX 52 S 50 mA 0,1% R + 3 c
I AC	40 Hz 400 Hz 1000 Hz 5000 Hz	10 A: 1,5% R + 8 c 2% R + 8 c	2% R + 3 c 3% R + 3 c	1,5% R + 3 c 2,5% R + 3 c
				RMS AC (crestfactor 3) 1,5% R + 2 c 2,5% R + 2 c 3% R + 2 c
Current protection	High breaking capacity fuses 630 mA and 10 A - Audible alarm SAFETY ALERT® if range exceeded			
Resistance	Ranges 200 Ω (0,8% R + 4 c) 2 kΩ (0,8% R + 4 c) 20 kΩ (0,8% R + 4 c) 200 kΩ (0,8% R + 4 c) 2 MΩ (1% R + 4 c) 20 MΩ (3% R + 4 c)	Ranges 500 Ω (0,7% R + 5 c) 5 kΩ (0,7% R + 2 c) 50 kΩ (0,7% R + 2 c) 500 kΩ (0,7% R + 2 c) 5 MΩ (0,8% R + 2 c) 40 MΩ (2% R + 2 c)	Ranges 500 Ω (0,3% R + 5 c) 5 kΩ (0,3% R + 2 c) 50 kΩ (0,3% R + 2 c) 500 kΩ (0,3% R + 2 c) 5 MΩ (0,5% R + 2 c) 40 MΩ (2% R + 2 c)	Resolution 0,1 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ
				Test voltage < 300 mV < 300 mV < 300 mV < 400 mV < 400 mV < 1,5 V
Continuity test & beeper	< 1 kOhm on 2 kOhms range	< 20 Ohms: low frequency tone, between 20 and 300 Ohms; high frequency tone on 500 Ohms range		
Resistance protection	250 V AC	380 V AC		
ADP (Adapter) input		500 mV DC, high impedance range for external accessories		
Diode test	0 to 1.200 V - 1 mA test current	0 to 2.000 V - test current 1 mA		

Other specifications

Conversion rate: 20 meas./s.
Series mode rejection: 60 dB
Common mode rejection: 120 dB AC/DC - 60 dB AC/AC
Reference range: + 18°C to + 28°C
Normal operating range:
 - 10°C to +50°C (MX 20)
 - 20°C to +55°C (MX 50-51-52)
 Operating at -40°C for 20 min. provided unit started at 20°C
Relative humidity:
 0 to 95% (0 to 35°C)
 0 to 70% (35°C to 55°C)
Storage: -40°C to + 80°C (without battery)
Temp. coefficient: 0.1 × spec. accuracy/°C

Waterproof/Shock: IP 667 and MIL T 28800-2
Safety class II per IEC 348 - VDE 0411 - BS 4743
Electromagnetic compatibility: Interference: VDE 871 cl. B and MIL STD 461 RE02
 Susceptibility: IEC 801 and MIL STD 461 RS03
Power supply:
 MX 20 : 2 × 1,5 V AA batteries R6
 MX 50-51-52 : 9 V 6LF22 battery auto switch-off after 30 minutes
 Battery life: > 500 hours
Dimensions: 40 × 82 × 189 mm
Weight: 400 g

MX 51 : LCIE approved safety multimeter for use with intrinsically safe circuits in category Ib IG 5 zone 1. Explosion protection ib IIC T6. Specifications as MX 51, but with 0.1% R + 3 c accuracy for 50 mA DC range.

dB level (MX 52 and MX 52 S)	- 50 to +60 dB autoranging Resolution: 0.1 dB; Accuracy: 0.3 dB
Frequency measurement (MX 52 and MX 52 S)	10 Hz to 500 kHz autoranging Accuracy: 0.05%/ 1 reading/sec.
Voltage or current ranges	Sensitivity (typical)

Specifications are subject to change without notice

R = Reading - c = Count

Distributor:

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