

Bundle S 2115 Safety Test System with Current-Limitation

High-Voltage Test Solution with Integrated Current Monitoring Maximum Operator Safety through Controlled Low-Energy Test Architecture

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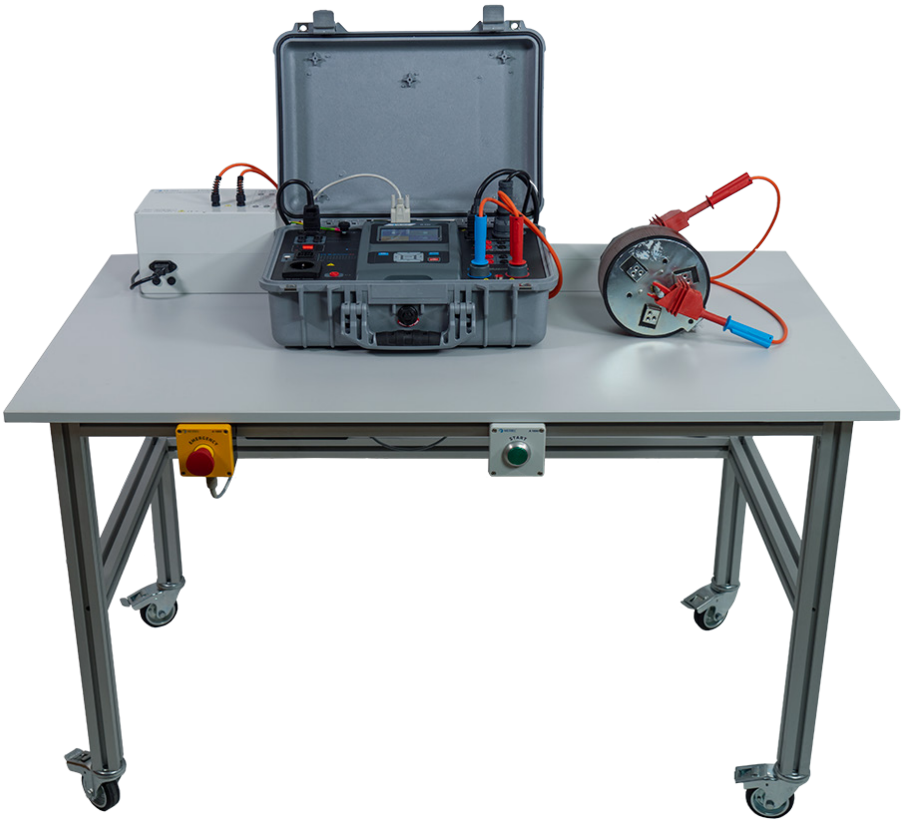
Enhanced Operator Safety with Controlled Test Initiation Protection compliant with EN 50191

Standard set

High-Voltage Test Solution with Integrated Current Monitoring Maximum Operator Safety through Controlled Low-Energy Test Architecture

The Metrel Current-Limited Safety Test System is designed for high-voltage electrical testing in production environments where operator safety is ensured through inherent current limitation rather than full physical guarding systems.

The system is optimized for end-of-line (EOL) testing of electrical devices where the test current is strictly limited to Itest ≤ 3 mA, significantly reducing the risk associated with high-voltage measurements while maintaining full test functionality and reliability.



In such configurations, the system allows simplified safety architecture in accordance with EN 50191 principles for low-energy test stations. When properly implemented with current monitoring and safety interlocking, the requirements for additional complex guarding systems can be reduced or omitted, depending on national safety regulations and risk assessment.

Despite the inherent safety provided by current limitation, the system includes an additional emergency stop and safety monitoring circuit, ensuring immediate shutdown of all hazardous outputs in case of operator intervention or fault condition.

Test initiation is performed via an external start control, ensuring deliberate operator action before energization. The system continuously monitors output conditions and immediately disables the test in case of abnormal behavior or safety trigger activation.

The solution integrates the MI 3394 CE MultiTester XS, HV switching and distribution modules, a dedicated current limitation and safety monitoring unit, and operator signaling elements into a compact and robust production-ready test platform.

BUNDLE S 2115
CURRENT PROTECTION SAFETY

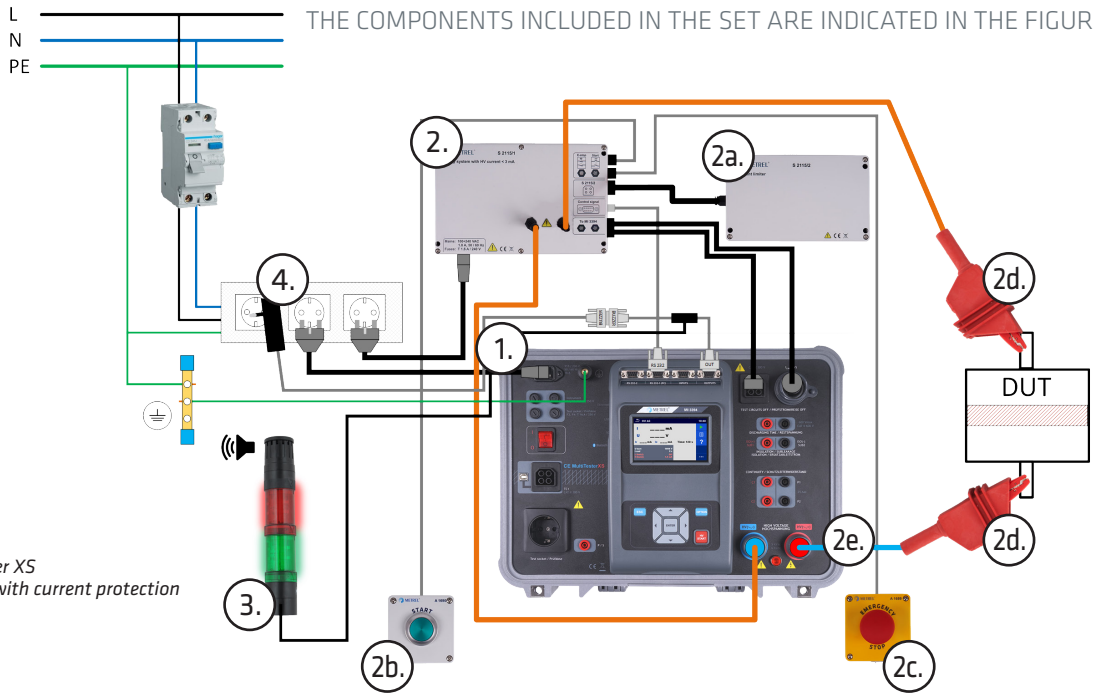


- Instrument MI 3394 CE MultiTester XS
- S 2115 Safety system with current protection
- A 1496 Warning lamp (LED tower lamp 2), Magnet
- A 1499 Power supply 24V
- A 1495 PL adapter for pedal and signal lamps
- A 1584 Rack mount adapter for mi 3394 CE MultiTester XA
- A 1690 Start button
- A 1689 Stop button
- A 1017 RS232 communication cable
- A 1728 Power cable, 2m, 3x0.75mm2
- A 1493 Power cable, 2m, 3x1.5mm2
- A 1695 Ground cable, YEL/GRN, 2m, 2.5mm2
- A 1602 HV test lead, Blue, 1.5m, 5kV
- A 1727 USB cable Type A/B
- 2x A 1773 HV Crocodile, Red, mini
- Calibration certificate
- Short instruction manual
- Instruction manual
- Metrel ES Manager BASIC Licence
- SW 1201 Metrel ES Manager (program installation)

MI 3394 XS

S 2115

THE COMPONENTS INCLUDED IN THE SET ARE INDICATED IN THE FIGURE BELOW



1. *MI 3394 CE MultiTester XS*
2. *S 2115 Safety system with current protection*
   2.a current limiter
   2.b start button
   2.c stop button
   2.d HV Crocodile, red
   2.e HV test lead, blue
3. *A 1496 Warning lamp magnet*
4. *A 1499 Power supply 24V*

IMPORTANT NOTES

Metrel does not supply test cages or protective enclosures. Any such equipment shown in illustrations is for reference purposes only and is intended solely to demonstrate recommended integration of the safety system within a typical test station design.

KEY FEATURES

- Current-limited high-voltage testing for maximum operator safety Itest ≤ 3 mA
- Reduced risk high-voltage testing architecture for production environments
- Simplified safety requirements in accordance with EN 50191 principles (subject to risk assessment)
- External start control for intentional test initiation
- Continuous monitoring of test output current and safety conditions
- Immediate shutdown of HV output in case of fault or emergency stop activation
- Integrated emergency stop circuit for operator intervention
- High suitability for cost-efficient EOL test stations
- Compact integration of measurement, switching, and safety functions

SYSTEM ARCHITECTURE

- Current-limited safety concept ensures that test energy is restricted to safe levels with Itest ≤ 3 mA, reducing exposure risk during high-voltage testing operations.
- MI 3394 CE MultiTester XS – core measurement instrument for electrical safety testing and functional verification
- Current Limitation & Safety Monitoring Module – ensures continuous supervision of output current and enforcement of safety thresholds
- External Start Control Interface – enables operator-initiated test sequence with defined start conditions
- Emergency Stop Circuit – immediate deactivation of all hazardous outputs in case of operator action or system fault

FUNCTIONAL CAPABILITIES

- High-voltage withstand testing (AC/DC)
- Insulation resistance testing
- Protective earth / continuity testing (4-wire)
- Multi-point DUT contact switching
- Automated test sequencing (AutoSequence® compatible)
- External start / stop and safety chain integration
- Expansion-ready for production line integration

APPLICATION AREAS

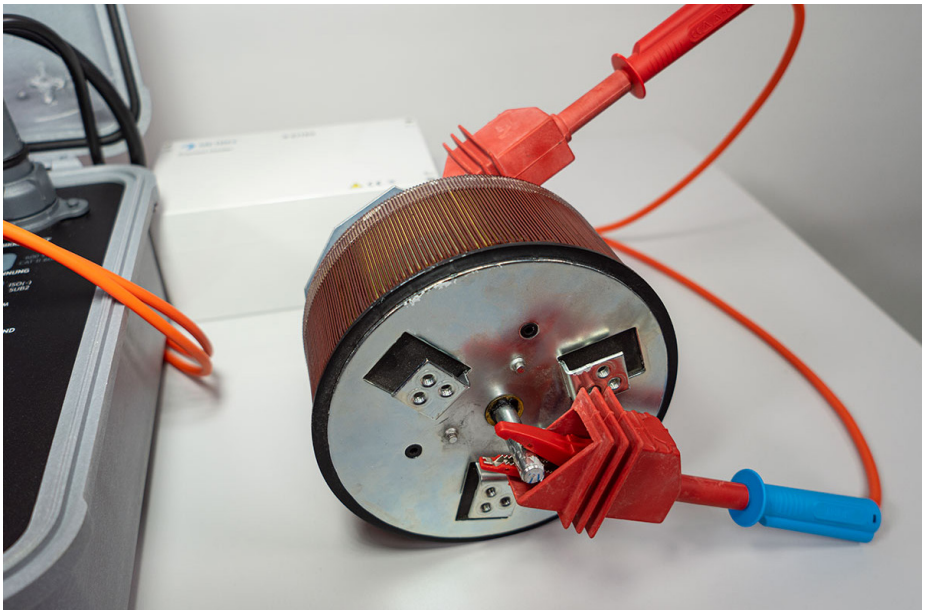
- End-of-line (EOL) high-voltage safety testing
- Electrical safety testing of appliances and industrial equipment
- Production environments requiring cost-optimized safety architectures
- Testing of devices with controlled leakage current behavior
- High-voltage withstand testing with inherent current limitation



- Automated and semi-automated production test stations
- Applications where simplified EN 50191-compliant approaches are applicable
- Industrial environments prioritizing throughput with maintained operator safety

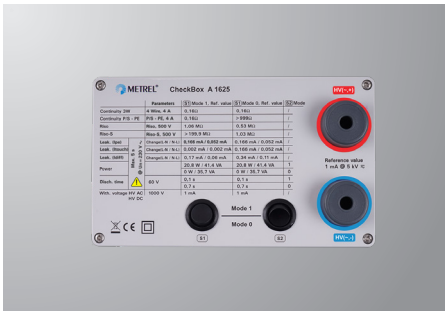
MEASURING FUNCTIONS

- High Voltage, programmed (AC/DC).
- Continuity tests.
- Insulation resistance measurement.
- Substitute leakage current.
- Differential leakage current.
- Touch leakage current.
- PE-leakage current.
- Discharge time.
- Functional test (power P/S/Q, voltage, current, cos fi, frequency, ThdU, ThdI,PF).



Can be used together with

A 1625
CHECK BOX



The A 1625 CE CheckBox is an essential verification tool designed to ensure the accuracy, reliability, and consistent performance of EOL test systems.

Just like standalone test and measurement instruments, EOL testing equipment requires regular verification to maintain confidence in measurement results and overall system functionality. The A 1625 CE CheckBox provides a fast, simple, and efficient solution for daily inspection routines on production lines.

Featuring built-in reference components with predefined values, the CheckBox enables quick confirmation that the complete measuring system and connected test equipment are operating correctly.

Key benefits include:
- Fast daily verification of EOL test systems
- Increased confidence in measurement accuracy
- Reduced risk of faulty or unsafe products reaching the market
- Prevention of unnecessary recalls and production costs
- Simple connection and easy operation in production environments

Regular use of the A 1625 CE CheckBox helps maintain high production quality standards while minimizing downtime and reducing the risk of costly testing errors.

A 1625

Optional accessories

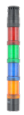
Photo	Part No.	Description
	A 1495	Remote control pedal
	A 1511 2M5	Tip Commander 2,5 m
	A 1511 5M	Tip Commander 5 m
	A 1511 10M	Tip Commander 10 m
	A 1497	Warning lamp / 4 LED's signal tower with buzzer
	A 1496	Warning lamp / 2-LED signal tower HV
	A 1499	External power supply 24V
	S 1072	Continuity test lead with crocodile clip, 2 x 2.5 m, 2 pcs
	A 1593	Large Kelvin test clip
	A 1309	Crocodile clip, green
	A 1310	Crocodile clip, blue
	A 1297	Crocodile clip, brown
	A 1013	Crocodile clip, black
	A 1064	Crocodile clip, red
	A 1062	Test probe, green
	A 1015	Test probe, blue
	A 1298	Test probe, brown
	A 1014	Test probe, black
	A 1016	Test probe, red

Photo	Part No.	Description
	A 1268	Test probe, brush type, 4 mm
	A 1489	Label printer Able, with power and data cables, (battery or mains operated)
	S 2062	BT label printer set, (mains operated)
	A 1450	Spare label roll for S 2062
	A 1520	Labels for ABLE printer, (250 labels per roll)
	A 1105	Barcode scanner
	A 1105 2D	Barcode scanner 2D RS232 connection
	A 1653	QR / Barcode scanner (Bluetooth)
	A 1610	Continuity test adapter
	A 1571	NFC reader / writer

Photo	Part No.	Description
	A 1572	NFC tags, fi 34mm self-stick 50 pcs
	A 1573	NFC labels, fi 29 mm self-stick 50 pcs
	A 1574	NFC cable-tie, L 130 mm 50 pcs
	A 1578	RS232 to USB adapter for external USB keyboard
	P 1102	Metrel FW Profile Licence Key With PRO SW Set
	P 1104	Metrel SDK Licence Key
	P 1101	Metrel MESM BASIC to PRO licence key Upgrade
	SW 1304	aMESM android SW
	A 1550	Carrying bag (XXL)
	A 1271	Carrying bag (S)

METREL d.o.o.
Test and Measurement Equipment
Ljubljanska 77, SI-1354 Horjul, Slovenia
T +386 (0)1 75 58 200
info@metrel.si
www.metrel.si



Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery.
Subject to technical change without notice.

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