

axos ^{SERIES}

EXPANDABLE TEST SYSTEM



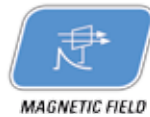
SURGE



EFT / BURST



VOLTAGE DIPS



MAGNETIC FIELD



RING WAVE



TELECOM WAVE



SERVICES

axos⁵



axos⁸



www.haefely.com

EMC IS ALL ABOUT STANDARDS. HAEFELY COVERS THEM IN JUST ONE SINGLE BOX.

The standards - are you really familiar with all of them? Whether people talk about generic standards or product specific standards - stipulated by law or demanded from the manufacturer: HAEFELY has integrated all of them.

Take benefit from the most modern and easy to use conducted immunity test system ever built. Welcome to the [AXOS series](#).

Indoor appliances

Domestic	Industrial	Medical	IT
White goods	Robotics	Monitoring	Computers
Brown goods	Welding machines	Scanning	Printers
Household	Packing machines	Analysing	Modems
Lightning devices	Production lines	Pumps	Hubs
Portable tools	Laboratory equipment	Implants	Phones
Home automation			Servers

Outdoor appliances

Renewable energy	Telecom	Transportation	Defense
Solar panels	Outdoor lines	Automotive	Component testing
Windmills	Repeater	Motorcycles	Communications
Turbines	Switching stations	Trucks	Vehicles
Inverters	Data concentrators	Electric vehicles	Aircrafts
Infrastructure	Telecommunication centers	Charging stations	Satellites

THE STANDARDS



IEC/EN 61000-4-5 Surge Combination Wave 1.2/50µs...8/20µs

Surge events can be generated by lightning phenomena, switching transients or the activation of protection devices in the power distribution system. A surge itself is influenced by the propagation path taken so that impulses from the same event may have different forms depending upon where a measurement is taken. Combination Wave Generators (CWG) simulate a surge event in power lines close to or within buildings. Mostly the disturbances are tolerable because they are single events.



IEC/EN 61000-4-4 Electric Fast Transients, EFT/Burst

Industrial measurement and control equipment nearly always use conventional control units containing relays or other electro-mechanical switching devices. Fluorescent lamp ballast units, insufficiently suppressed motors (hair dryers, vacuum cleaners, drills, etc.) are found everywhere in the public power supply. All of these are primarily inductive loads which generate interference when switched on or off. EFT events, can cause microprocessor units to malfunction or reset, with corresponding disruption to normal operation.



IEC/EN 61000-4-11 Voltage Dips and Interrupts

Voltage failures occur following switching operations, short-circuits, response of fuses and when running up heavy loads. The quality of the electrical power supply is increasingly becoming a central topic of discussion. The interference sources in the mains, caused by electronic power control with non-linear components e.g. thyristors are used more frequently in domestic appliances such as hotplates, heating units, washing machines, television sets, economy lamps, PCs and industrial systems with speed-controlled drives.



IEC/EN 61000-4-9 Pulsed Magnetic Field

Under normal operating conditions, an AC current generates a steady magnetic field so that equipment, such as monitors, close to AC power lines could suffer interference. Under fault conditions, a sudden high current level can result in a short duration magnetic field. Lightning strokes or short circuit fault currents in the power network can generate high level short duration magnetic fields.

THE STANDARDS



RING WAVE

IEC/EN 61000-4-12 Ring Wave / IEEE C62.41

Ring waves are used to simulate lightning or switching effects in domestic single or three phase supplies within an adequately protected building. The waveform has similar characteristics in both open and short circuit conditions. The ring wave is characterised as a bipolar damped oscillating wave.



TELECOM WAVE

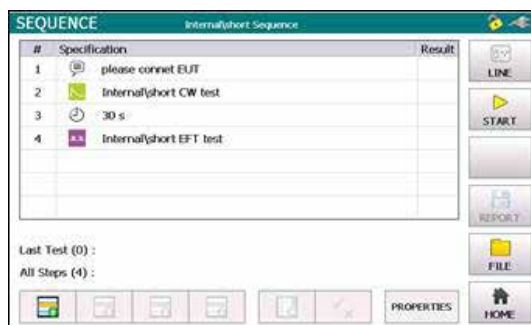
IEC/EN 61000-4-5 Telecom Wave 10/700µs / ITU K.20, K.21, K.44, K.45

Telecommunication networks and lines are often disposed to lightning strikes and their associated effects. All telecommunication systems linked with lines installed outdoors therefore require a reliable protection which needs to be tested.

THE SEQUENCER

Linking test to form a sequence.

Individual tests stored on the PC or in the AXOS⁵ / AXOS⁸ itself can be combined to form a complex and fully automated test sequence. This feature enables Surge, EFT/Burst, Voltage Dips, Ring Wave and Telecom Wave tests to be linked and run in a continuous sequence. The already pre-installed IEC and generic standards make programming easier than ever before.



THE MODULAR CONCEPT

Welcome to the unique design and concept of modularity designed by HAEFELY.

HAEFELY is recognizing an increasing interest in testing departments to configure the required functions in compact immunity test systems more flexible than ever. For that reason HAEFELY designed a unique concept of modularity which eviscerates large additional investments for customers in the future.

Moreover, constantly reduced product development times call for powerful, easy-to-operate and ready-to-use conducted immunity test systems which can be expanded in a multitude of different test applications. Customer requirements, particularly in the telecommunications and industrial electronics sector, emphasize a test system's accuracy and modularity, thus clearly pointing to easy to expand T&M equipment that is favourably priced and suitable for most of industries.

The new AXOS series has been tailored to exactly meet these requirements, offering special cost advantages for T&M applications in the development, production and servicing of telecommunications, components as well as safety and industrial electronics.

All AXOS test systems come equipped with all the hardware needed for instant upgrades by only entering optional key codes into the licence code manager of the unit. After entering the key code(s) the additional test functionalities like Surge Combination Wave, Ring Wave, Telecom Wave, EFT/Burst or Voltage Dips and Interrupts become available immediately. No direct intervention has to be done by the user at all.

THE SOFTWARE

Remote Control Software

The optionally available remote control software simply enables the user to remote control the AXOS⁵ and AXOS⁸ by using a remote device like a standard PC, Tablet or Smartphone. The connection can either be established by putting in a ethernet cable "point to point" or via wifi network (a separate access point will be required).

Reporting Software

The reporting software creates automatically a test report. The main header can be adjusted with the individual company logo or any other text required. The data input can either be supplied directly via the remote control software or when saving the data on a USB drive. Furthermore, the data can be used from the sequence mode menu directly and the report gets generated. Detailed information will be provided with the reporting software tool itself. The reporting software is compatible with both Windows 7 and Windows 8 (32- and 64-bit).



AXOS⁵ EXPANDABLE TEST SYSTEM

axos⁵

The new AXOS⁵ expandable test system integrates all of the best features of several stand-alone test systems into one single economic solution.

It can be individually combined either with 5 kV Surge Combination Wave, 5 kV EFT/Burst, Dips & Interrupts, along with an integrated single-phase coupling / decoupling network. This allows quick and completely automated testing to the most common IEC, EN, ANSI, IEEE and UL standards.

The AXOS⁵ can either be operated via front panel by large colour graphic interface or remotely from the PC. The easy to use menu together with the availability of predefined test routines for different standards makes testing easy and reliable, even for less frequently users.

Numerous additional functions such as external start/stop function allows easy integration of the test system also in customer specific test environments.

All the test parameters can be varied in a broad range wide above the requirements of the standards. Together with the ability of changing test parameters during test, AXOS⁵ is not only the ideal product for compliance and pre-compliance testing, it is useful for monitoring & debugging function during design phase as well.

A wide range of cost-efficient and user friendly coupling / decoupling networks for power lines as well as for symmetrical and asymmetrical data- and signal lines are available as options.



AXOS⁵ front view



AXOS⁵ rear view

OVERVIEW

FEATURES & BENEFITS

- Easy to operate with manual and automated test modes, software assisted test preparation, pre-defined test routines and visual aided test setups
- Economic & Efficient
Touch screen guarantees reduction of time and effort - Experience and know-how at a reasonable price
- Safe and reliable operation by using safety interlock, warning lamp and emergency stop functions
- Voltage and current monitoring of surge impulses and EUT power provides valuable feedback to the test engineer
- Automatic generation of test report, including test parameters, test setup and test result

APPLICATIONS

- Compliance & pre-compliance testing of electrical products
- CE marking
- Product development and debugging
- Compliance testing of telecom and wireless devices

STANDARDS

- IEC/EN 61000-4-4 EFT / Burst
- IEC/EN 61000-4-5 Surge Edition 2 & 3
- IEC/EN 61000-4-9 Imp Magnetic Field
- IEC/EN 61000-4-11
AC Dips and Interrupts
- IEC/EN 61000-4-29
DC Dips and Interrupts
- IEC/EN 61000-6-1 Generic Residential
- IEC/EN 61000-6-2 Generic Industrial
- IEC/EN 60335-1 Household
- IEC/EN 60601-1 Medical
- and many more

INDUSTRIES

- Industrial
- Residential
- Components
- Medical
- Renewable energy
- Telecom

TECHNICAL DATA - AXOS⁵

GENERAL DATA			
Control power	85 V - 264 V 50/60 Hz	Dimensions (W x H x D)	19" / 4U (45 x 18 x 49 cm)
User test storage	unlimited	Weight	25 kg
Remote interface	Ethernet, RJ45	USB	for USB memory stick
Display	7" / 800x480 / 24 bit with touch-screen	AUX. interface	D-sub 37p for external CDN, external trans- former etc.
External trigger input	5 VTTL	Synch input	BNC, 10 V – 264 V AC
Trigger output	5 VTTL	External start / stop input	5 VTTL, starts / stops predefined test se- quence
EUT failed input	5 VTTL	Analog output	0 – 10 V, for use with external options
Warning lamp output	2 x 24 V / 1 A DC	Safety circuit	stops the test when unlocked

IEC / EN 61000-4-4 EDITION 2 & 3 EFT / BURST			
Output voltage	0.2 – 5.0 kV $\pm 10\%$ at coaxial output	Spike frequency	1 Hz – 1 MHz
Polarity	pos / neg / alternate	Burst duration	10 μ s – 1 s
Output impedance	50 Ohm	Burst period	1 ms – 10 s
Rise time	5 ns $\pm 30\%$	Test time	1 s– 1'000 minutes
Impulse duration	50 ns $\pm 30\%$ at 50 Ohm 50 ns –15 +100 ns at 1'000 Ohm	Trigger	automatic, manual, external trigger input
Burst mode	normal, continuous, real, random	Integrated single phase coupling / decoupling network	264 V AC / 16 A 220 V DC / 10 A

IEC / EN 61000-4-5 EDITION 2 & UPCOMING EDITION 3 SURGE COMBINATION WAVE

Output voltage	0.2 – 5.0 kV $\pm 10\%$	Output current	0.1 – 2.5 kA $\pm 10\%$
Voltage rise time	1.2 μs $\pm 30\%$	Current rise time	8 μs $\pm 20\%$
Voltage duration	50 μs $\pm 20\%$	Current duration	20 μs $\pm 20\%$
Polarity	positive / negative / alternate	Integrated single phase CDN	264 V AC / 16 A 220 V DC / 10 A
Output impedance	2 Ohm		
Phase sync	0 – 359° with 1° steps or asynchronous mode	Impulse trigger	automatic 2 s – 100 min manual external trigger input
Counter preselect	1 – 1'000 / infinite		
Counter	100'000		
Peak voltage monitor	BNC output: 1000:1 display: 3 digits	Peak current monitor	BNC output: 1 kA/V display: 3 digits

IEC / EN 61000-4-11 EDITION 2 AND IEC / EN 61000-4-29 DIPS & INTERRUPTS

Max. voltage	264 V AC/DC	Interrupt time	0.5 period – 800 periods 100 μs – 1000 minutes
Max. current	16 A AC/DC continuous 20 A for 5 s 23 A for 3 s 40 A for 3 s > 500 A inrush current	Interval time	1 period – 800 periods synch 100 μs – 1000 minutes asynch
Trigger	automatic manual external trigger input	Test time	1 s – 1000 minutes infinite
Interrupt dip level	0% 0% – 99% with external voltage source	Phase sync	0 – 359° 16 / 40 / 50 / 60 Hz asynchronous mode
RMS voltage monitor	BNC output: 100:1 display: 4 digits	RMS current monitor	BNC output: 10 A/V display: 4 digits

OVERVIEW OF AXOS⁵ SERIES



AXOS⁵
Compact Test System
Article no. 2490400

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁵
Surge Test System
Article no. 2490401

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁵
EFT/Burst Test System
Article no. 2490402

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁵
Dips Test System
Article no. 2490403

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



Activated by default



Optionally available by activation via key code

*external voltage dips transformer "DIP 116" required

**additional antenna coil "MSURGE-A" required

SCOPE OF SUPPLY - OPTIONS & ACCESSORIES

SCOPE OF SUPPLY

AXOS ⁵ Compact Immunity Test System	2490400
AXOS ⁵ Surge Test System	2490401
AXOS ⁵ EFT/Burst Test System	2490402
AXOS ⁵ Voltage Dips Test System	2490403

Qty. 1	Immunity Test System AXOS ⁵
Qty. 1	Mains Cable
Qty. 1	User Manual
Qty. 1	Certificate of Calibration

OPTIONS AND ACCESSORIES

FP-EFT 32M	3-Phase CDN EFT/Burst 32 A / 690 V	2490170
FP-EFT 100M2	3-Phase CDN EFT/Burst 100 A / 690 V	2495860
IP4A	Capacitive Coupling Clamp for EFT/Burst	2491300
FP-COMB 32	Automatic 3-Phase / 32A CDN Surge and EFT/Burst	2490430
FP-SURGE 100M2	3-Phase CDN Surge 100A / 690 V	2490180
PCD 121	Symmetrical Data & Control Line Coupler	2498010
PCD 126A	Asymmetrical Data & Control Line Coupler	2498030
DEC 5	Symmetrical Data & Control Line Decoupler	2490141
DEC 6	Symmetrical Data & Control Line Decoupler	2490151
DEC 7	Asymmetrical Data & Control Line Decoupler	2490161
DIP 116	Automatic Dips Transformer 16 A 40/70/80%	2490410
MSURGE-A	Magnetic Field Test IEC / EN 61000-4-9	2490441
VTM 15000	Isolation Test 1.2/50 us up to 10 kV	2499960
VTM 15000/05	Isolation Test 1.2/50 us up to 10 kV / 0.5J	2499692
PDP 8000	HV Differential Probe 1000:1 for Surge	2499911
CP 101	Current Probe Model for Surge	2499931
ES	External Emergency Stop Switch P12	4700751
WL	External Warning Lamp P12	4700750
Calibration	Accredited ISO 17025 Calibration AXOS ⁵	2490420
Surge Key Code	Key Code for Surge extension AXOS ⁵	4700814
EFT/Burst Key Code	Key Code for EFT/Burst extension AXOS ⁵	4700815
Dips Key Code	Key Code for Voltage Dips extension AXOS ⁵	4700816
Remote Control	Remote Control Software for AXOS ⁵	2490440
Report Software	Reporting Software for AXOS ⁵	4700975

AXOS⁸ EXPANDABLE TEST SYSTEM

AXOS⁸

The new AXOS⁸ expandable test system integrates all of the best features of several stand alone test systems into one single economic solution.

It can be individually combined either with 7 kV Surge Combination Wave, 7 kV Ring Wave, 7 kV Telecom Wave*, 5 kV EFT/Burst or Dips & Interrupts, along with an integrated single-phase coupling / decoupling network. This allows quick and completely automated testing to the most common IEC, EN, ANSI, ITU, IEEE and UL standards.

The AXOS⁸ can either be operated via front panel by large colour graphic interface or remotely from the PC. The easy to use menu together with the availability of predefined test routines for different standards makes testing easy and reliable, even for less frequently users. Numerous additional functions such as external start/stop function allows easy integration of the test system also in customer specific test environments.

All the test parameters can be varied in a broad range wide above the requirements of the standards. Together with the ability of changing test parameters during test, AXOS⁸ is not only the ideal product for compliance and pre-compliance testing, it is useful for monitoring & debugging function during design phase as well.

A wide range of cost-efficient and user friendly coupling / decoupling networks for power lines as well as for symmetrical and asymmetrical data- and signal lines are available as options.



AXOS⁸ front view



AXOS⁸ rear view

*external Telecom Wave Modul "TW8" required

OVERVIEW

FEATURES & BENEFITS

- Easy to operate with manual and automated test modes, software assisted test preparation, pre-defined test routines and visual aided test setups
- Economic & Efficient
Touch screen guarantees reduction of time and effort - Experience and know-how at a reasonable price
- Safe and reliable operation by using safety interlock, warning lamp and emergency stop functions
- Voltage and current monitoring of surge impulses and EUT power provides valuable feedback to the test engineer
- Automatic generation of test report, including test parameters, test setup and test result

APPLICATIONS

- Compliance & pre-compliance testing of electrical products
- CE marking
- Product development and debugging
- Compliance testing of telecom and wireless devices
- Overtesting

STANDARDS

- IEC/EN 61000-4-4 EFT / Burst
- IEC/EN 61000-4-5 Surge Edition 2 & 3 (1.2/50µs...8/20µs)
- IEC/EN 61000-4-5 Surge (10/700µs)*
- IEC/EN 61000-4-9 Magnetic Field**
- IEC/EN 61000-4-11
AC Dips and Interrupts***
- IEC/EN 61000-4-12 Ring Wave
- IEC/EN 61000-4-29
DC Dips and Interrupts
- IEC/EN 61000-6-1 Generic Residential
- IEC/EN 61000-6-2 Generic Industrial
- IEC/EN 60335-1 Household
- IEC/EN 60601-1 Medical
- IEC/EN 60950
- EN 55024
- IEEE C62.41
- ITU K.20, K.21, K.44, K.45

* in combination with external Telecom Wave Modul "TW8"

** additional antenna coil "MSURGE-A" required

*** external voltage dips transformer "DIP 116" required

TECHNICAL DATA - AXOS⁸

GENERAL DATA			
Control power	85 V - 264 V 50/60 Hz	Dimensions (W x H x D)	22" / 6U (45 x 27 x 50 cm)
User test storage	unlimited	Weight	30 kg
Remote interface	Ethernet, RJ45	USB	for USB memory stick
Display	7" / 800x480 / 24 bit with touch-screen	AUX. interface	D-sub 37p for external CDN, external trans- former etc.
External trigger input	5 VTTL	Synch input	BNC, 10 V – 264 V AC
Trigger output	5 VTTL	External start / stop input	5 VTTL, starts / stops predefined test se- quence
EUT failed input	5 VTTL	Analog output	0 – 10 V, for use with external options
Warning lamp output	2 x 24 V / 1 A DC	Safety circuit	stops the test when unlocked

IEC / EN 61000-4-4 EDITION 2 & 3 EFT / BURST			
Output voltage	0.2 – 5.0 kV $\pm 10\%$ at coaxial output	Spike frequency	1 Hz – 1 MHz
Polarity	pos / neg / alternate	Burst duration	10 μ s – 1 s
Output impedance	50 Ohms	Burst period	1 ms – 10 s
Rise time	5 ns $\pm 30\%$	Test time	1 s– 1000 minutes
Impulse duration	50 ns $\pm 30\%$ at 50 Ohm 50 ns –15 +100 ns at 1000 Ohm	Trigger	automatic, manual, external trigger input
Burst mode	normal, continuous, real, random	Integrated single phase coupling / decoupling network	264 V AC / 16 A 220 V DC / 10 A

IEC / EN 61000-4-5 EDITION 2 & UPCOMING EDITION 3 SURGE COMBINATION WAVE			
Output voltage	0.2 – 7.0 kV $\pm 10\%$	Output current	0.1 – 3.5 kA $\pm 10\%$
Voltage rise time	1.2 μ s $\pm 30\%$	Current rise time	8 μ s $\pm 20\%$
Voltage duration	50 μ s $\pm 20\%$	Current duration	20 μ s $\pm 20\%$
Polarity	pos / neg / alternate	Integrated single phase CDN	264 V AC / 16 A 220 V DC / 10 A
Output impedance	2 Ohms	Impulse trigger	automatic 2 s – 100 min manual external trigger input
Phase sync	0 – 359° with 1° steps or asynchronous mode		
Counter preselect	1 – 1000 / infinite		
Counter	100000		
Peak voltage monitor	BNC output: 1000:1 display: 3 digits	Peak current monitor	BNC output: 1 kA/V display: 3 digits

IEC / EN 61000-4-5 Telecom Wave / ITU K.20, K.21, K.44, K.45 (external TW 8 module)

Output voltage	0.2 - 7.0 kV \pm 10%	Source impedance / coupling	15 Ohm x 1 40 Ohm x 4 40 Ohm gas arresters x 4
Front time OCV	10 μ s \pm 30%	Front time SCC	5 μ s \pm 20%
Decay time OCV	700 μ s \pm 20%	Front time SCC	5 μ s \pm 20%
Polarity	Pos., neg., alt.	Weight	10 kg
Outputs	4 mm banana socket	Dimensions	19" / 4U, (45 x 18 x 49 cm)

IEC / EN 61000-4-11 EDITION 2 AND IEC / EN 61000-4-29 DIPS & INTERRUPTS

Max. voltage	264 V AC/DC	Interrupt time	0.5 period – 800 periods 100 μ s – 1000 minutes
Max. current	16 A AC/DC continuous 20 A for 5 s 23 A for 3 s 40 A for 3 s > 500 A inrush current	Interval time	1 period – 800 periods synch 100 μ s – 1000 minutes asynch
Trigger	automatic manual external trigger input	Test time	1 s – 1000 minutes infinite
Interrupt dip level	0% 0% – 99% with external voltage source	Phase sync	0 – 359° 16 / 40 / 50 / 60 Hz asynchronous mode
RMS voltage monitor	BNC output: 100:1 display: 4 digits	RMS current monitor	BNC output: 10 A/V display: 4 digits

IEC / EN 61000-4-12 EDITION 2 AND ANSI / IEEE C62.41 Ring Wave

Max. voltage	0.2 - 7.0 kV \pm 10%	Repetition rate	Up to 30 pulses / min
Frequency	100 kHz	Polarity	Positive / negative / alternate
Rise time OC	5 μ s	Floating output	Max. 460 V / AC
Rise time SC	1 μ s	Phase sync accuracy	\pm 1°
Impedance	12 Ohm, 30 Ohm	Damping rate	0.4 < peak1/peak2 < 1.1 0.4 < peak3/peak2 < 1.1 0.4 < peak4/peak3 < 1.1
Peak voltage monitor	BNC output: 1000:1 Display: 3 digits	Peak current monitor	BNC output: 1kA / V Display: 3 digits

OVERVIEW OF AXOS⁸ SERIES



AXOS⁸
Compact Test System
Article no. 2490800

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

Telecom Wave 10/700µs*
IEC/EN 61000-4-5 & ITU

Ring Wave
IEEE C62.41

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁸
Surge Test System
Article no. 2490810

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

Telecom Wave 10/700µs*
IEC/EN 61000-4-5 & ITU

Ring Wave
IEEE C62.41

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁸
Dips Test System
Article no. 2490840

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

Telecom Wave 10/700µs*
IEC/EN 61000-4-5 & ITU

Ring Wave
IEEE C62.41

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**



AXOS⁸
EFT/Burst Test System
Article no. 2490830

Surge 1.2/50µs...8/20µs
IEC/EN 61000-4-5

Telecom Wave 10/700µs*
IEC/EN 61000-4-5 & ITU

Ring Wave
IEEE C62.41

EFT/Burst
IEC/EN 61000-4-4

Voltage Dips
IEC/EN 61000-4-11*

Magnetic Field
IEC/EN 61000-4-9**

* in combination with external Telecom Wave Modul "TW8"

** external voltage dips transformer "DIP 116" required

*** additional antenna coil "MSURGE-A" required



AXOS⁸
Ring Wave Test System
 Article no. 2490820

Surge 1.2/50µs...8/20µs
 IEC/EN 61000-4-5

Telecom Wave 10/700µs*
 IEC/EN 61000-4-5 & ITU

Ring Wave
 IEEE C62.41

EFT/Burst
 IEC/EN 61000-4-4

Voltage Dips
 IEC/EN 61000-4-11*

Magnetic Field
 IEC/EN 61000-4-9**



AXOS⁸
Telecom Wave System
 Article no. 2490850

Surge 1.2/50µs...8/20µs
 IEC/EN 61000-4-5

Telecom Wave 10/700µs*
 IEC/EN 61000-4-5 & ITU

Ring Wave
 IEEE C62.41

EFT/Burst
 IEC/EN 61000-4-4

Voltage Dips
 IEC/EN 61000-4-11*

Magnetic Field
 IEC/EN 61000-4-9**

- Activated by default
- Optionally available by activation via key code

* in combination with external Telecom Wave Modul "TW8" (included in 2490850)
 ** external voltage dips transformer "DIP 116" required
 *** additional antenna coil "MSURGE-A" required

SCOPE OF SUPPLY - OPTIONS & ACCESSORIES

SCOPE OF SUPPLY

AXOS [®] Compact Immunity Test System	2490800
AXOS [®] Surge Test System	2490810
AXOS [®] EFT/Burst Test System	2490830
AXOS [®] Voltage Dips Test System	2490840
AXOS [®] Ring Wave Test System	2490820
AXOS [®] Telecom Wave Test System	2490850

Qty. 1	Immunity Test System AXOS [®]
Qty. 1	Telecom Wave Modul "TS 8" 10/700µs*
Qty. 1	Mains Cable
Qty. 1	User Manual
Qty. 1	Certificate of Calibration

OPTIONS AND ACCESSORIES

FP-EFT 32M	3-Phase CDN EFT/Burst 32 A / 690 V	2490170
FP-EFT 100M2	3-Phase CDN EFT/Burst 100 A / 690 V	2495860
IP4A	Capacitive Coupling Clamp for EFT/Burst	2491300
FP-COMB 32	Automatic 3-Phase / 32A CDN Surge and EFT/Burst	2490430
FP-SURGE 100M2	3-Phase CDN Surge 100A / 690 V	2490180
TW 8	Telecom Wave Modul 10/700µs	4700915
PCD 121	Symmetrical Data & Control Line Coupler	2498010
PCD 126A	Asymmetrical Data & Control Line Coupler	2498030
DEC 5	Symmetrical Data & Control Line Decoupler	2490141
DEC 6	Symmetrical Data & Control Line Decoupler	2490151
DEC 7	Asymmetrical Data & Control Line Decoupler	2490161
DIP 116	Automatic Dips Transformer 16 A 40/70/80%	2490410
MSURGE-A	Magnetic Field Test IEC / EN 61000-4-9	2490441
VTM 15000	Isolation Test 1.2/50 us up to 14 kV	2499960
VTM 15000/05	Isolation Test 1.2/50 us up to 14 kV / 0.5J	2499692
PDP 8000	HV Differential Probe 1000:1 for Surge	2499911
CP 101	Current Probe Model for Surge	2499931
ES	External Emergency Stop Switch P12	4700751
WL	External Warning Lamp P12	4700750

* only with AXOS[®] Telecom Wave Test System (2490850)

OPTIONS AND ACCESSORIES

Surge Key Code	Key Code for Surge extension AXOS ⁸	4700911
EFT/Burst Key Code	Key Code for EFT/Burst extension AXOS ⁸	4700912
Ring Wave Key Code	Key Code for Ring Wave extension AXOS ⁸	4700913
Dips Key Code	Key Code for Voltage Dips extension AXOS ⁸	4700914
Remote Control	Remote Control Software for AXOS ⁸	2490440
Report Software	Reporting Software for AXOS ⁸	4700975

VALUE ADDED SERVICES

- Pre- & After Sales Support
- Application Support
- Commissioning
- Warranty Extension
- Calibration (accredited & factory)
- Training and Seminars
- Rental units





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