

IMPULSE, POWER CONTACT & INDUCTION

# Surge and Telecom Testing





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optimized for electronic media



Smart navigation through technical  
specifications. Click the green links.



### Accredited Calibration

Quality at EMC PARTNER is based on an ISO 9001 management system. This is the foundation for an ISO 17025 accreditation verified by the Swiss Calibration Service (SCS). SCS No. 146 is the accreditation number of EMC PARTNER AG. Locally accredited but recognized worldwide through affiliation with the ILAC organisation



## SPECIAL SURGE & TELECOM TEST SYSTEMS MOVING WITH THE TIMES

Traditional telecom systems have been overtaken by modern high-speed digital equipment. Standard pulses based on the lightning event remain unchanged, but unique CDNs are needed to transfer impulse energy into high-speed communication systems. Exchange and household equipment solutions are complimented by specialist protection device test solutions.

- › International Telecommunications Union (ITU)
- › Reproducible impulses
- › System and component level test solutions
- › Integrated personnel safety features



## UNIQUE FEATURES

**Test solutions built from a common hardware.**

### Complete Test Solutions



Impulse generators and specialist CDNs combined with equipment for Power Contact and Power Induction test solutions.

### Standard, but also application specific



There is a high degree of hardware commonality in EMC PARTNER impulse generators.  
Adapted for specific applications.

### Wide ranging



All impulse types available. Test applications from complete systems down to protection device component level.

### Leading technology



Solid state high voltage switches deliver reproducible impulses. For more confidence in test results.

# SPECIAL REQUIREMENTS ARE STANDARD

**Long industry experience has produced many specialist generators to meet customer needs.**

## Lightning Impulse

1.2/50 µs

- › IEC 60060-1
- › IEC 61180-1
- › IEC 61180-2
- › IEC 60335-1

## CWG

1.2/50 µs, 8/20 µs

- › IEC 61000-4-5

## Telecom

10/700 µs, 5/320 µs

- › ITU-T K20
- › ITU-T K21
- › ITU-T K44
- › IEC 60950

## Ringwave

0.5/100kHz

- › IEC 61000-4-12

## Current impulse

10/350 µs

8/20 µs

10/1000 µs ITU-T K44

- › IEC 61643-11

# THE EMC PARTNER PRODUCT RANGE

Find further brochures on our website [emc-partner.com/brochures](http://emc-partner.com/brochures) or contact your local representative for a hardcopy.

## IMMUNITY TESTS

Transient Test Systems for all EMC tests on electronic equipment. ESD, EFT, surge, AC dips, AC magnetic field, surge magnetic field, common mode, damped oscillatory and DC dips. According to IEC and EN 61000-4-2, -4, -5, -8, -9, -10, -11, -12, -13, -14, -16, -18, -19, -29.



## LIGHTNING TESTS

Impulse test equipment and accessories for aircraft, military and telecom applications. Complete solutions for RTCA / DO-160 and EUROCAE / ED-14 for indirect lighting on aircraft systems, MIL-STD-461 tests CS106, CS115, CS116, CS117, CS118 and Telecom, ITU-T K.44 for impulse, power contact and power induction.



## COMPONENT TESTS

Impulse generators for testing varistors, gas discharge tubes (GDT), surge protective devices (SPDs), X / Y capacitors, circuit breakers, electricity meters, protection relays, insulation material, suppressor diodes, connectors, chokes, fuses, resistors, emc-gaskets, cables, etc.



## EMISSION MEASUREMENTS

Measurement of Harmonics and Flicker in 1-phase and 3-phase electrical and electronic products according to IEC /EN 61000-3-2 and 61000-3-3 . HARCS Immunity software adds interharmonic tests, voltage variation.



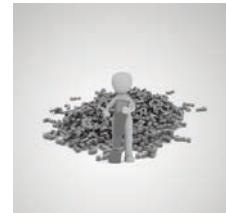
## SYSTEM AUTOMATION

A full range of accessories enhance the test systems. Test cabinets, test pistols, adapters and remote control software, simplify interfacing with the EUT. Programmable power supply unit, EMC hardened for frequencies from 16.7Hz to 400Hz. PS3-SOFT-EXT complies with IEC / EN 61000-4-14 and -4-28.



## SERVICE

Our commitment starts with a quality management system backing up our ISO 17025 accreditation. With the SCS number 146, EMC PARTNER provide accredited calibration and repairs. Our customer support team is at your service!



# Technical Specifications

## GENERATORS

Test system model	IEC61000-4-5	IEC61000-4-5	IEC61000-4-12	ANSI C62.41, .45	ITU-T Kxx	Insulation	Other
<b>Waveforms</b>	<b>1.2/50 µs, 8/20 µs</b>	<b>10/700 µs, 5/320 µs</b>	<b>0.5 µs / 100 kHz</b>				
MIG0612T-K12					K12		✓
MIG0624T-K12					K12		✓
MIG-ITU-K44					K20, 21, 44		
MIG0624TEL					K20, 21, 44		
MIG0648TEL					K20, 21, 44		
MIG1206	12.5 kV			CW	K20, 21, 44	IEC60060-1	IEC61643-1
MIG1206-1P	12.5 kV			CW	K20, 21, 44	IEC60060-1	IEC61643-1
MIG1206-1P-T	12.5 kV	6.3 kV		CW	K20, 21, 44	IEC60060-1	IEC61643-1
MIG1206-3P	12.5 kV			CW	K20, 21, 44	IEC60060-1	IEC61643-1
MIG1206-3P-63A	12.5 kV			CW	K20, 21, 44	IEC60060-1	IEC61643-1
MIG1206-3P-T	12.5 kV	6.3 kV		CW	K20, 21, 44	IEC60060-1	IEC61643-1
CTS-10350				IEC62305-4, IEC61643-11, IEC61643-21, Ericsson 1/1528-HRB 105 102/1			

**CW** – Combination Wave (hybrid surge waveform)

**RW** – Ring wave 100 kHz

## CDNs AND ACCESSORIES

Generator model	IEC61000-4-5	Insulation	Other
<b>Waveforms</b>	<b>1.2/50 µs, 8/20 µs</b>		
CDN-MIG12-32	12 kV		
CDN-MIG12-32 690 V	12 kV		
TC-ST + WARNING-LAMP		IEC60060-1	✓
TC-ST-HL + WARNING-LAMP		IEC60060-1	✓
NW-K44-PC			ITU
NW-K44-PI			ITU
PCPI-160 PCPI			ITU
CN12-500		IEC60060-1	
CN12-12-500		IEC60060-1	

**CW** – Combination Wave (hybrid surge waveform)

**RW** – Ring wave 100 kHz

# GENERATORS

## MIG0612T-K12

### MIG0612T-K12 circuit: 8/20 µs, 12 kA

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	2 x 435 joules
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 0.25 kA – 6 kA ± 10 %, max. 12 kA
<b>Current waveform</b>	8 µs ± 10 % / 20 µs ± 10 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current



### MIG0612T-K12 circuit: 10/350 µs (<40/350 µs), 4.4 kA for GDT only

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	2 x 435 joules
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 0.1 kA – 2.2 kA ± 10 %, max. 4.4 kA
<b>Current waveform</b>	rise time: < 50 µs, 0 – 100 %
<b>Current waveform</b>	half time: 350 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive only
<b>Programmable ramp</b>	current

### MIG0612T-K12 circuit: 10/1000 µs (low range), 120 A

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	2 x 435 joules
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 3 A – 60 A ± 10 %, max. 120 A
<b>Current waveform</b>	rise time: 10 µs, 10 – 90 % x 1.25 ± 20 %
<b>Current waveform</b>	half time: 1000 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative
<b>Programmable ramp</b>	Current

### **MIG0612T-K12 circuit: 10/1000 µs (100/1000 µs, high range), 2 kA**

<b>Standard</b>	ITU-T K12
<b>Impulse capacitance</b>	2 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	2 x 435 joules
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 40 A – 1 kA ± 10 %, max. 2 kA
<b>Current waveform</b>	rise time: 100 µs, 10 – 90 % x 1.25 ± 20 %
<b>Current waveform</b>	half time: 1000 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive only
<b>Programmable ramp</b>	Current

### **MIG0612T-K12 control features**

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Pulse voltage monitor BNC</b>	10 V = 6 kV, accuracy ± 3%
<b>Pulse current monitor BNC</b>	10 V = up to 20 kA, accuracy ± 3%
<b>Pulse voltage on display</b>	0.25 – 6.6 kV, accuracy ± 3%
<b>Pulse current on display</b>	0.1 – 11 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG0612T-K12 supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	56 kg
<b>W x d x h</b>	45 x 57 x 61 cm
<b>Version</b>	19" unit, 12 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

## MIG0612T-K12 optional accessories

<b>Test cabinet</b>	TC-ST, WARNING-LAMP
<b>Software</b>	TEMA: sequence, report, for latest Windows



## MIG0624T-K12

### MIG0624T-K12 circuit: 8/20 µs, 24 kA

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 18 µF ± 10 %
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 0.5 kA – 12 kA ± 10 %, -10 %, max. 24 kA
<b>Current waveform</b>	8 µs ± 10 % / 20 µs ± 10 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current

### MIG0624T-K12 circuit: 10/350 µs (<40/350 µs), 8.8 kA for GDT only

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 18 µF ± 10 %
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 0.2 kA – 4.4 kA ± 10 %, max. 8.8 kA
<b>Current waveform</b>	rise time: < 50 µs, 0 – 100 %
<b>Current waveform</b>	half time: 350 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive only
<b>Programmable ramp</b>	current

### MIG0624T-K12 circuit: 10/1000 µs (low range), 240 A

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 18 µF ± 10 %
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 5 A – 120 A ± 10 %, max. 240 A
<b>Current waveform</b>	rise time: < 50 µs, 0 – 100 %
<b>Current waveform</b>	half time: 1000 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative
<b>Programmable ramp</b>	current

### MIG0624T-K12 circuit: 10/1000 µs (100/1000 µs, high range), 4 kA

<b>Standard</b>	ITU-T K.12
<b>Impulse capacitance</b>	2 x 18 µF ± 10 %

<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 80 A – 2 kA ± 10 %, max. 4 kA
<b>Current waveform</b>	rise time: < 100 µs, 10 – 90 %
<b>Current waveform</b>	half time: 1000 µs ± 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive only
<b>Programmable ramp</b>	current

### MIG0624T-K12 control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Pulse voltage monitor BNC</b>	10 V = 6 kV, accuracy ± 3%
<b>Pulse current monitor BNC</b>	10 V = up to 20 kA, accuracy ± 3%
<b>Pulse voltage on display</b>	0.25 – 6.6 kV, accuracy ± 3%
<b>Pulse current on display</b>	0.1 – 20 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### MIG0624T-K12 supply, weight, dimensions, climatic conditions

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	71 kg
<b>W x d x h</b>	45 x 57 x 61 cm
<b>Version</b>	19" unit, 12 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

## MIG0624T-K12 optional accessories

<b>Test cabinet</b>	TC-ST, WARNING-LAMP
<b>Software</b>	TEMA: sequence, report, for latest Windows

## MIG-ITU-K44

### MIG-ITU-K44 circuit:

<b>Application</b>	power induction test at line freq. 50 and 60 Hz
<b>Standards</b>	ITU-T K.20, K.21, K.44
<b>Power input</b>	230 V, 16 A (fused), 50/60 Hz
<b>Voltage output</b>	50 – 1700 V (manually adjustable)
<b>Voltage setting</b>	10 V step
<b>Output impedance</b>	0 Ω, fuse protected (16 A) 2 x 200 Ω, overheat protected 2 x 600 Ω, overheat protected
<b>Output power</b>	3.5 kVA continuous, 7 kVA for 2 s
<b>Specific energy</b>	10 A <sup>2</sup> s, with 200 Ω resistors 1 A <sup>2</sup> s, with 600 Ω resistors 0.2 A <sup>2</sup> s, achieved by reducing test time
<b>Test frequencies</b>	50 Hz and 60 Hz
<b>Time setting</b>	0.1 – 9.9 s
<b>Voltage meas./displayed</b>	1 – 1999 V ± 3 %
<b>Current meas./displayed</b>	0 – 19.9 A ± 3 %
<b>Current waveform at BNC</b>	10 V = 20 A ± 3 %



### MIG-ITU-K44 supply, weight, dimensions, climatic conditions

<b>Operating voltage</b>	power input utilized for supply
<b>Power consumption</b>	ON < 400 VA, standby < 50 VA
<b>Weight</b>	181 kg
<b>W x d x h</b>	60 x 65 x 123 cm
<b>Version</b>	19" rack, 18 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

## Overview power induction tests and mains power contact tests

	Power induction tests			Mains power contact tests		
	600V 200Ω	600V 600Ω	1500V 200Ω	230V 10, 20, 40Ω	230V 80Ω, 160Ω	230V 300, 600, 1000Ω
	✓	✓	✓			
MIG-ITU-K44				✓	✓	✓
NW-K44-PC						
NW-K44-PI	✓	✓				
PCPI160E				✓	✓	

1: VAR-EXT1000 plus IMU can be used up to 23 A continuous

2: ITU basic and enhanced levels are differentiated by test time and accept. criteria A, B

3: NW-K44-PC and NW-K44-PI require IMU and VAR-EXT1000 as source

4: NW-K44-PI requires NW-K44-PC, IMU and VAR-EXT1000 as source

## MIG0624TEL

### MIG0624TEL circuit: 8/20 µs, 4 x 6 kA (4 lines output)

<b>Standard</b>	ITU-T K.20, K.21 (ITU-T K.44 lightning gen.)
<b>Impulse capacitance</b>	4 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	1500 joules
<b>Source impedance</b>	1 Ω / line
<b>Adjust. current (&lt;0.02 Ω)</b>	(4 x) 0.25 kA – 6 kA + 10 % -5 %
<b>Current waveform</b>	8 µs ± 20 % / 20 µs ± 20 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Voltage waveform OC</b>	<1 µs / 90 µs (approximately)



### MIG0624TEL circuit: 8/20 µs, 24 kA (1 line output)

<b>Standard</b>	ITU-T K.20, K.21 (ITU-T K.44 lightning gen.)
<b>Impulse capacitance</b>	4 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	1500 joules
<b>Source impedance</b>	4 x 1 Ω in parallel: 0.25 Ω
<b>Adjust. current (&lt;0.02 Ω)</b>	1 kA – 24 kA + 10 % -5 %
<b>Current waveform</b>	8 µs ± 20 % / 20 µs ± 20 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	Current
<b>Voltage waveform OC</b>	<1 µs / 90 µs (approximately)

### **MIG0624TEL control features**

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Pulse voltage monitor BNC</b>	10 V = 6 kV, accuracy ± 3%
<b>Pulse current monitor BNC</b>	10 V = up to 20 kA, accuracy ± 3%
<b>Pulse voltage on display</b>	0.25 – 6.6 kV, accuracy ± 3%
<b>Pulse current on display</b>	1 – 25 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG0624TEL supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	60 kg
<b>W x d x h</b>	45 x 60 x 46 cm
<b>Version</b>	19" unit, 8 UH, plus connection box
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>4 x connection cables 1m</b>	waveform guaranteed at cables output
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### **MIG0624TEL optional accessories**

<b>Software</b>	TEMA: sequence, report, for latest Windows
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## MIG064TEL

### MIG064TEL circuit: 8/20 µs, 8 x 6 kA (8 lines output)

<b>Standards</b>	ITU-T K.20, K.21 (ITU-T K.44 lightning gen.)
<b>Impulse capacitance</b>	8 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	3000 joules
<b>Source impedance</b>	1 Ω / line
<b>Adjust. current (&lt;0.02 Ω)</b>	(8 x) 0.25 kA – 6 kA + 10 % -5 %
<b>Current waveform</b>	8 µs ± 20 % / 20 µs ± 20 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Voltage waveform OC</b>	<1 µs / 90 µs (approximately)



### MIG064TEL circuit: 8/20 µs, 48 kA (1 line output)

<b>Standards</b>	ITU-T K.20, K.21 (ITU-T K.44 lightning gen.)
<b>Impulse capacitance</b>	8 x 20 µF ± 10 %
<b>Energy at max. voltage</b>	3000 joules
<b>Source impedance</b>	8 x 1 Ω in parallel: 0.125 Ω
<b>Adjust. current (&lt;0.02 Ω)</b>	1 kA – 48 kA + 10 % -5 %
<b>Current waveform</b>	8 µs ± 20 % / 20 µs ± 20 %
<b>Reversal current</b>	< 20 %
<b>Pulse repetition</b>	starting 1 pulse / 30 s
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Voltage waveform OC</b>	<1 µs / 90 µs (approximately)

### MIG064TEL control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Pulse voltage monitor BNC</b>	10 V = 6 kV, accuracy ± 3%
<b>Pulse current monitor BNC</b>	10 V = up to 48 kA, accuracy ± 3%
<b>Pulse voltage on display</b>	0.25 – 6.6 kV, accuracy ± 3%
<b>Pulse current on display</b>	1 – 48 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG0648TEL supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA

<b>Weight</b>	130 kg
<b>W x d x h</b>	61 x 68 x 123 cm
<b>Version</b>	19" rack, 18 UH, plus connection box

<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa

#### **Included articles**

<b>Power cord</b>	with country plug
<b>8 x connection cables 1m</b>	waveform guaranteed at cables output
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### **MIG0648TEL optional accessories**

<b>Test cabinet</b>	TC-ST, WARNING-LAMP
<b>Test cabinet heavy load</b>	TC-ST-HL, WARNING-LAMP
<b>Software</b>	TEMA: sequence, report, for latest Windows

## MIG1206

### MIG1206 circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 $\mu\text{F} \pm 10\%$
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 $\Omega \pm 10\%$
<b>Adjustable voltage OC</b>	1 kV – 12.5 kV $\pm 10\%$
<b>Voltage waveform</b>	1.2 $\mu\text{s} \pm 30\%$ / 50 $\mu\text{s} \pm 20\%$
<b>Current SC</b>	0.5 kA – 6.25 kA $\pm 10\%$
<b>Current waveform</b>	8 $\mu\text{s} \pm 20\%$ / 20 $\mu\text{s} \pm 20\%$
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206 control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy $\pm 3\%$
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy $\pm 3\%$
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy $\pm 3\%$
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy $\pm 3\%$
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG1206 supply, weight, dimensions, climatic conditions**

**Operating voltage** 115 / 230 V (50/60 Hz) ± 10%

**Power consumption** ON < 400 VA, standby < 10 VA

**Weight** 37 kg

**W x d x h** 45 x 57 x 25 cm

**Version** 19" unit, 4 UH +

**Temperature range** 10 – 35 °C

**Humidity** < 80 % non-condensing

**Air pressure** 86 – 106 kPa

#### **Included articles**

**Power cord** with country plug

**User manual** with conformity declaration

**Calibration certificate** factory calibration

### **MIG1206 optional accessories**

**Test cabinet** TC-ST, WARNING-LAMP

**CDN for power lines** CDN-MIG12-32 (manual, 3 phase)

**Matching networks** CN12-12-500, CN12-500 (insulation test)

**Software** TEMA: sequence, report, for latest Windows

## MIG1206-1P

### MIG1206-1P circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 $\mu$ F $\pm$ 10 %
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 $\Omega$ $\pm$ 10 %
<b>Adjustable voltage OC</b>	0.4 kV – 12.5 kV $\pm$ 10 %
<b>Calibrated level</b>	1 kV – 12 kV
<b>Voltage waveform</b>	1.2 $\mu$ s $\pm$ 30 % / 50 $\mu$ s $\pm$ 20 %
<b>Current SC</b>	0.5 kA – 6.25 kA $\pm$ 10 %
<b>Current waveform</b>	8 $\mu$ s $\pm$ 20 % / 20 $\mu$ s $\pm$ 20 %
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206-1P built-in automatic CDN

<b>Test level surge</b>	12 kV
<b>EUT power input</b>	AC 480V L-N, 480 V L/N-PE, 32A DC 110 V, 25A (not fused)
<b>EUT overcurrent protection</b>	CDN input fused 32 A AC
<b>Internal CDN freq. range</b>	DC, 50 Hz, 60 Hz
<b>Coupling surge IEC</b>	2 $\Omega$ : L-N, direct out, 12 $\Omega$ : L-PE, N-PE
<b>Coupling surge ANSI</b>	2 $\Omega$ : L-N, L-PE, N-PE, L+N-PE 12 $\Omega$ : L-N, L-PE, N-PE
<b>Decoupling</b>	as in IEC61000-4-5

### MIG1206-1P control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy $\pm$ 3%
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy $\pm$ 3%
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy $\pm$ 3%
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy $\pm$ 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

Generators | CDNS & Accessories

### **MIG1206-1P supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	67 kg
<b>W x d x h</b>	45 x 60 x 37 cm
<b>Version</b>	19" unit, 8 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>Supply connection</b>	3 cables x 2 m, banana plugs
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### **MIG1206-1P optional accessories**

<b>Test cabinet</b>	TC-ST-HL, WARNING-LAMP
<b>CDNs for I/O lines (surge 1.2/50 µs)</b>	CDN-KIT1000 ED3, CDN-DATA-4L, CDN-DATA-8L (all CDNs up to 6 kV)
<b>CDNs for I/O lines (surge 1.2/50 µs)</b>	CDN UTP ED3, CDN UTP8 ED3 (all CDNs up to 6 kV) 1.2/50 µs
<b>Software</b>	TEMA: sequence, report, for latest Windows

## MIG1206-1P-T

### MIG1206-1P-T circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 µF ± 10 %
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 Ω ± 10 %
<b>Adjustable voltage OC</b>	0.4 kV – 12.5 kV ± 10 %
<b>Calibrated level</b>	1 kV – 12 kV
<b>Voltage waveform</b>	1.2 µs ± 30 % / 50 µs ± 20 %
<b>Current SC</b>	0.5 kA – 6.25 kA ± 10 %
<b>Current waveform</b>	8 µs ± 20 % / 20 µs ± 20 %
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206-1P-T circuit: Telecom surge

<b>Standards</b>	IEC61000-4-5, ITU-T K.44
<b>Impulse capacitance</b>	20 µF ± 10 %
<b>Energy at max. voltage</b>	440 joules
<b>Output impedance</b>	15 Ω or 40 Ω ± 10 %, selectable
<b>Voltage OC</b>	0.25 kV – 6.3 kV ± 10 %
<b>Calibrated level</b>	0.5 kV – 6 kV
<b>Voltage waveform OC</b>	10 µs ± 30 % / 700 µs ± 20 %
<b>Current SC into 40 Ω</b>	6.25 A – 157.5 A ± 10 %
<b>Current waveform SC</b>	5 µs ± 20 % / 320 µs ± 20 %
<b>Pulse repetition</b>	up to 1 / 4 s @ 0.5 kV, 1 / 9 s @ 6.1 kV
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramps</b>	voltage

### MIG1206-1P-T built-in automatic CDN

<b>Test level surge</b>	12 kV
<b>EUT power input</b>	AC 480V L-N, 480 V L/N-PE, 32A DC 110 V, 25A (not fused)
<b>EUT overcurrent protection</b>	CDN automatic input fuse 32 A AC
<b>Internal CDN freq. range</b>	DC, 50 Hz, 60 Hz
<b>Coupling surge IEC</b>	2 Ω: L-N, direct out, 12 Ω: L-PE, N-PE
<b>Coupling surge ANSI</b>	2 Ω: L-N, L-PE, N-PE 12 Ω: L-N, L-PE, N-PE, L+N-PE
<b>Decoupling</b>	as in IEC61000-4-5
<b>Coupling telecom surge</b>	not applicable to supply lines, see I/O CDNs

### **MIG1206-1P-T control features**

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy ± 3%
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy ± 3%
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy ± 3%
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG1206-1P-T supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	83 kg
<b>W x d x h</b>	45 x 60 x 55 cm
<b>Version</b>	19" unit, 12 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>Supply connection</b>	3 cables x 2 m, banana plugs
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### **MIG1206-1P-T optional accessories**

<b>Test cabinet</b>	TC-ST-HL, WARNING-LAMP
<b>CDNs for I/O lines (surge 1.2/50 µs)</b>	CDN-KIT1000 ED3, CDN-DATA-4L, CDN-DATA-8L (all CDNs up to 6 kV)
<b>CDNs for I/O lines (surge 1.2/50 µs and 10/700 µs)</b>	CDN UTP ED3, CDN UTP8 ED3 (all CDNs up to 6 kV) 1.2/50 µs and 5kV 10/700 µs
<b>Software</b>	TEMA: sequence, report, for latest Windows

## MIG1206-3P

### MIG1206-3P circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 $\mu$ F $\pm$ 10 %
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 $\Omega$ $\pm$ 10 %
<b>Adjustable voltage OC</b>	1 kV – 12.5 kV $\pm$ 10 %
<b>Calibrated level</b>	1 kV – 12 kV
<b>Voltage waveform</b>	1.2 $\mu$ s $\pm$ 30 % / 50 $\mu$ s $\pm$ 20 %
<b>Current SC</b>	0.5 kA – 6.25 kA $\pm$ 10 %
<b>Current waveform</b>	8 $\mu$ s $\pm$ 20 % / 20 $\mu$ s $\pm$ 20 %
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206-3P built-in automatic 3 phase CDN

<b>Test level surge</b>	12 kV
<b>EUT power input 3</b>	AC 3 x 480V L-L, L-N/PE, 3 x 32 A DC 110 V, 25A per phase (not fused)
<b>EUT overcurrent protection</b>	CDN automatic input fuse 3 x 32 A AC
<b>Internal CDN freq. range</b>	DC, 50 Hz, 60 Hz
<b>Coupling surge IEC</b>	2 $\Omega$ : Lx-Ly, Lx-N, direct out, 12 $\Omega$ : Lx-PE, N-PE
<b>Coupling surge ANSI</b>	2 $\Omega$ : Lx-N, Lx-PE, N-PE 12 $\Omega$ : Lx-N, Lx-PE, N-PE
<b>Decoupling</b>	as in IEC61000-4-5

### **MIG1206-3P control features**

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy ± 3%
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy ± 3%
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy ± 3%
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG1206-3P supply, weight, dimensions, climatic conditions**

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	180 kg
<b>W x d x h</b>	60 x 65 x 123 cm
<b>Version</b>	19" rack, 18 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>Supply connection</b>	5 cables x 2 m, banana plugs
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### **MIG1206-3P optional accessories**

<b>Test cabinet</b>	TC-ST-HL, WARNING-LAMP
<b>Software</b>	TEMA: sequence, report, for latest Windows

## MIG1206-3P-63A

### MIG1206-3P-63A circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 $\mu$ F $\pm$ 10 %
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 $\Omega$ $\pm$ 10 %
<b>Adjustable voltage OC</b>	1 kV – 12.5 kV $\pm$ 10 %
<b>Calibrated level</b>	1 kV – 12 kV
<b>Voltage waveform</b>	1.2 $\mu$ s $\pm$ 30 % / 50 $\mu$ s $\pm$ 20 %
<b>Current SC</b>	0.5 kA – 6.25 kA $\pm$ 10 %
<b>Current waveform</b>	8 $\mu$ s $\pm$ 20 % / 20 $\mu$ s $\pm$ 20 %
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206-3P-63A built-in automatic 3 phase CDN

<b>Test level surge</b>	12 kV
<b>EUT power input 3</b>	AC 3 x 480V L-L, L-N/PE, 3 x 63 A DC 110 V, 25A per phase (not fused)
<b>EUT overcurrent protection</b>	CDN automatic input fuse 3 x 63 A AC
<b>Internal CDN freq. range</b>	DC, 50 Hz, 60 Hz
<b>Coupling surge IEC</b>	2 $\Omega$ : Lx-Ly, Lx-N, direct out, 12 $\Omega$ : Lx-PE, N-PE
<b>Coupling surge ANSI</b>	2 $\Omega$ : Lx-N, Lx-PE, N-PE 12 $\Omega$ : Lx-N, Lx-PE, N-PE
<b>Decoupling</b>	as in IEC61000-4-5

### MIG1206-3P-63A control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy $\pm$ 3%
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy $\pm$ 3%
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy $\pm$ 3%
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy $\pm$ 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### **MIG1206-3P-63A supply, weight, dimensions, climatic conditions**

**Operating voltage** 115 / 230 V (50/60 Hz) ± 10%

**Power consumption** ON < 400 VA, standby < 10 VA

**Weight** 220 kg

**W x d x h** 60 x 65 x 123 m

**Version** 19" rack, 18 UH

**Temperature range** 10 – 35 °C

**Humidity** < 80 % non-condensing

**Air pressure** 86 – 106 kPa

#### **Included articles**

**Power cord** with country plug

**Supply connection** 5 cables x 2 m, banana plugs

**User manual** with conformity declaration

**Calibration certificate** factory calibration

### **MIG1206-3P-63A optional accessories**

**Test cabinet** TC-ST-HL, WARNING-LAMP

**Software** TEMA: sequence, report, for latest Windows

## MIG1206-3P-T

### MIG1206-3P circuit: CWG / Surge 12.5 kV

<b>Standards</b>	IEC61000-4-5, ANSI C62.41, C62.45, IEC60060-1, ITU-T K.20, 21, 44, IEC61643-1 Part 1/Class III
<b>Impulse capacitance</b>	10 $\mu\text{F} \pm 10\%$
<b>Energy at max. voltage</b>	750 joules
<b>Output impedance</b>	2 $\Omega \pm 10\%$
<b>Adjustable voltage OC</b>	1 kV – 12.5 kV $\pm 10\%$
<b>Calibrated level</b>	1 kV – 12 kV
<b>Voltage waveform</b>	1.2 $\mu\text{s} \pm 30\%$ / 50 $\mu\text{s} \pm 20\%$
<b>Current SC</b>	0.5 kA – 6.25 kA $\pm 10\%$
<b>Current waveform</b>	8 $\mu\text{s} \pm 20\%$ / 20 $\mu\text{s} \pm 20\%$
<b>Undershoot</b>	< 30 %
<b>Pulse repetition</b>	up to 1 / 5 s @ 1 kV, 1 / 30 s @ 12 kV
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	0 – 360°, step 1°
<b>Programmable ramps</b>	voltage, synchronisation angle



### MIG1206-3P-T circuit: Telecom surge

<b>Standards</b>	IEC61000-4-5, ITU-T K.44
<b>Impulse capacitance</b>	20 $\mu\text{F} \pm 10\%$
<b>Energy at max. voltage</b>	440 joules
<b>Output impedance</b>	15 $\Omega$ or 40 $\Omega \pm 10\%$ , selectable
<b>Voltage OC</b>	0.25 kV – 6.3 kV $\pm 10\%$
<b>Calibrated level</b>	0.5 kV – 6 kV
<b>Voltage waveform OC</b>	10 $\mu\text{s} \pm 30\%$ / 700 $\mu\text{s} \pm 20\%$
<b>Current SC into 40 <math>\Omega</math></b>	6.25 A – 157.5 A $\pm 10\%$
<b>Current waveform SC</b>	5 $\mu\text{s} \pm 20\%$ / 320 $\mu\text{s} \pm 20\%$
<b>Pulse repetition</b>	up to 1 / 4 s @ 0.5 kV, 1 / 9 s @ 6.1 kV
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramps</b>	Voltage

### MIG1206-3P-T built-in automatic 3 phase CDN

<b>Test level surge</b>	12 kV
<b>EUT power input 3</b>	AC 3 x 480V L-L, L-N/PE, 3 x 32 A DC 110 V, 25A per phase (not fused)
<b>EUT overcurrent protection</b>	CDN automatic input fuse 3 x 32 A AC
<b>Internal CDN freq. range</b>	DC, 50 Hz, 60 Hz
<b>Coupling surge IEC</b>	2 $\Omega$ : Lx-Ly, Lx-N, direct out, 12 $\Omega$ : Lx-PE, N-PE
<b>Coupling surge ANSI</b>	2 $\Omega$ : Lx-N, Lx-PE, N-PE 12 $\Omega$ : Lx-N, Lx-PE, N-PE
<b>Decoupling</b>	as in IEC61000-4-5
<b>Coupling telecom surge</b>	not applicable to supply lines, see I/O CDNs

Generators | CDNs & Accessories

### MIG1206-3P-T control features

<b>User interface</b>	LCD and keypad, efficient menu structure
<b>Communication interface</b>	RS232 with (optional) adapter to USB
<b>Surge voltage monitor BNC</b>	10 V = 12 kV, accuracy ± 3%
<b>Surge current monitor BNC</b>	10 V = 6 kA, accuracy ± 3%
<b>Surge voltage on display</b>	0.5 – 13.2 kV, accuracy ± 3%
<b>Surge current on display</b>	0.25 – 6.6 kA, accuracy ± 3%
<b>Trigger out</b>	BNC, max. 12 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT power, direct out
<b>Power synchro. on/off</b>	0 – 360°, 1° step
<b>Impulse counter</b>	programmable up to 29'999
<b>Emergency stop</b>	Emergency Stop button, BNC input (EUT Fail)
<b>Internal memory</b>	up to 15 tests can be saved and recalled

### MIG1206-3P-T supply, weight, dimensions, climatic conditions

<b>Operating voltage</b>	115 / 230 V (50/60 Hz) ± 10%
<b>Power consumption</b>	ON < 400 VA, standby < 10 VA
<b>Weight</b>	187 kg
<b>W x d x h</b>	60 x 65 x 123 cm
<b>Version</b>	19" rack, 18 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>Supply connection</b>	5 cables x 2 m, banana plugs
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### MIG1206-3P-T optional accessories

<b>Test cabinet</b>	TC-ST-HL, WARNING-LAMP
<b>CDNs for I/O lines (surge 1.2/50 µs)</b>	CDN-KIT1000 ED3, CDN-DATA-4L, CDN-DATA-8L (all CDNs up to 6 kV)
<b>CDNs for I/O lines (surge 1.2/50 µs and 10/700 µs)</b>	CDN UTP ED3, CDN UTP8 ED3 (all CDNs up to 6 kV) 1.2/50 µs and 5kV 10/700 µs
<b>Software</b>	TEMA: sequence, report, for latest Windows

## CTS-10350

### CTS-10350 circuit: current 10/350 µs, 6 kA

<b>Standards</b>	IEC62305-4, IEC61643-11, IEC61643-21, Ericsson 1/1528-HRB 105 102/1
<b>Impulse capacitance</b>	2 x 200 µF ± 10 %
<b>Energy at max. voltage</b>	2 x 3600 joules
<b>Adjustable current (&lt;0.1 Ω)</b>	(2 x) 0.1 kA – 2.7 kA ± 10 %, max. 5.4 kA
<b>Calibrated level</b>	0.1 – 2.5 kA / circuit, 0.2 kA– 5 kA for 2 circuits
<b>Current waveform</b>	rise time: 8 µs ± 10 % ( 10 – 90 % )
<b>Current waveform</b>	half time: 350 µs ± 10 %
<b>Output impedance</b>	1 Ω / circuit, 0.5 Ω / 2 parallel circuits
<b>Pulse repetition</b>	1 pulse / 12 s @ 0.5 kA, 1 pulse / 60 s @ 2.7 kA
<b>Polarity</b>	positive, negative
<b>Programmable ramp</b>	current



### CTS-10350 control features

<b>Operating system</b>	EPOS proprietary firmware
<b>Languages</b>	8 menu languages, selectable
<b>User interface</b>	7" capacitive touch display
<b>Connectivity</b>	gigabit ethernet, USB, RS485
<b>Synchronization on signals</b>	40 – 800 Hz
<b>Synchronization source</b>	external, 50 – 280 V
<b>Synchronization angle</b>	0 – 359° ± 5°, 1° step
<b>Impulse polarity</b>	positive, negative, electronic switching
<b>Automatic ramp</b>	test level
<b>Trigger out</b>	BNC, max. 6 V
<b>Programmable connectors</b>	6 BNC connectors (inputs/outputs) as follows
<b>Programmable input functions</b>	Trigger input, Start Test, Stop Test, EUT Fail, EUT Mark, Emergency Stop
<b>Programmable input max. voltage</b>	low range: 0 – 1.5 V, high range: 2.3 – 24 V
<b>Programmable output functions</b>	Running State, Safety Circuit State
<b>Programmable output max. U, I</b>	max. 24 V, max. 300 mA
<b>Safety features (standard)</b>	Emergency stop button on front panel red/yellow as per IEC 60947-5-5, IEC 60204-1, ISO 13850 Safety circuit
<b>Safety accessories (optional)</b>	WARNING LAMP (24 V, max. 2.4 W), TC-ST test cabinet Remote EMERGENCY STOP button

### **CTS-10350 weight, dimensions, climatic conditions**

**Operating voltage** 100 – 240 V (50/60 Hz) ± 10%

**Power consumption** ON < 450 VA, standby < 15 VA

**Weight** 146 kg

**W x d x h** 60 x 650 x 124 cm

**Version** 19" unit, 18 UH

**Temperature range** 10 – 35 °C

**Humidity** < 80 % non-condensing

**Air pressure** 86 – 106 kPa

### **Included articles**

**Power cord** with country plug

**User manual** with conformity declaration

**Calibration certificate** factory calibration

### **CTS-10350 optional accessories**

**Test cabinet** TC-ST, WARNING-LAMP

**Software** TEMA3000: sequence, report, for Windows10

# COUPLING / DECOUPLING NETWORKS

## COUPLING/DECOUPLING NETWORKS FOR POWER LINES

### CDN-MIG12-32

<b>Standard</b>	IEC61000-4-5 latest edition
<b>Type</b>	3P, manual
<b>EUT voltage AC</b>	max. 3 x 480 V L-L (280 V L-N), 50 / 60 Hz
<b>EUT current AC</b>	max. 3 x 32 A
<b>EUT protection AC</b>	over-current automatic prot., < 1 s @ 125 A
<b>EUT power DC</b>	max. 300 V, 60 A (ask for details)
<b>Test level surge</b>	max. 12 kV, all IEC coupling paths
<b>Coupling paths</b>	L1-L2, L1-L3, L2-L3, L1-N, L2-N, L3-N, L1-PE, L2-PE, L3-PE, N-PE
<b>Coupling and decoupling</b>	full compliant to latest editions
<b>Dimensions</b>	19 " unit, 4 UH
<b>Weight</b>	48 kg
<b>Generators</b>	MIG1206



### CDN-MIG12-32 690 V

<b>Standard</b>	IEC61000-4-5 latest edition
<b>Type</b>	3P, manual
<b>EUT voltage AC</b>	max. 3 x 690 V L-L (400 V L-N), 50 / 60 Hz
<b>EUT current AC</b>	max. 3 x 32 A
<b>EUT protection AC</b>	over-current automatic prot., < 1 s @ 125 A
<b>EUT power DC</b>	max. 300 V, 60 A (ask for details)
<b>Test level surge</b>	max. 12 kV, all IEC coupling paths
<b>Coupling paths</b>	L1-L2, L1-L3, L2-L3, L1-N, L2-N, L3-N, L1-PE, L2-PE, L3-PE, N-PE
<b>Coupling and decoupling</b>	full compliant to latest editions
<b>Dimensions</b>	19 " unit, 4 UH
<b>Weight</b>	48 kg
<b>Generators</b>	MIG1206



# ACCESSORIES

## ACCESSORIES AS PER ITU-T K.xx LATEST EDITION

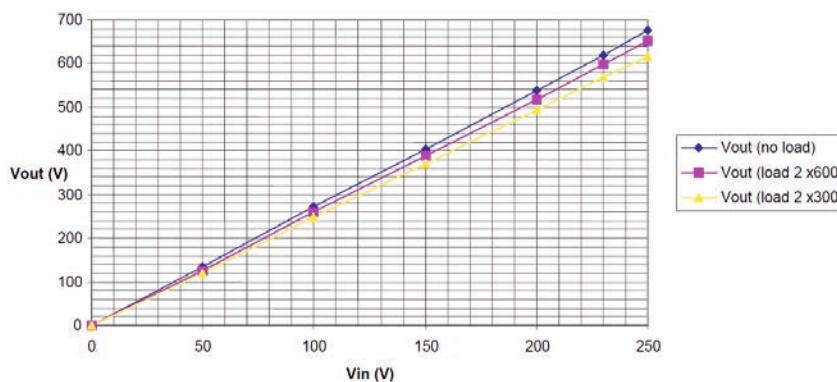
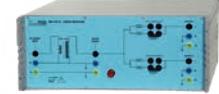
### NW-K44-PC

<b>Application</b>	mains power contact network with limiting resistors for power contact tests
<b>Standard</b>	ITU-T K.44
<b>Max. voltage</b>	230 V, limited by variac
<b>Max. current</b>	16 A, limited by IMU and variac
<b>Built-in limiting resistors</b>	2 x 300 Ω, 2 x 600 Ω, 2 x 1000 Ω, 2 x 1200 Ω
<b>External limiting resistors</b>	use direct output
<b>Power input</b>	from public mains via variac and IMU
<b>Dimensions</b>	19" unit, 4 UH
<b>Weight</b>	13 kg
<b>Generator required</b>	IMU with D module and VAR-EXT1000



### NW-K44-PI

<b>Application</b>	option to NW-K44-PC for power induction tests
<b>Standard</b>	ITU-T K.44
<b>Transformer</b>	built-in transformer
<b>Max. output voltage</b>	< 600 V in all cases, see below characteristic
<b>Built-in limiting resistors</b>	2 x 200 Ω, 2 x 600 Ω
<b>External limiting resistors</b>	use direct output
<b>Power input</b>	from public mains via variac and IMU
<b>Dimensions</b>	19" unit, 4 UH
<b>Weight</b>	31 kg
<b>Requires</b>	IMU with D module, VAR-EXT1000, <a href="#">NW-K44-PC</a>



### PCPI160E

<b>Application</b>	resistor sets for power contact sets
<b>Standard</b>	ITU-T K.xx
<b>Basic resistor</b>	160 Ω ± 2 %
<b>Max. power dissipation</b>	500 W / 250 V
<b>Selectable resistors with one unit parallel connection</b>	ask for details
<b>Selectable resistors with two units serial connection</b>	ask for details
<b>Selectable resistors with one unit serial connection</b>	160, 320, 480, 640 Ω
<b>Delivery</b>	two resistor units
<b>For testing simultaneously 2 telecom lines</b>	four resistor units required (2xPCPI160E)
<b>Dimensions</b>	unit: 66 x 51 x 26 cm (x 2 units)
<b>Weight</b>	unit: 25 kg (x 2 units)
<b>Requires</b>	IMU with D module, VAR-EXT1000, NW-K44-PC



### ACCESSORIES AS PER IEC60060-1 LATEST EDITION

#### CN12-500

<b>Application</b>	insulation test matching network
<b>Standard</b>	IEC60060-1
<b>Output impedance</b>	500 Ω
<b>Test level</b>	max. 12 kV
<b>Output connectors</b>	AMP
<b>Dimensions</b>	24 x 10 x 8.5 cm
<b>Weight</b>	1.5 kg
<b>Generators</b>	MIG1206
<b>Accessories</b>	CN-MIG18 AMP



#### CN12-12-500

<b>Application</b>	insulation test matching network
<b>Standard</b>	IEC60060-1
<b>Output impedance</b>	12 Ω, 500 Ω
<b>Test level</b>	max. 12 kV
<b>Output connectors</b>	AMP
<b>Dimensions</b>	24 x 10 x 8.5 cm
<b>Weight</b>	2 kg
<b>Generators</b>	MIG1206
<b>Accessories</b>	ask for details on connection cables



### **TC-ST**

<b>Standard</b>	multiple
<b>Application</b>	test cabinet with safety circuit
<b>EUT volume</b>	20 x 20 x 30 cm
<b>Warning lamps</b>	red and green (2 lamps)
<b>Test cabinet material</b>	acrylic glass, cover position adjustable
<b>Insulation withstand</b>	pulse 1.2/50 µs up to 36 kV
<b>Weight</b>	8.5 kg
<b>Dimensions</b>	43.5 x 47 x 25.4 cm
<b>Included</b>	control cable to generator
<b>Requires</b>	MIG generator up to 36 kV



### **TC-ST-HL**

<b>Standard</b>	multiple
<b>Application</b>	test cabinet for heavy EUTs, with safety circuit
<b>Position of test cabinet</b>	near the generator
<b>EUT volume</b>	20 x 20 x 30 cm
<b>Warning lamps</b>	red and green (2 lamps)
<b>Test cabinet material</b>	acrylic glass, cover position adjustable
<b>Insulation withstand</b>	pulse 1.2/50 µs up to 36 kV
<b>Weight</b>	8.5 kg
<b>Dimensions</b>	43.5 x 47 x 25.4 cm
<b>Included</b>	control cable to generator
<b>Requires</b>	MIG generator up to 36 kV



### **WARNING-LAMP**

<b>Cable length</b>	5 m
<b>Dimensions</b>	diameter 7x cm x 25 cm
<b>Weight</b>	0.5 kg



For further information please do not hesitate to contact your local EMC PARTNER AG representative.  
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