Advanced Test Equipment Corp.
www.atecorp.com 800-404-ATEC (2832)

EMC PARTNER

DO-160 & MIL-STD-461G

Indirect Lightning Testing

MIG series

This document has been
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

WHEN GETTING RESULTS MATTERS

THERE IS STILL ONLY ONE CHOICE

Military and avionic testing is all about quality and reliability. The EMC PARTNER full scale lightning test system fulfils these requirements.

A flexible solution that includes:

- MIL-STD-461G: CS117, internal & external equipment test levels
- RTCA DO-160: SECTION 22, Level 1 to 5
- EUROCAE ED-14: SECTION 22, Level 1 to 5
- OEM proprietary requirements based on DO-160 SECTION 22

Providing world-class solutions to major aircraft OEMs and tier 1 suppliers for over 20 years.

FULL SCALE SOLUTION

The first commercially available system to integrate all DO-160 waveforms.
A system that has grown to meet new and evolving market requirements.

WF2, 3 & 6 System

MIG-OS-MB + MIG-OS-MB-EXT
- PIN Injection
- Single Stroke
- Multiple Stroke
- Multiple Burst

CN-MIG-BT3 & CN-MIG-BT5
- Cable Bundle

WF1, 4, 5A & 5B System

MIG 0600 MS + MIG 0618SS
- PIN Injection
- Single Stroke
- Multiple Stroke

CN-GI-CI & CN-GI-CI-V
- Cable Bundle
- Ground Injection

Included Benefits

Reliable	keeps on going during long test phases
Precise	delivers the same pulse repeatedly
Stable	a tried and trusted solution used at over 100 locations worldwide
Polarity	change polarity by electronic switching
Flexible	meet many requirements through a big range of accessories
Automated	save and repeat test routines

AVAILABLE CIRCUITS

Full scale indirect test system includes all waveforms for RTCA DO-160: Section 22 and MIL-STD-461G: CS117 testing. The basic system can be easily extended to meet OEM specific requirements.

Waveform 1 (6.4/69µs) — **MIL-STD-461 / CS117**

Current Impulse

- Cable Bundle Single Stroke
- Cable Bundle Multiple Stroke

Waveform 2 (0.1 and 0.3/6.4µs) — **RTCA DO-160 / S.22**

Voltage Impulse

- Cable Bundle Single Stroke
- Cable Bundle Multiple Stroke

Waveform 3 (1MHz & 10MHz) — **RTCA DO-160 / S.22**

Voltage & Current Impulse

- PIN injection
- Cable Bundle Single Stroke
- Cable Bundle Multiple Stroke
- Cable Bundle Multiple Burst

Waveform 4 (6.4/69µs) — **RTCA DO-160 / S.22**

Voltage Impulse

- PIN Injection
- Ground Injection Single Stroke
- Ground Injection Multiple Stroke

Waveform 5A (40/120µs) — **RTCA DO-160 / S.22**

Current Impulse

- PIN Injection
- Cable Bundle Single Stroke
- Cable Bundle Multiple Stroke

Waveform 5B (50/500µs) — **RTCA DO-160 / S.22**

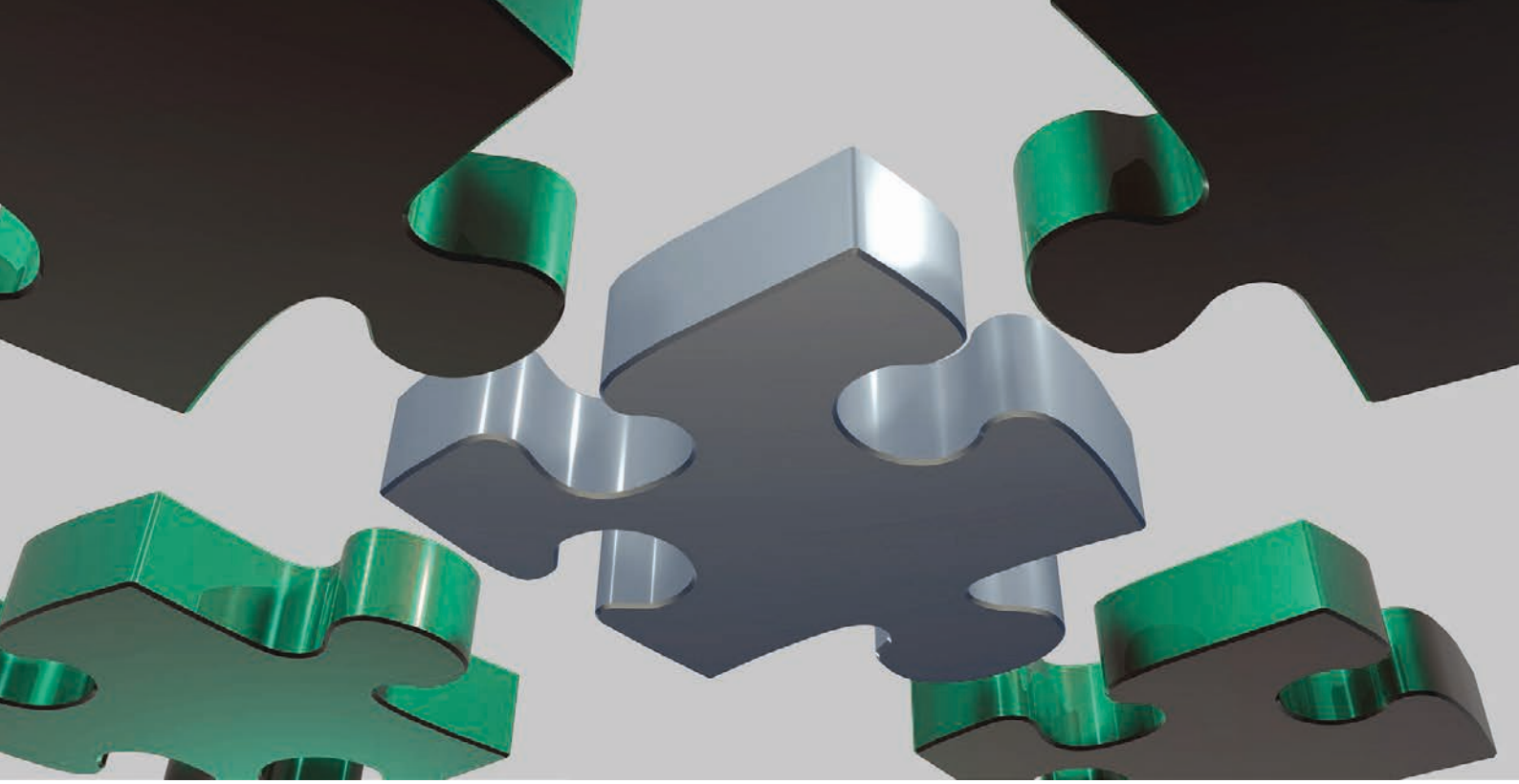
Current Impulse

- PIN Injection
- Cable Bundle Single Stroke
- Cable Bundle Multiple Stroke

Waveform 6 (0.25/4µs) — **RTCA DO-160 / S.22**

Current Impulse

- Cable Bundle Multiple Burst



UNIQUE FEATURES

Tried and trusted technology developed in partnership with industry.Latest generation, solid state, precise technology.

Easy upgrade

Add functionality without system downtime.

Synchronization

PIN injection pulses synchronized to AC power

Special couplers

Customized for specific tests for other avionic applications.

Customizable patterns

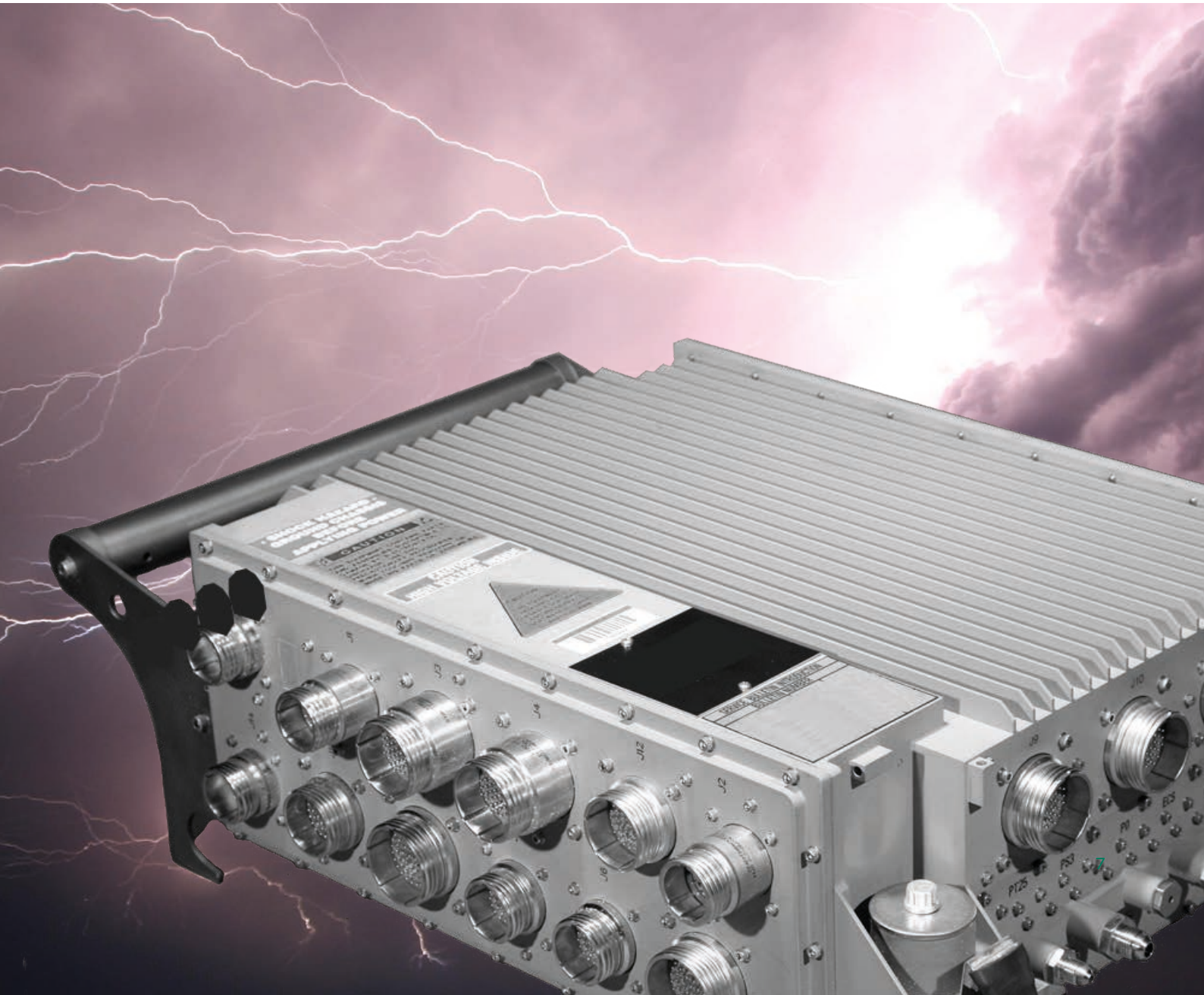
Multiple Stroke & Burst patterns freely programmable in the generator or using the pattern upload software.

OEM SPECIFIC & SPECIAL APPLICATIONS

Many years working with the avionics industry has taught us one thing. Flexibility is the key to success. EMC PARTNER's ability to extend and customize the standard system is legendary.

Some OEMs require testing with fixed impedance waveforms, even for cable bundle. The EMC PARTNER system is flexible enough to offer this capability with external couplers.

Special application requests are nothing new to EMC PARTNER. One example is the solution for large diameter cables that can only pass once through a coupler. Applicable for voltage and current waveforms, this unique set of couplers can be used for waveforms 1, 4, 5A and 5B.



Other systems for indirect lightning

- DO 160 SECTION 22 LEVEL 3
- MIL-STD-461 CS117 INTERNAL EQUIPMENT TEST LEVELS
- COMPACT SOLUTION
- BUILT ON EXPERIENCE

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Technical Specifications

DO-160 G SECTION 22 AND MIL-STD-461 G CS117

CONFIGURABLE TEST SYSTEM FOR ALL TEST LEVELS

Test equipment	DO-160G Section 22	MIL-STD-461G CS117	Airbus, Boeing, other
Generators*			
MIG0600MS	✓	✓	✓
MIG0618SS	✓		✓
MIG-OS-MB	✓	✓	✓
Accessories			
MIG-OS-MB-EXT	✓	✓	✓
NW-WF2-FS	✓	✓	✓
NW-WF2-SS	✓	✓	✓
NW-WF3-1M-FS	✓	✓	✓
NW-WF3-1M-SS	✓	✓	✓
NW-WF3-10M-FS	✓	✓	✓
NW-WF3-10M-SS	✓	✓	✓
NW-WF6H-MB	✓	✓	✓
Custom plugins, NWs			available, send inquiry
DN-LISN160-32	✓	✓	✓
SHUNT0E1	✓	✓	✓
V-PROBE-PHV	✓	✓	✓
V-PROBE-SI	✓	✓	✓
I-PROBE-MB-P1	✓	✓	✓
I-PROBE-MS	✓	✓	✓
NW-MS-LEVEL1	✓	optional	✓
SYNC-ADAPTER	✓		✓
CN-MIG-TT	✓		✓
AC-DC-DECOUPLER2	✓		✓
AC-DC-DEC Level 4&5	✓		✓
CDN-BDBC	✓		✓
RACK-36HE-MB	✓	✓	✓
Coupling devices			
CN-MIG-BT3	✓	✓	✓
CN-MIG-BT5	✓	✓	✓
CN-GI-CI	✓	✓	✓
CN-GI-CI-V	recommended	✓	✓
CN-CI-I1	optional	optional	optional
CN-CI-V1	optional	optional	optional
CN-WF5A1500	optional	optional	optional
CN-WF5A2000	optional	optional	optional
Software	one TEMA license per generator required		
TEMA	✓	✓	✓
TEMA EXT-MEASURE	✓	✓	✓
OPTICAL LINK	✓	✓	✓

* Generators require couplers and accessories as indicated, in order to meet the requirements.

GENERATORS LEVEL 5 AND HIGHER

1. MIG0600MS

MIG0600MS circuit: WF1 cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Current waveform WF1	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	20 A – 1800 A (up to 3200 A can be applied)
Test level multiple stroke	40 A – 1800 A (first stroke)
	20 A – 900 A (subsequent stroke)
Requires	CN-GI-CI

MIG0600MS circuit: WF4, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	5 Ω
Voltage, current WF4	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at application point
Test level single stroke	70 V – 1700 V
Synchronization	automatic on power peak (SYNC-ADAPTER)

MIG0600MS circuit: WF4 cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Voltage waveform WF4	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	25 V – 1600 V
Test level multiple stroke	25 V – 750 V (first stroke)
	12.5 V – 190 V (subsequent stroke)
Requires	CN-GI-CI-V

MIG0600MS circuit: WF4 ground injection

Standards	DO-160G S22, other
Coupling mode	Ground Injection (GI)
Voltage waveform WF4	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at application point
Test level single stroke	25 V – 1700 V
Test level multiple stroke	25 V – 800 V (first stroke)
	12.5 V – 400 V (subsequent stroke)
EUT max. power	230 V / 32 A @ 50/60 Hz
Requires	CN-GI-CI-V

MIG0600MS circuit: WF5A, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	1 Ω
Voltage, current WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at application point
Test level single stroke	50 V – 1600 V (50 A – 1600 A)
Synchronization	automatic on power peak

MIG0600MS circuit: WF5A cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	60 A – 5000 A
Test level multiple stroke	60 A – 2000 A (first stroke)
	30 A – 1000 A (subsequent stroke)
Requires	CN-GI-CI

MIG0600MS circuit: WF5A ground injection

Standards	DO-160G S22, other
Coupling mode	Ground Injection (GI)
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at application point
Test level single stroke	60 A – 5000 A
Test level multiple stroke	60 A – 2000 A (first stroke)
	30 A – 1000 A (subsequent stroke)
EUT max. power	230 V / 32 A @ 50/60 Hz
Requires	CN-GI-CI

MIG0600MS circuit: WF5B, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	1 Ω
Voltage, current WF5B	50 µs ± 20 % / 500 µs ± 20 %
Test level	specified at application point
Test level single stroke	50 V – 500 V (50 A – 500 A)
Synchronization	automatic on power peak

MIG0600MS circuit: WF5B cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Current waveform WF5B	50 µs ± 20 % / 500 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	75 A – 2000 A (up to 5000 A can be applied)
Test level multiple stroke	30 A – 1800 A (first stroke)
	30 A – 1000 A (subsequent stroke)
Requires	CN-GI-CI

MIG0600MS circuit: WF5B ground injection

Standards	DO-160G S22, other
Coupling mode	Ground Injection (GI)
Current waveform WF5B	50 µs ± 20 % / 500 µs ± 20 %
Test level	specified at application point
Test level single stroke	75 A – 2000 A (up to 5000 A can be applied)
Test level multiple stroke	30 A – 1800 A (first stroke)
	30 A – 1000 A (subsequent stroke)
EUT max. power	230 V / 32 A @ 50/60 Hz
Requires	CN-GI-CI

MIG0600MS control features

User interface	LCD and keypad, efficient menu structure
Communication interface	RS232 with (optional) adapter to USB
Pulse voltage monitor BNC	10 V = 1600 V, accuracy ± 3% (only PIN)
Surge current monitor BNC	10 V = 1600 A, accuracy ± 3% (only PIN)
Surge voltage on display	75 – 1600 V, accuracy ± 3% (only PIN)
Surge current on display	25 – 1600 A, accuracy ± 3%, (only PIN)
Trigger out	BNC, max. 12 V
Trigger in	auto, manual, external (BNC input)
Power synchro. on/off PIN	0 – 360°, 1° step
Impulse polarity	positive, negative, alternating (electronic switch)
Impulse repetition s. stroke	WF1/WF4: 20 s, WF5A: 20 s, WF5B: 40 s
Patterns	DO-160, user programmable
Spacing multiple stroke	10 ms – 500 ms
Max. number of pulses	25 every 20 s
Impulse counter	programmable up to 29'999
Programmable ramps	current or voltage, depending on waveform
Emergency stop	Emergency Stop button, BNC input, interlock
Internal memory	up to 15 tests can be saved and recalled

MIG0600MS supply, weight, dimensions, climatic conditions

Operating voltage	115 / 230 V (50/60 Hz) ± 10%
Power consumption	ON < 400 VA, standby < 10 VA
Weight	295 kg
W x d x h	60 x 65 x 184 cm
Version	19“ rack, 36 UH with wheels, easy to move

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

MIG0600MS optional accessories

LISN	DN-LISN160-32
Adapters	NW-MS-LEVEL1, SYNC-ADAPTER
Voltage probe	V-PROBE-SI
Current probe	I-PROBE-MS
Coupling devices (CI)	CN-GI-CI, CN-GI-CI-V, other
Software	TEMA, for latest Windows, OPTICAL LINK
	TEMA-EXT-MEASURE, for DSO control
Alternative model 0600SS	price optimised single stroke model available

2. MIG0618SS

MIG0618SS circuit: WF1 cable induction

Standards	DO-160G S22, other
Coupling mode	Cable Induction (CI)
Current waveform WF1	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	250 A – 3500 A
Requires	CN-GI-CI

MIG0618SS circuit: WF4, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	5 Ω
Voltage, current WF4	6.4 µs ± 20 % / 69 µs ± 20 %

Test level	specified at application point
Test level single stroke	125 V – 3400 V
Synchronization	automatic on power peak

MIG0618SS circuit: WF4 ground injection

Standards	DO-160G S22, other
Coupling mode	Ground Injection (GI)
Voltage waveform WF4	6.4 µs ± 20 % / 69 µs ± 20 %
Test level	specified at application point
Test level single stroke	125 V – 3400 V
EUT max. power	230 V / 32 A @ 50/60 Hz
Requires	CN-GI-CI-V

MIG0618SS circuit: WF5A, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	1 Ω
Voltage, current WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at application point
Test level single stroke	125 V – 3200 V
Synchronization	automatic on power peak

MIG0618SS circuit: WF5A cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	400 A – 6000 A (up to 10000 A can be applied)
Requires	CN-GI-CI

MIG0618SS circuit: WF5A ground injection

Standards	DO-160G S22, other
Coupling mode	Ground Injection (GI)
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at application point
Test level single stroke	400 A – 6000 A
EUT max. power	230 V / 32 A @ 50/60 Hz
Requires	CN-GI-CI

MIG0618SS control features

User interface	LCD and keypad, efficient menu structure
Communication interface	RS232 with (optional) adapter to USB
Pulse voltage monitor BNC	10 V = 6000 V, accuracy ± 3% (only PIN)
Surge current monitor BNC	10 V = 6000 A, accuracy ± 3% (only PIN)
Surge voltage on display	75 – 6000 V, accuracy ± 3% (only PIN)
Surge current on display	25 – 6000 A, accuracy ± 3%, (only PIN)
Trigger out	BNC, max. 12 V
Trigger in	auto, manual, external (BNC input)
Power synchro. on/off PIN	0 – 360°, 1° step
Impulse polarity	positive, negative, alternating (electronic switch)
Impulse repetition s. stroke	starting with 4 s
Impulse counter	programmable up to 29'999
Programmable ramps	current or voltage, depending on waveform
Emergency stop	Emergency Stop button, BNC input, interlock
Internal memory	up to 15 tests can be saved and recalled

MIG0618SS supply, weight, dimensions, climatic conditions

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

Weight	170 kg
W x d x h	60 x 65 x 123 cm
Version	19“ rack, 18 UH with wheels, easy to move

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

MIG0618SS optional accessories

LISN	DN-LISN160-32
Adapters	NW-MS-LEVEL1, SYNC-ADAPTER
Voltage probe	V-PROBE-SI
Current probe	I-PROBE-MS
Coupling devices (CI)	CN-GI-CI, CN-GI-CI-V, other
Software	TEMA, for latest Windows, OPTICAL LINK
	TEMA-EXT-MEASURE, for DSO control

3. MIG-OS-MB

MIG-OS-MB circuit: WF2 cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Voltage waveform WF2	rise time: < 100 ns (or/and < 340 ns)
	pulse duration: 6.4 µs ± 20 %
Test level	specified at coupler output
Test level single stroke	40 V – 1700 V
Test level multiple stroke	25 V – 1600 V (first stroke)
	12.5 V – 800 V (subsequent stroke)
Requires	CN-MIG-BT3

MIG-OS-MB circuit: WF3, 1 MHz, pin injection

Standards	DO-160G S22, other
Coupling mode	pin injection / direct application
Output impedance	25 Ω
Voltage, current WF3	frequency: 1 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Test level	specified at application point
Test level single stroke	80 V – 600 V
Synchronization	0 – 360°, step 1°
EUT max. power	230 V / 400 Hz, 115 V / 800 Hz

MIG-OS-MB circuit: WF3, 1 MHz, cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Voltage, current WF3	frequency: 1 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Test level	specified at coupler output
Test level single stroke	80 V – 1500 V
Test level multiple stroke	80 V – 600 V (first stroke)
	80 V – 600 V (subsequent stroke)
Test level multiple burst	60 V – 900 V
Requires	CN-MIG-BT5

MIG-OS-MB circuit: WF3, 10 MHz, cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, other
Coupling mode	Cable Induction (CI)
Voltage, current WF3	frequency: 10 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Test level	specified at coupler output
Test level single stroke	80 V – 1500 V
Test level multiple stroke	80 V – 1500 V (first stroke)
	80 V – 1500 V (subsequent stroke), adjustable
Test level multiple burst	50 V – 1920 V
Synchronization	0 – 360°, step 1°
Requires	CN-MIG-BT5

MIG-OS-MB control features

User interface	LCD and keypad, efficient menu structure
Communication interface	RS232 with (optional) adapter to USB
Pulse voltage monitor BNC	10 V = 6000 V, accuracy ± 3% (only PIN)
Surge current monitor BNC	10 V = 6000 A, accuracy ± 3% (only PIN)
Surge voltage on display	75 – 6000 V, accuracy ± 3% (only PIN)
Surge current on display	25 – 6000 A, accuracy ± 3%, (only PIN)
Trigger out	BNC, max. 12 V
Trigger in	auto, manual, external (BNC input)
Power synchro. on/off PIN	0 – 360°, 1° step
Impulse polarity	positive, negative, alternating (electronic switch)
Impulse repetition s. stroke	starting with 0.1 s
Impulse counter	programmable up to 29'999
Programmable ramps	current or voltage, depending on waveform
Emergency stop	Emergency Stop button, BNC input, interlock
Internal memory	up to 15 tests can be saved and recalled

MIG-OS-MB supply, weight, dimensions, climatic conditions

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

Weight	40 kg
W x d x h	45 x 57 x 37 cm
Version	19" unit, 8 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

MIG-OS-MB optional accessories

Plugins for higher test levels	MIG-OS-MB-EXT, NW-WF2-FS, NW-WF2-SS,
	NW-WF3-1M-FS, NW-WF3-1M-SS,
	NW-WF3-10M-FS, NW-WF3-10M-SS,
	NW-WF6H-MB, custom plugins
LISN	DN-LISN160-32
Adapters / decouplers	CN-MIG-TT, AC-DC-DECOUPLER2,
	AC-DC-DECOUPLER 4&5, CN-BDBC
Voltage probe	V-PROBE-PHV
Current probe	I-PROBE-MB-P1
Coupling devices (CI)	CN-MIG-BT3, CN-MIG-BT5
Software	TEMA, for latest Windows, OPTICAL LINK
	TEMA-EXT-MEASURE, for DSO control

ACCESSORIES

MIG-OS-MB-EXT

Application	extends MIG-OS-MB to L5+ test levels
	requires necessary plugin(s) for each WF
Test level WF2	extended up to
Test level WF3 1 MHz	extended up to
Test level WF3 10 MHz	extended up to
Test level WF6	5 A – 160 A (multiple burst)
Weight	18 kg (empty)
Dimensions	19” unit, 4 UH
Supply	normal mains 230 V or 115 V, fused
For generator	MIG-OS-MB
Requires	plugins for necessary waveforms:
	NW-WF2-FS, NW-WF2-SS,
	NW-WF3-1M-FS, NW-WF3-1M-SS,
	NW-WF3-10M-FS, NW-WF3-10M-SS,
	NW-WF6H-MB, custom plugins
Requires	RACK-36HE-MB

NW-WF2-FS

Application	WF2 First Stroke (FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF2 first stroke	extended up to 4500 V
Weight	3 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB

Requires	MIG-OS-MB-EXT

NW-WF2-SS

Application	WF2 Subsequent Stroke (FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF2 sub. stroke	extended up to 1100 V
Weight	2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT, NW-WF2-FS

NW-WF3-1M-FS

Application	WF3 1 MHz First Stroke (FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF3 first stroke	extended up to 5000 V (1 MHz)
Weight	2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT

NW-WF3-1M-SS

Application	WF3 1 MHz Subsequent Stroke (FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF3 sub. stroke	extended up to 2250 V (1 MHz)
Weight	2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT, NW-WF3-1M-FS

NW-WF3-10M-FS

Application	WF3 1 MHz First Stroke (FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF3 first stroke	extended up to max. 3400 V (10 MHz)
Weight	2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT

NW-WF3-10M-SS

Application	WF3 10 MHz Subsequent Stroke(FS) plugin,
	extends MIG-OS-MB to L5+
Test level WF3 sub. stroke	extended up to max. 1900 V (10 MHz)
Weight	2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT, NW-WF3-10M-FS

NW-WF6H-MB

Application	WF6 multiple burst (MB) plugin,
	extends MIG-OS-MB with WF6 capability
Test level WF6 MB	5 A – 180 A
Weight	2.2 kg
Dimensions	17 x 22 x 18 cm
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT

CUSTOM PLUGIN

Application	different plugins available on request
	extends MIG-OS-MB with more capabilities
For generator	MIG-OS-MB
Requires	MIG-OS-MB-EXT
Contact	sales@emc-partner.ch

DN-LISN160-32

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	Line Impedance Stabilization Network (5 µH)
Inductance	5 µH per line (for both AC and DC lines)
Capacitance	10 µF included, 33000 µF included
	LISN is calibrated with capacitors connected
Number of lines	2 AC lines (L, N or L1, L2), 2 DC lines (+ / -)
AC voltage max.	L-N: 480 V @50/60 Hz, L-PE: 280 V @50/60 Hz
	L-N: 150 V @ 400 Hz, L-PE: 85 V @ 400 Hz
AC current max.	32 A
DC voltage max.	50 V
DC current max.	32 A
Weight	13 kg
Dimensions	45 x 57 x 19 cm, 19'' unit, 4 UH
For generators	AVI3000, MIG0600MS, MIG0618 SS, MIG-OS-MB
Requirements	for 3-phase EUTs, two pieces are required

SHUNT0E1

Application	calibration of WF2, WF3 short circuit current
Impedance	0.1 Ω ± 2 %
Weight	0.15 kg
Dimensions	12 x 2.5 x 2.5 cm
Requires	MIG-OS-MB, CN-MIG-BT3 or CN-MIG-BT5

V-PROBE-PHV

Standards	DO-160G S22, MIL-STD-461G CS117, other
Type of probe	common mode / passive
Input voltage	max. 1 kV r.m.s., max. 4 kV impulse
Bandwidth (-3 dB)	250 MHz
Usable rise time	1.4 ns

Accuracy	± 2 %
Attenuation ratio	100:1
Input impedance	50 MΩ || 7.5 pF
Compensation range	10 – 50 pF
DSO input selection	1 MΩ
Weight	0.5 kg
Dimensions	24 x 28 x 9 cm (packed)
Included	carrying case

V-PROBE-SI

Standards	DO-160G S22, MIL-STD-461G CS117, other
Type of probe	differential (can measure CM as well)
Input voltage	max. 7 kV DC + peak, max. 2.5 kV r.m.s.
Bandwidth	DC – 70 MHz (-3 dB)
Accuracy	± 2 %
Input impedance	10 MΩ || 10 pF
Attenuation ratio	1:100 or 1:1000
Power supply	4 x AA batteries and/or mains adapter
Weight	1.5 kg (packed)
Dimensions	29 x 34 x 8 cm (packed)
Included	carrying case, mains adapter, AA batteries

I-PROBE-MB-P1

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	measurement of SC current / clamp on probe
Output impedance	50 Ω (BNC connector)
Input current	max. 100 A r.m.s., max. 5 kA impulse
Waveforms	WF2, WF3 (1&10 MHz), WF6, other
Bandwidth (-3 dB)	5 Hz – 15 MHz
Sensitivity	0.1 V/A into 1 MΩ
Accuracy	+ 1 / - 0 %
Current time product	0.5 As
I/f	3.5 A/Hz
Usable rise time	25 ns
DSO input selection	1 MΩ
Weight	1.68 kg
Dimensions	12 x 13 x 4 cm (inner diameter 5 cm)
Included	carrying case

I-PROBE-MS

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	measurement of SC current / clamp on probe
Output impedance	50 Ω (BNC connector)
Input current	max. 12 kA impulse
Waveforms	WF1, WF4 (SC), WF5A, WF5B, other
Bandwidth (-3 dB)	1 Hz – 16 MHz
Sensitivity	0.5 mV/A into 1 MΩ
Accuracy	± 1 %
Current time product	0.5 As
I/f	3.5 A/Hz
Usable rise time	25 ns
DSO input selection	1 MΩ
Weight	1.5 kg
Dimensions	28 x 24 x 9 cm packed (inner diameter 9 cm)
For generators	MIG0600MS, MIG0618SS
Included	carrying case, 4 x 1.5 V AA batteries

NW-MS-LEVEL1

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	allows lower test levels to be applied to EUT
Lowest test level WF4 PIN	50 V ensured
Lowest test level WF5A PIN	50 V ensured
Lowest test level WF5B PIN	50 V ensured
Can be used also for	WF1, WF4, WF5A, WF5B cable bundle tests
Weight	2 kg
Dimensions	8 x 24 x 9 cm
For generator	MIG0600MS

SYNC-ADAPTER

Standards	DO-160G S22, other
Application	allows sync. on EUT power, PIN injection
For generator	MIG0600MS

CN-MIG-TT

Standards	DO-160G S22 (pin injection), other
Application	Test tip for PIN injection

AC-DC-DECOUPLER2

Standards	DO-160G S22 (pin injection), other
Application	decoupling network for powered pins
Test level WF2 max.	3200 V
Test level WF3 max.	4000 V
EUT supply voltage max.	230 V (50 – 400 Hz), 115 V (800 Hz), 230 V DC
Weight	0.2 kg

Dimensions	2.5 x 12.5 x 2.5 cm
For generator	MIG-OS-MB
Remark	for higher test levels use

AC-DC-DEC 4&5

Standards	DO-160G S22 (pin injection), other
Application	decoupling network for powered pins
Test level WF2 max.	3200 V
Test level WF3 max.	6000 V
EUT supply voltage max.	230 V (50 – 400 Hz), 115 V (800 Hz), 230 V DC
Weight	0.2 kg
Dimensions	2.5 x 16 x 2.5 cm
For generator	MIG-OS-MB-EXT and WF2, WF3 plugins
Remark	recommended for levels 4 and 5

CDN-BDBC

Standards	DO-160G S22 (pin injection), other
Application	blocking devices and bypass circuitry for pin inj.
For waveforms	WF4 (WF1), WF5A up to 1600 V / 3200 A
Weight	0.3 kg (packed)
Dimensions	14 x 17 x 5 cm (packed)
Delivery contains	two bypass/blocking devices
For generators	MIG0600MS, MIG0618SS (pin injection)

RACK-36HE-MB

Application	optional rack with wheels for MIG-OS-MB, MIG-OS-MB-EXT and storage for 6 plugins
Weight	142 kg (includes generator, extension, plugins)
Dimensions	60 x 65 x 180 cm (19” rack / 36 UH)

COUPLING DEVICES

CN-MIG-BT3

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	injection probe for cable bundle tests
	WF2 levels 1 - 5
	WF3 levels 4-5
	WF 6 levels 1 - 5
Aperture	7.7 x 7.7 cm
Dimensions	21 x 45 x 19 cm
Weight	34 kg
For generator	MIG-OS-MB with extension and plugins
Included	calibration loop, HV connection cable
Requires	SHUNT0E1 for short circuit calibration

CN-MIG-BT5

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	injection probe for WF3 levels 1-3
Aperture	8 x 7 cm
Dimensions	22 x 22 x 20 cm
Weight	13 kg
For generator	MIG-OS-MB
Included	calibration loop, HV connection cable
Requires	SHUNT0E1 for short circuit calibration

CN-GI-CI

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	injection probe for:
	WF1, WF5A, WF5B in cable induction mode,
	WF4, WF5A, WF5B in ground injection mode
Test levels	1 – 5 for mentioned waveforms
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	4 x 4 cm
EUT cable turns	one complete turn is enough
Dimensions	45 x 60 x 27 cm
Weight	53 kg
For generators	MIG0600MS, MIG0618SS
Included	connection cables

CN-GI-CI-V

Standards	MIL-STD-461G CS117, DO-160G S22, other
Application	injection probe for WF4, WF5A (voltage) in
	cable induction mode

Test level WF4	50 – 1600 V
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	6 x 12 cm
Dimensions	53 x 65 x 50 cm
Weight	190 kg
For generators	MIG0600MS, MIG0618SS
Included	connection cables

CN-CI-I1

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	large aperture coupler for WF1, WF5A, WF5B, cable induction mode (current waveforms)
Test levels	ask for details
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	6 x 15 cm
EUT cable turns	cable straight through coupler
Dimensions	45 x 60 x 38 cm
Weight	160 kg
For generators	MIG0600MS
Included	connection cables

CN-CI-V1

Standards	DO-160G S22, MIL-STD-461G CS117, other
Application	large aperture coupler for WF4, WF5A, WF5B, cable induction mode (voltage waveforms)
Test levels	ask for details
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	6 x 15 cm
EUT cable turns	cable straight through coupler
Dimensions	51 x 95 x 36 cm
Weight	292 kg
For generators	MIG0600MS
Included	connection cables

CN-WF5A1500

Standards	Airbus ABD0100.1.2 G, Boeing
Application	coupler for WF5A with 1 Ω impedance
Output impedance	1 Ω
Test level WF5A (CI)	up to 1500 V / 1500 A
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	6 x 15 cm
Dimensions	65 x 130 x 110 cm
Weight	525 kg including hydraulic positioning cart
For generators	MIG0600MS
Included	connection cables, hydraulic cart, control box

CN-WF5A2000

Standards	Airbus ABD0100.1.2 G, Boeing
Application	coupler for WF5A with 1 Ω impedance
Output impedance	1 Ω
Test level WF5A (CI)	up to 2000 V / 2000 A
EUT supply	230 V / 32 A 50/60 Hz, 10 A 400/800 Hz
Aperture	6 x 15 cm
Dimensions	65 x 130 x 110 cm
Weight	645 kg including hydraulic positioning cart
For generators	MIG0600MS
Included	connection cables, hydraulic cart, control box

SOFTWARE

TEMA

Suitable for generators	MIG0600MS, MIG0618SS, MIG-OS-MB
Includes	remote control of generator, automatic test report, sequence mode
Separate license	DSO control requires TEMA EXT-MEASURE
Operating system required	Windows, latest
Communication port	USB
Updates	lifetime updates at no additional cost
Latest version	available on EMC PARTNER website
Optional	20m OPTICAL-LINK fibre for remote control

EMC PARTNER

PRODUCT APPLICATION RANGE

CONSUMER & INDUSTRIAL ELECTRONICS

Transient Test Systems for conducted EMC tests on electronic equipment. ESD, EFT, surge, ring wave, DOW, dips, magnetic field, common and differential mode. Compliant to IEC, EN and ANSI standards.

AEROSPACE ELECTRONICS

Impulse generators and couplers for avionic applications. Single stroke, multiple stroke and multiple burst according to RTCA / DO-160, EUROCAE / ED-14 and aircraft manufacturer standards.

COMPONENT TESTING

Voltage and current Impulse generators for design and production testing of varistors, gas discharge tubes, surge protective devices, X / Y capacitors and specialist impulse generators for semiconductor tests.

DEFENCE ELECTRONICS

Complete test solutions for MIL-STD-461 requirements CS06, CS106, CS115, CS116, CS117 and CS118.

TELECOM & DATA LINE TESTING

Voltage and current impulse generators, CDNs, power contact, power induction equipment for exchange and customer equipment according to ITU, IEC, EN and ETSI requirements.

ENERGY & UTILITY EQUIPMENT

High current CDNs combined with transient test equipment fulfil requirements to test renewable and classical energy distribution network and monitoring equipment.

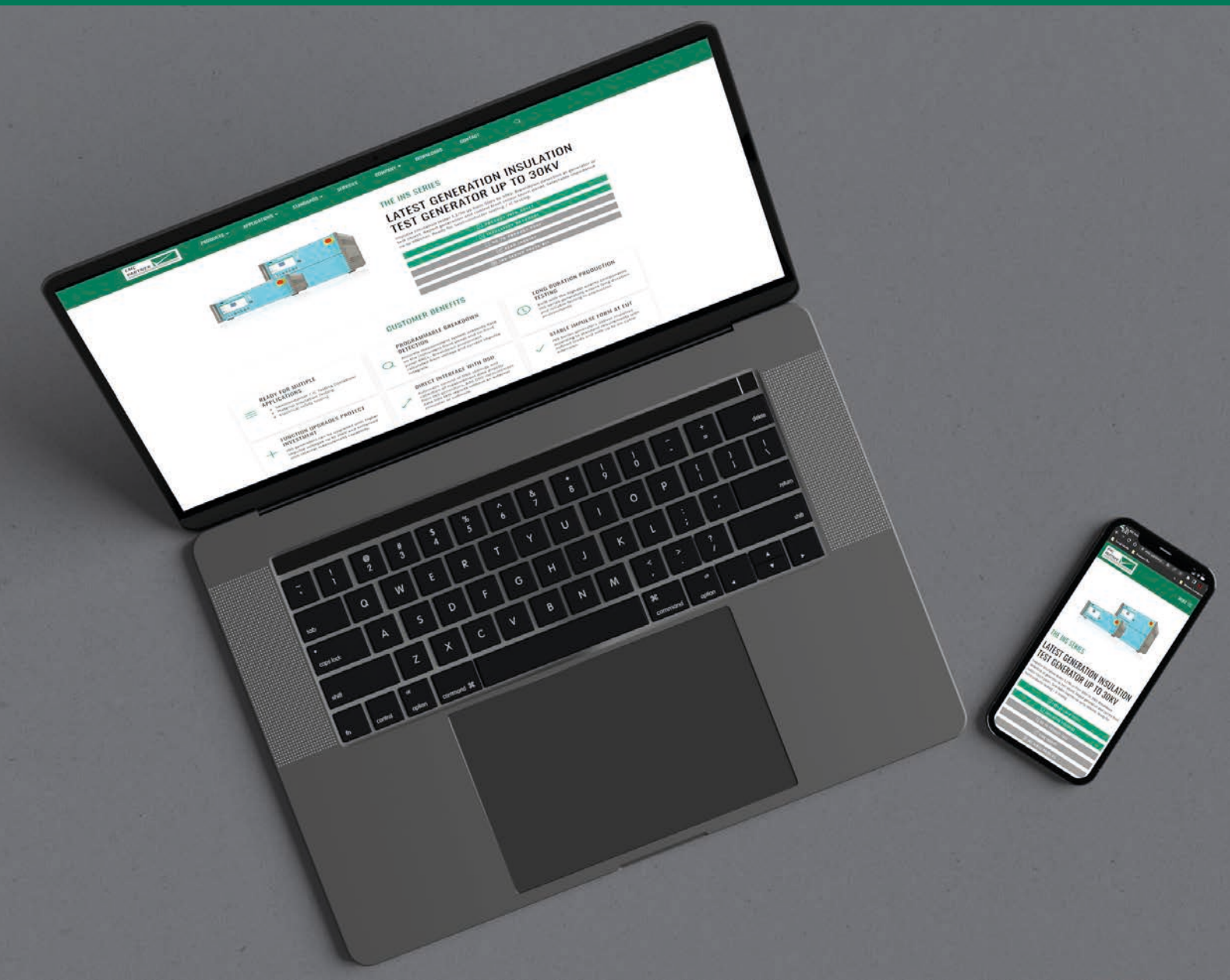
CUSTOMER SERVICES

Customer support throughout an equipment's lifetime is central to the EMC PARTNER AG philosophy. Directly from our ISO accredited facility in Switzerland or through our network of services centres, we provide support wherever you are.

Specific EMC test requirements ?

Search & find your required test equipment by application, standard or test type

www.emc-partner.com



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