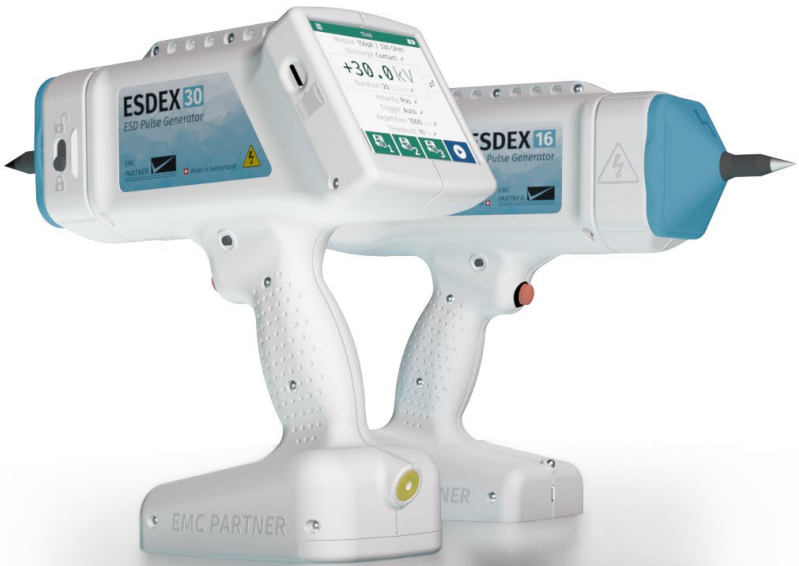
EMC PARTNER

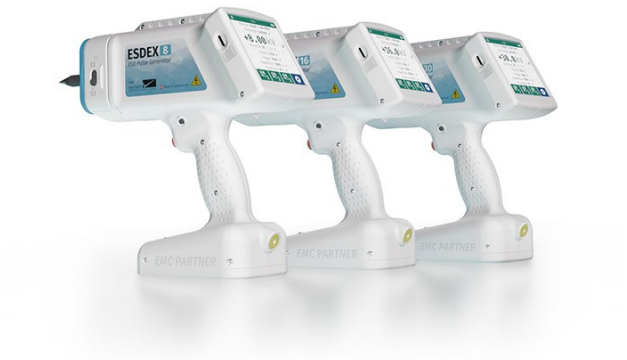
Datasheet

ESDEX Series



1 Overview ESDEX Series

ESDEX high-performance ESD generator up to 30 kV featuring an ergonomic design, modern interface, smart and intuitive operation. Fully configurable for industrial, automotive, defense, and avionics applications.



1.1 Product highlight / Key Features

- Available in 8, 16, and 30 kV
- Exchangeable RC networks
- Ergonomic handling - perfectly balanced
- 4” large capacitive touchscreen
- Intuitive and smart operation
- Create user defined test plans
- Programmable side buttons – single hand operation
- Direct reporting on the generator (PDF, CSV, HTML)
- Rechargeable battery - USB-C fast charging (80 min)

1.2 Applications

- EMC compliance testing
- Household appliances, Consumer Electronics, IT & Office Equipment, Wearables
- Industrial & Automation (Human machine interfaces, Motor drives & Power converters), Medical Devices
- Road vehicles, Automotive Electronics and Sensors, E-mobility & Charging Stations
- Military vehicle systems and electronics, communication Equipment (radar etc)
- Airborne electronic equipment, Navigation & Communication Systems, Cockpit & Display Equipment

1.3 Standard and compliance

- IEC 61000-4-2
- ISO 10605
- MIL-STD-461 - CS118
- RTCA/DO-160 - Sec25
- IEC 61000-6-1
- IEC 61000-6-2
- IEC 61326
- GMW 3097
- Ford AB/AC
- And much more

2 ESDEX Mainframe

	ESDEX8	ESDEX16	ESDEX30
OUTPUT & DISCHARGE			
Output voltage range	2 -8 kV +/-5%	0.2 – 16 kV +/-5%	0.2 – 30 kV +/-5%
Contact discharge (max.)	±8 kV	±16 kV	±30 kV
Air discharge (max.)	±8 kV	±16 kV	±30 kV
Voltage steps	1 V		
Polarity	Pos / Neg / Alternating		
Holding time	≥ 5 s		
Discharge mode	Air / Contact /Fire		
Repetition rate (CD)	0.05 s – 900 s		
Fire mode / Burst Mode	0.002 s – 30 s		
Trigger mode	Manual, Automatic		
Discharge counter	1 – 99'999		
Discharge Detection	Yes		
Voltage threshold	Free selectable (10% - 90%)		
RC-Networks	See chapter 3		
Automatic RC-Network recognition	yes		
Bleedoff Resistor (1 MΩ)	Yes, selectable		
Requires	at least one RC module		
CONTROL & INTERFACE:			
Display	4" capacitive color touchscreen		
Display brightness	Selectable (0 % – 100 %)		
Programmable side buttons	No	Yes, multiple functions in home mode, run mode and end-Run mode	Yes, multiple functions in home mode, run mode and end-Run mode
Tip–LED	No	Yes	Yes
Auto power-off	Disabled or up to 60 min (in 1 min steps)		
Memory	Mini SD-Card 4GB for Reporting, FW updates, Setups		
Test mode	Free Level, Fixed Level, Level Ramp		
Sequence mode	yes		

Test points	Multiple points possible		
Standard test library	No	Yes	Yes
Test reports	PDF, CSV, HTML formats		
Free Basic Software	Yes, for reporting, FW and setups	Yes, for reporting, FW and setups	Yes, reporting, for FW and setups
Languages	EN, DE, FR, IT, ES, PL, JP, CN, KR		

OPTIONS AND UPGRADES

ESDEX-TESTSUITE	Customized test plans and automated reports as per IEC 61000-4-2 and ISO 10605		
ESDEX-SELFCHECK	Voltage, Discharge relay polarity relay, Current measurement, Temperature measurement		
Upgrade	No	Yes, 16 to 30 kV	No

POWER, CLIMATIC CONDITIONS, WEIGHT AND DIMENSIONS

Power supply adapter	Input 100 – 240 Vac (50/60 Hz) ± 10 %
Power Consumption	Input ~35 W, No load < 0.1 W
Battery	Rechargeable Li-Ion Battery Pack 2900mAh / 20.9 Wh
Battery life	14 hours, typical operation
Charging port	USB–C
Charging time (10%...80%)	80 min
Operating temperature	15 – 35 °C
Humidity	30 – 60 % non-condensing
Air pressure	86 – 106 kPa
ESDEX Dimensions	255 x 247 x 89.2 mm
ESDEX Mainframe Weight	~1400 g
Carrying case dimensions	432 x 320 x 80mm
Calibration certificate	Factory calibration or accredited calibration as ordered
Included	Rechargeable Li–on battery pack, mains adapter, ground cable 2m, 3 test tips (Round, Sharp, Ellipse @30 kV), carrying case, USB–C cable, USB–Stick

3 RC Networks for ESDEX

3.1 NW-C150R330 / NW-C150R330-B

Standard	IEC 61000-4-2, ISO 10605, MIL-STD-461 (Latest versions)
RC-Values	150 pF / 330 Ω
Voltage accuracy	± 5 %
Risetime t_r	0.7 – 1 ns
First peak I_{pk1}	7.5 A ±10 % @2 kV 112.5 A ±10 % @30 kV
Second peak I_{pk2}	4.5 A (-20 / +40 %) @2 kV 67.5 A (-20 / +40 %) @30 kV
Current peak I_{30ns}	4 A ±30 % @2 kV 60 A ±30 % @30 kV
Current peak I_{60ns}	2 A ±30 % @2 kV 30 A ±30 % @30 kV
Bleedoff-Resistor	1 MΩ only with NW-C150R330-B

3.2 NW-C330R2000 / NW-C330R2000-B

Standard	ISO 10605 (latest version)
RC-Values	330 pF / 2000 Ω
Voltage accuracy	± 5 %
Risetime t_r	0.7 – 1 ns
First peak I_{pk1}	7.5 A (+30 % / -0 %) @2 kV 112.5 A (+30 % / -0 %) @30 kV
Current peak I_{400ns}	0.55 A ±30 % @2 kV 8.25 A ±30 % @30 kV
Current peak I_{800ns}	0.3 A ±50 % @2 kV 4.5 A ±50 % @30 kV
Bleedoff-Resistor	1 MΩ only with NW-C330R2000-B

3.3 NW-C150R2000 / NW-C330R2000-B

Standard	ISO 10605 (latest version)
RC-Values	150 pF / 2000 Ω
Voltage accuracy	± 5 %
Risetime t_r	0.7 – 1 ns
First peak I_{pk1}	7.5 A (+30 % / -0 %) @2 kV 112.5 A (+30 % / -0 %) @30 kV
Current peak I_{180ns}	0.55 A ±30 % @2 kV 8.25 A ±30 % @30 kV
Current peak I_{360ns}	0.3 A ±50 % @2 kV 4.5 A ±50 % @30 kV
Bleedoff-Resistor	1 MΩ only with NW-C330R2000-B

3.4 NW-C330R330 / NW-C330R330-B

Standard	ISO 10605 (latest version)
RC-Values	330 pF / 330 Ω
Voltage accuracy	± 5 %
Risetime t_r	0.7 – 1 ns
First peak I_{pk1}	7.5 A (±10 %) @2kV 112.5 A (±10 %) @30kV
Current peak I_{65ns}	4 A ±30 % @2kV 60 A ±30 % @30kV
Current peak I_{130ns}	2 A ±30 % @2kV 30 A ±30 % @30kV
Bleedoff-Resistor	1 MΩ only with NW-C330R330-B

4 Accessories

4.1 ESD-TARGET

Standard	IEC 61000-4-2 latest
Application	current target for calibration of ESD generator
Surface Finish	gold plated, lifetime protection against corrosion
Input impedance	2 Ω
Input voltage	max. 30 kV CD
Frequency range	± 0.5 dB up to 1 GHz, ± 1.2 dB up to 4 GHz
Current range	0 – 120 A standard, could be extended
Transfer function	0.02 V / 1 A with 20 dB, 0.02 V / 1 A with 40 dB
Diameter	70 mm
Thickness	40 mm
Weight	400 g
Fixing	8 x M3 screws, included in delivery
Included	40 dB att., 50 Ω coax. Cable (1 m) with SMA out

4.2 ESD-VERI-TARGET

Standard	IEC 61000-4-2 latest
Application	verification of ESD-TARGET
Surface Finish	gold plated, lifetime protection against corrosion
Input impedance	50 ± 1 Ω (within 4 GHz bandwidth)
Return loss (≤ 1 GHz)	< 30 dB[1)]
Return loss (≤ 4 GHz)	< 20 dB[1)]
Insertion loss (≤ 4 GHz)	< 0.3 dB (total)
Geometry	conical as per standard
Coaxial Connector	N-Male
Diameter	70 mm
Thickness	30 mm
Weight	250 g
Fixing	8 x M3 screws, included in delivery
requires	ESD-TARGET

4.3 ESD-VERI-TARGET-ADAPTER

Standard	IEC 61000-4-2 latest
Application	verification of ESD-VERI-TARGET
Surface Finish	gold plated lifetime protection against corrosion
Input impedance	50 ± 1 Ω (within 4 GHz bandwidth)
Return loss (≤ 1 GHz)	< 30 dB[1)]
Return loss (≤ 4 GHz)	< 20 dB[1)]
Insertion loss (≤ 4 GHz)	< 0.3 dB (total)
Geometry	conical as per standard
Coaxial Connector	N-Female
Diameter	70 mm
Thickness	30 mm
Weight	250 g
Fixing	8 x M3 screws, included in delivery
requires	ESD-VERI-TARGET

1) face-to-face with **ESD-VERI-TARGET**

4.4 ESD-VERI-V

Application	adapter for ESD DC voltage measurement
Input impedance	20 GΩ || 3 pF
Input voltage range	0 – 32 kV
Divider Ratio	1:20’000
Output connector	BNC
Dimensions	170 m height, 55 mm diameter
Weight	433 g
Included	earth conductor, BCN adapter, BNC termination

4.5 ESDEX-STAND

Application	ESDEX Stand for testing and calibration as per IEC 61000-4-2, ISO 10605
Type	Tripod
Material	Carbon Fiber
Color	Black
Max Load	6 Kg
Min. Height	~149 mm
Max. Height	~1390 mm
Folded Length	~315 mm
Rotation	360°
Weight	~1 kg
included	Ball head with quick release plate, carrying pouch

4.6 ESDEX-GND-SUPPORT

Application	Return cable Pullback support for calibration as per IEC 61000-4-2
Length	650 mm
Weight	206 g

4.7 ESDEX-H-FIELD

Application	Magnetic field loop for ESDEX test system
Loop diameter	120 mm
Discharge mode selection	Contact Discharge (CD)
Weight	100 g

4.8 ESDEX-E-FIELD

Application	Electric field plate for ESDEX
Electrode diameter	80 mm
Discharge resistor	Requires RC- network with bleed-off or an external bleeder resistor 1MΩ
Max voltage	30 kV
Weight	80 g

4.9 ESD-VCP50

Application	indirect ESD application as per IEC 61000-4-2
Spacer in between	100 mm wooden spacer
Coupling plane	500 x 500 mm
Application points	One on each side
Dimensions	500 x 500 x 100 mm
Weight	8 Kg
Included	2 m earth cable (with 2 x 470)

4.10 ESDEX-BLEEDER-CABLE 150 / ESDEX-BLEEDER-CABLE 200

Application	Application connection of HCP or VCP to ground plane
Impedance	2 x 470 kΩ ± 1 %
Length	2 m for VCP, 1.5 m for HCP
Connectors	Connectors 2 x banana plugs

4.11 ESD-HCP-AUTO

Application	coupling plane as per ISO 10605 annex F
Length	1500 mm
Insulation distance	50 mm
Test level	8 – 20 kV, as per standard
Dimensions	1800 x 1200 x 50 mm
Weight	2.2 kg

4.12 ESDEX-BATTPACK-4C

Application	Powerful battery pack for extended ESD testing.
Capacity	6.90 Ah / 49.7 Wh
Battery type	Lithium-Ion (Li-Ion)
Battery life	24h
Storage Temp. (Max.)	-20 °C to 50 °C
Dimensions	85.10 × 77.40 × 22.40 mm
Weight	230 g