

# E2 set

## TS 23 Immunity Development System



### Short description

The E2 set is a system of EMC tools for pre-compliance immunity testing of assemblies and electronic devices. It is used for troubleshooting and vulnerability analysis of electronics across all system levels.

A key application is the analysis of electronic designs that have failed EMC immunity compliance tests and require redesign or optimization.

Another important use case is the pre-compliant testing during early development stages. This enables engineers to identify potential weaknesses early and significantly reduce the risk of failing formal EMC compliance tests.

The E2 set allows reproduction of typical failure modes observed in immunity testing, including fast transient disturbances (burst, IEC 61000-4-4) and electrostatic discharge (ESD, IEC 61000-4-2).

It enables engineers to determine both the coupling mechanism (magnetic field or electric field) and the exact location of the interference on the device under test (DUT). Design modifications can be immediately evaluated for effectiveness using the E2 Set.

The test set-up is compact and designed for use directly at the engineer's workbench.

# E2 set

## TS 23 Immunity Development System

### Scope of delivery

- 1x TS 23, Pulse Generator
- 1x MA 33-L, Magnetic Base Adapter for Resistive Coupling (left)
- 1x DEA, Diff-to-Single-Ended Adapter
- 3x DE6, Differential Injector
- 1x BS 02-h, Magnetic Field Source
- 1x BS 04DB-d, Magnetic Field Source
- 1x BS 05DU-h2, Magnetic Field Source
- 1x ES 02-h, E-Field Source
- 1x ES 08D-h, E-Field Source
- 1x NT FRI EU 24V, Power Supply Unit
- 1x LWL Ø 2.2 mm 1.5 m, Optical Fiber Single 1.5 m
- 1x E2 case, System Case
- 1x E2 m, E2 set User Manual
- 1x GP 10, E2 set Ground Plate
- 1x MA 33-R, Magnetic Base Adapter for Resistive Coupling (right)
- 3x DE2, Differential Injector
- 1x MS 101, Magnetic Field Probe
- 1x BS 03-d, Magnetic Field Source
- 1x BS 04DB-h2, Magnetic Field Source
- 1x ES 01-h, E-Field Source
- 1x ES 05D-h, E-Field Source
- 1x ES 10D-h, E-Field Source
- 1x S21, Optical Sensor (10 Mbps)
- 1x E2 acc, Accessories
- 1x E2 qg, TS 23 set Quick Guide

### Technical parameters

<b>TS 23 Pulse Generator</b>	
Pulse parameter	
Rise time	1.5 ns
Max. Pulse voltage	2.2 kV (adjustable)
Repetition frequency	1.5 kHz (adjustable)
Polarity	+/- (adjustable)
Operating Modes	Continuous, Ramp, Pulse Groups, External Trigger
Optical input	
Optical fiber	2.2 mm
Max. frequency	5 MHz
Min. pulse width	100 ns
Supply voltage	24 V / 1 A DC
Sizes (L x W x H)	(160 x 200 x 75) mm
<b>S21 optical sensor</b>	
Transmission range	DC ... 10 Mbps
Optical fibre connector	2.2 mm
Supply voltage	(3 - 5) V
Current input	10 mA

### E2 set - Scope of Delivery



### E2 set - Scope of Delivery with Product Designation



**Content:**

No	Description	Type	Qty
1	Pulse Generator	TS 23	1
2	Ground Plate	GP 10	1
3	Magnetic Base Adapter	MA 33	2
4	Differential Injector	DE2; DE6	6
5	Diff-to-Single-Ended Adapter	DEA	1
6	Magnetic Field Sources	BS 02h; BS 03-d; BS 04DB-d; BS 04DB-h2; BS 05DU-h2	5
7	E-Field Sources	ES 01; ES02; ES 05D-h; ES 08D-h; ES 10D-h	5
8	Magnetic Field Probe	MS 101	1
9	Optical Sensor	S21	1
10	Optical Fiber	LWL	1
11	Accessories	Cable; Kleps; Adapter	
12	Power Supply Unit	NT FRI EU	1
13	User Manual		1
14	Quick Guide		1
15	System Case		1