



RIBE® Electrical Fittings – ESC 100

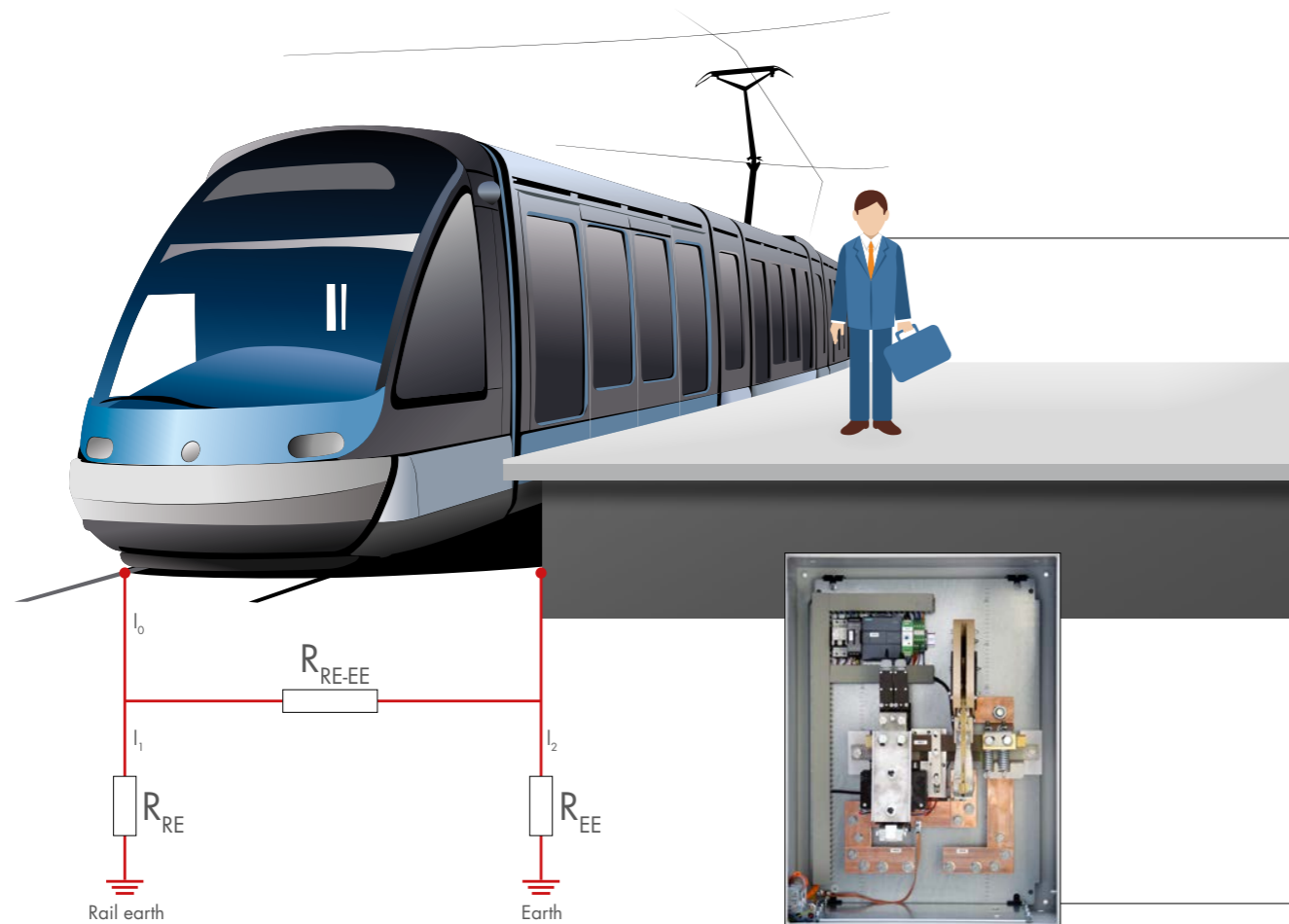
IMPERMISSIBLE CONTACT VOLTAGES
PROTECTION

RIBE[®]

ELECTRICAL FITTINGS

PROTECTING AGAINST ELECTRIC POTENTIAL VOLTAGE

Rail systems with DC traction use the running rail as return conductor for the traction current. The rail is insulated against ground. Otherwise stray currents would occur and damage buildings and other infrastructure through corrosion. The return current flowing through the rail generates a potential against earth through the electric resistance of the rail. This electric potential can be measured as a voltage between the rail or the carriage respectively and buildings and other infrastructure or earth. This voltage is potentially dangerous for persons. Because of that in DIN EN 50122 it is stipulated that this voltage has to be removed if it exceeds defined thresholds. This is facilitated by a temporary short circuit between rail and earth.



I_0 Derivate traction current
 I_1 Partial current to rail earth
 I_2 Partial current to earth
 R_{RE-EE} Earthing resistors rail earth, earth



ESC 100

The ESC 100 is an automatically resettable earth short-circuiter according to EN 50122 for the protection of persons and infrastructure. A power contactor ensures a short switching period and high current carrying capacity. This device is built in an especially compact design.

FUNCTION

If the set voltage waveform is exceeded, the earthing short-circuiting device is activated, i.e. if the criteria of a closing operation are fulfilled, the contactor is switched. The contactor closes in approx. 18ms. Essential modules of the ESC 100 are designed as dual channel. It also contains self-testing functions. This way it is ensured that malfunctions happen very rarely. If they occur nevertheless it is ensured that these events are protocolled and reported.

GENERAL DATA

Power supply	230 VAC, others on demand
Voltage range	-20 ... +10 %
Power consumption	30 VA; 1.000 VA while switching
Humidity	0 ... 95 %, not condensing
External temperature range	-25 ... 55°C
Protection according to IEC 34	IP 65
Dimension without mounting rails	300 x 900 x 310 mm
Dimension without foundation	685 x 1.000 x 410 mm
Mass	250 kg
Test voltages Cabinet outside for 60s with 50 Hz	7,5 kV AC
All connections (earth, reports, auxiliary voltages)	min 1,4 kV DC

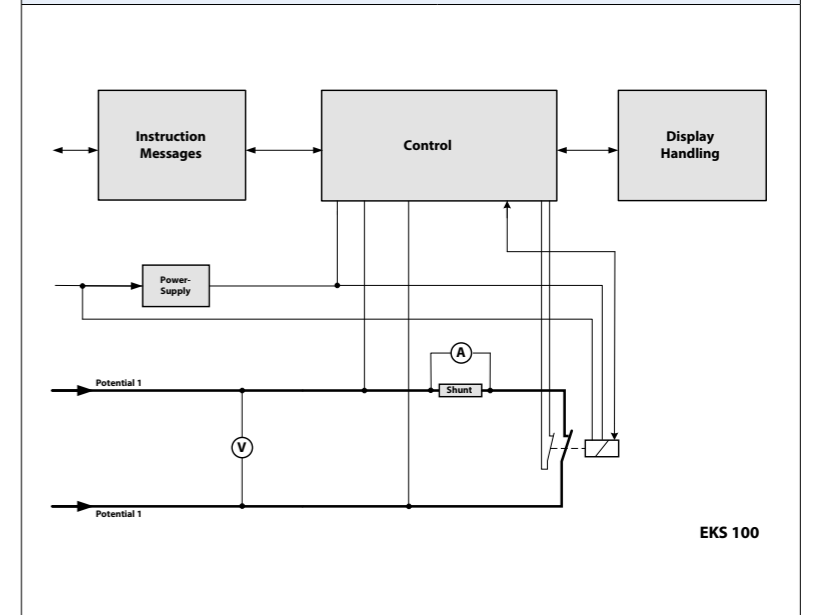
TRIGGERING VOLTAGES

Limits for parameter setting	50 ... 1000 V
Accuracy voltage measurement	± 10 V
Tripping time	< 20 ms

SHORT-CIRCUIT CURRENTS

Short term current ESC 100 $I_k = 25$ kA	25 kA
Short term current ESC 100 $I_k = 35$ kA	23 kA
Electric strength	min. 1.400 V

FUNCTION DIAGRAM



COMPETENCE CONNECTS



RICHARD BERGNER ELEKTROARMATUREN GMBH & CO. KG

Bahnhofstr. 8-16 · 91126 Schwabach · Germany
Phone: +49 (0) 91 22 / 87-0 · Fax: +49 (0) 91 22 / 87-15 06
E-mail: electrical-fittings@ribe.de · www.ribe.de