

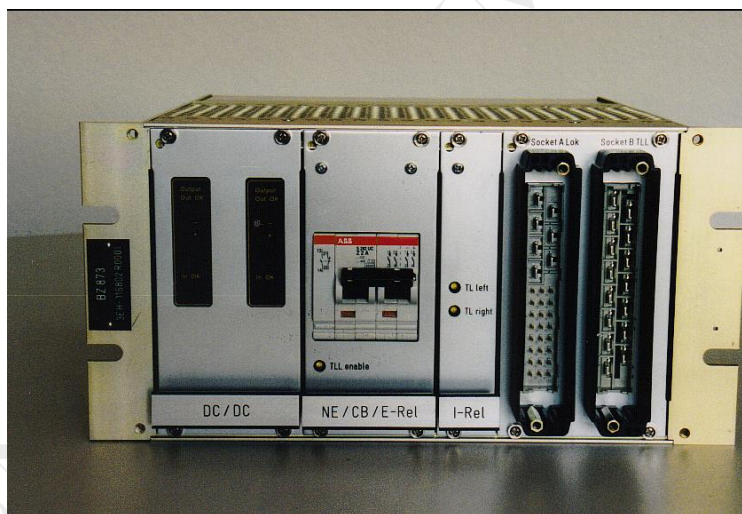


BZ 873

Trainline Interface

B+Z Art.Nr. 201

Ident Nr.: 3EH-116802 R0001



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Function / requirements

Unit

“HEP Trainline Complete“ signalisation interface.

19” based rack (42TE) containing plug-in function modules like **DC/DC-Converter**, **Network/Circuit-Breaker/Enable-Relay**, **I-Relay** and Socket-Unit.

The components comply, according to their manufacturers and in respect to safety and EMC, with the EN 60950 or EN 50155 respectively.

Function

Supplied by the locomotive (engine) battery through a galvanically separated DC/DC converter, the unit generates the so called “trainline complete” signal. The NE/CB (network / circuit breaker) protects the electrical components in the battery circuit against possible disturbances from nearby lead 3x480 VAC high power lines.

The DC/DC converter supplies a defined electrical current (limited by a resistor) flowing in a loop through the entire train. The I-relay is operated when this loop current meets the relay’s switching level, indicating that the train line current loop is closed, so the train is complete.

Technical Data

Article name: **BZ873**

Mechanical specifications

Measures Rack

3HE / 42TE
Weight

Length 270mm, Height 133mm, Depth 243mm
approx. 5 kg

Material

Rack case : Aluminium

Mounting

Free air flow sufficient vertical free air flow is required

Module front side

labeled front side DC/DC converter with 4 green LEDs
I-relay with 2 yellow LEDs
2 front sockets



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Connectors

1 connector A Lok	edge connector: F24/H7
1 connector B TLL	edge connector: H15
case ground	6.3 mm Faston-plug, on rack rear side

Electrical data and pin out

Power requirements

Voltage Input: 45....108VDC (72VDC, 2Amp.)

Function of the modules

DC to DC converter module Consisting of two Dc to DC converters with parallel connected inputs and serial connected outputs.(2 ea of 32VDC) The ready function of inputs and outputs is indicated by green LEDs. The converters are short circuit proved and supplying power of 64VDC at 2.2A.

NE, CB, E-Relay module NE is a diode network in order to protect the DC to DC converters against external noise and disturbance voltages in the current loop circuit.

The automatic circuit breaker (CB) cuts off any current flow higher than 2 A.. An auxiliary relays contact with a maximum contact load of 100VDC / 50W is provided to show the status of the automatic circuit breaker.

The enable relay (E-Rel) is a safety relay with forced contacts and is controlled by an external voltage of 72VDC. A yellow LED indicates the presence of the 72VDC on the relay coil. The maximum load on the E-Rel contact is 100VDC / 1A or 70VDC / 2.5A.

The I-Relay module

consists of two identical current monitoring circuits. The operation level is set to 200 - 220mA and the relay operation is indicated by a yellow LED. The current in the train line loop is determined by the loop resistance of minimum 150 Ohms. A built in fuse of 10A protects the I-Relay.

Nominal permanent coil current :	1.25A
Max. pulse current coil current:	30A during 1 s.
Insulation voltage:	1.5kV (loop against output contacts)
Output contact N.O:	potential free, max. 100VDC / 50W

Connector module

All required circuits are directly plugged to the connectors A-Lok an B-TLL. The module has several built in resistors for symmetry purposes, all mounted on heat sinks. The module is protected against reverse polarity and inputs are protected against transients by transzorb diodes.



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Socket A Lok (locomotive engine)

+ vehicle battery :	A Lok / Pin z20	Nom. 72VDC +25%/-30%
- vehicle battery :	A Lok / Pin d22	0V
+ TLL enable relay	A Lok / Pin z4	+ 72VDC 125%/-30%
- TLL enable relay	A Lok / Pin d4	0V
monitoring circuit breaker	A Lok / Pin z2	(potentialfree, "NC" contact)
monitoring circuit Breaker	A Lok / Pin d2	max. 110VDC/50W
current indication HEP trainline left	A Lok / Pin z6	(potentialfree, "NO" contact)
current indication HEP trainline left	A Lok / Pin d6	max. 110VDC/50W closed, if loop current > 200mA +20%
current indication HEP trainline right	A Lok / Pin z8	(potentialfree, "NO" contact)
current indication HEP trainline right	A Lok / Pin d8	max. 110VDC/50W closed, if loop current > 200mA +20%

Socket B TLL (train line loop)

HEP trainline-loop, left	B TLL / Pin z4	+ 72VDC
HEP trainline-loop, left	B TLL / Pin d6	- 72VDC
HEP trainline-loop, right	B TLL / Pin z8	+ 72VDC
HEP trainline-loop, right	B TLL / Pin d10	- 72VDC
current monitoring, trainline-loop, left	B TLL / Pin z12	
current monitoring, trainline-loop, left	B TLL / Pin d14	
current monitoring, trainline-loop, right	B TLL / Pin z16	
current monitoring, trainline-loop, right	B TLL / Pin d18	
ground	B TLL / z32	

Electrical test

Each complete rack is tested and the results are written down in a test report attached to each rack. Isolation prove test with 1.5kV between connector A-Lok and connector B-TLL and to the earth connector of the rack respectively.

Electrical protection

DC to DC converter input:	Transzorb Diodes against excessive voltage peaks
DC to DC converter output:	Zener Diode as voltage limiter
	Blocking Diodes against external noise voltages
	Overload circuit breaker 2 Amp.
Current relay input:	Fuse 10 Amp.



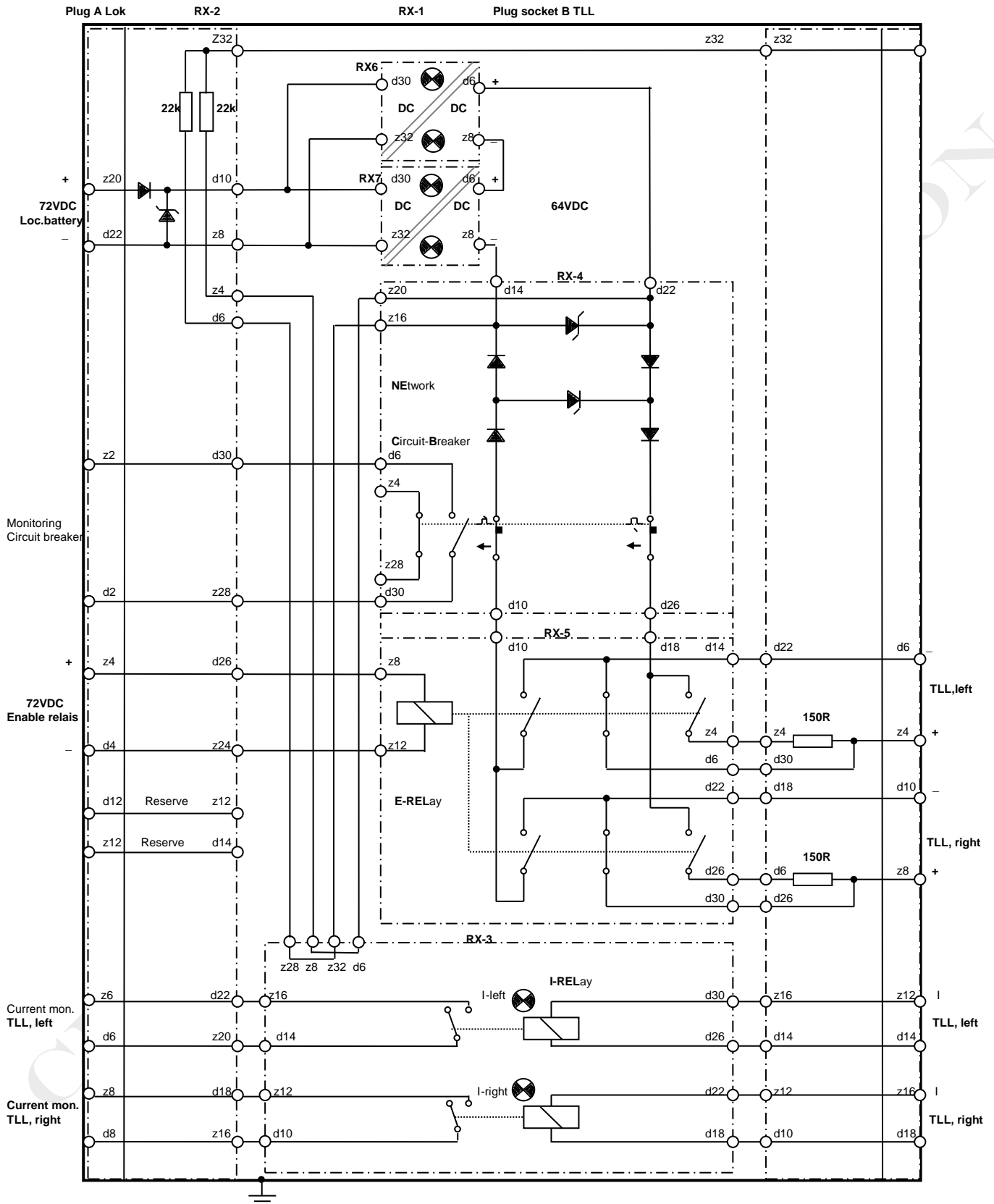
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Circuit diagram



RXn = Connector in rack



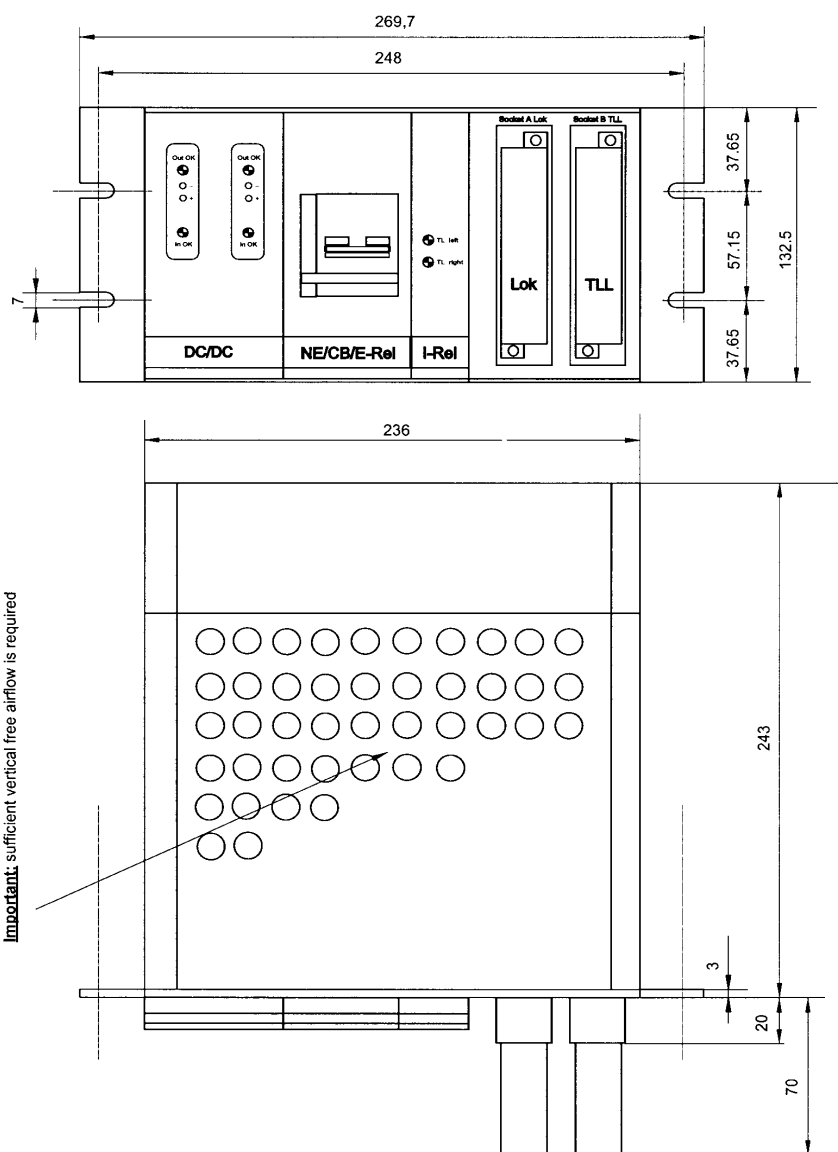
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Physical dimensions / Mounting



40 mm free air space required for sufficient ventilation



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Part list

1.	Rack		BZ 873
2.	Module	DC/DC -converter : 2 x (POWER-ONE) Typ: DQ2540-9R	BZ 873-6/7
3.	Module	NE/CB/E-Rel (Network / Circuit breaker / enable relay)	BZ 873-4/5
4.	Module	I-Rel (current relay)	BZ 873-3
5.	Module	Front sockets (A Lok and B TLL)	BZ 873-1/2

Test Report

Each completed rack is provided with a technical test report



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