

## /// Relay circuit test tool

Test tool for non-intrusive, in-service inspection and fault finding of relay circuit performance

### D-Dock Relay Circuit Test Tool



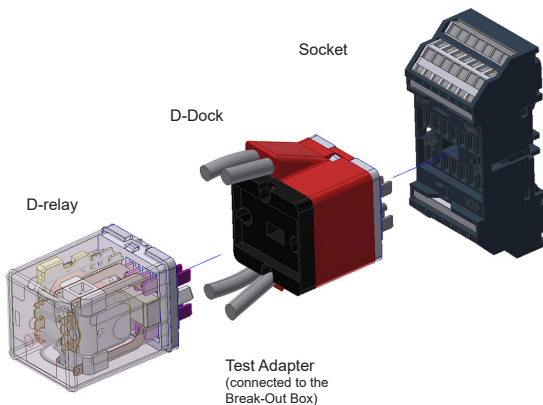
### Features

- Non-intrusive system, the train system remains fully functional
- Monitoring relay operation: voltage and current per relay contact and coil
- Enabling the user to connect measurement equipment
- Suitable for unattended multi-day monitoring and data storage
- Compact design to fit in tight train cabinets
- Suitable for any type of D-relays

### Description

The D-Dock system is a tool for inspection of relay and circuit during train operation. It monitors voltage and current without affecting train operation. It consists of a D-Dock Test Adapter connected to a Break-Out box.

The D-Dock Test Adapter is put between the existing relay socket and D-relay in the train.



All 14 relay pins are wired to the Break-Out Box enabling to connect measuring equipment like multimeters, scope meters or data analyzers to log operations during longer period. This makes fault finding easy. The D-Dock fits in tightly packed relay panels and small cabinets. It can operate unattended enabling normal passenger operating service.

### Application

To diagnose random and repetitive failures in a train system during operation as failures do not always occur or cannot be repeated in depots. Suitable for unattended multi-day monitoring and data storage.



# Relay Circuit Test Tool D-Dock

## Technical characteristics

Voltage range	24-230 VDC/VAC
Maximum current (per contact)	10 A for max. 60 s 5 A continuously
Insulation strength:	See table below

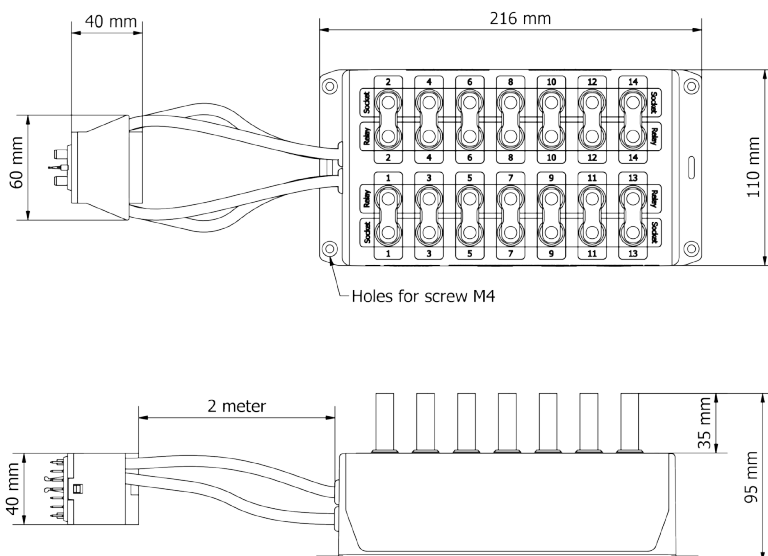
Required norm	Paragraph / Table	Circuitry voltage	Insulation	Required HV test voltage
APTA SS-E-001-98	4.5/4.6 Dielectric test	24 V	>2 MΩ @ 500 VDC	1048 V 50 Hz
		36 V	>2 MΩ @ 500 VDC	1072 V 50 Hz
		72 V	>2 MΩ @ 500 VDC	1144 V 50 Hz
		110 V	>4 MΩ @ 1000 VDC	1220 V 50 Hz
		230 V	>4 MΩ @ 1000 VDC	1460 V 50 Hz
IEC 60077-1 (2002)	6.3.3.3.2 / Table 4	24 V	n/a	750 V 50 Hz
		36 V	n/a	750 V 50 Hz
		72 V	n/a	1500 V 50 Hz
		110 V	n/a	1500 V 50 Hz
		230 V	n/a	1500 V 50 Hz

## Mechanical characteristics

Life time	Minimum 1000 times usage. After this period of use the unit must be inspected at a Mors Smitt Service Center.
Operating temperature	-25 °C...+50 °C
Number of cables	4
Cable length	2 meter, other lengths on request
Diameter cable	6.0 mm
Cross section copper wire (7x per cable)	0.34 mm <sup>2</sup>
Weight	1.3 kg

Note: Suitable for unattended multi-day monitoring and data storage (maximum one week)

## Dimensions (mm)

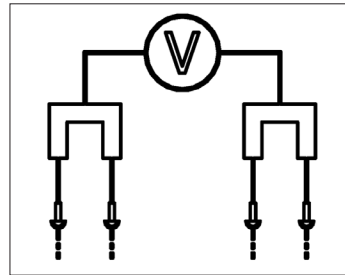


## Relay Circuit Test Tool D-Dock

### Connecting measuring equipment

#### A. Voltage measuring

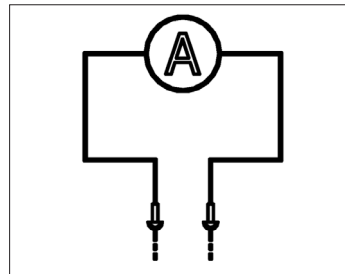
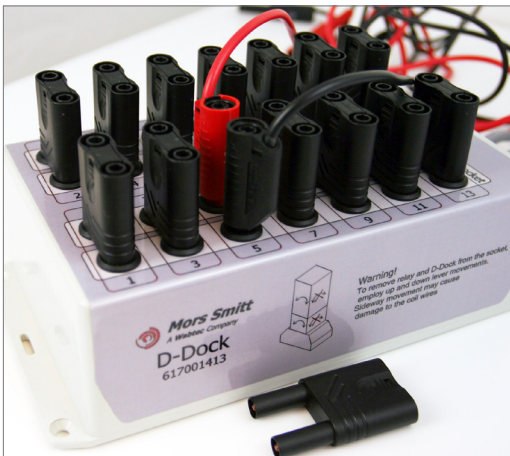
Connect measuring equipment to jumpers:



Example: Voltage measurement between contacts #2 and #5

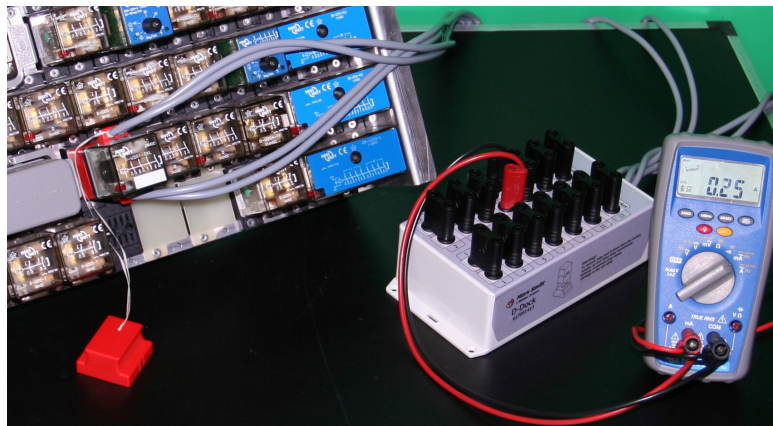
#### B. Current measuring

Connect measuring equipment to contacts of Break-Out box:



Example: Current measurement contact #5

#### Example current measurement D-relay



## Relay Circuit Test Tool D-Dock

### Ordering codes

Art. no.	Type
617001413	D-Dock

### Recommended accessories

				
Test lead, red	Test lead, black	NI 98III		

560410033	Test lead, 1.5 meter, stackable, red
560410034	Test lead, 1.5 meter, stackable, black
626005047	Multimeter, NI 98III

 **Over 10 million Mors Smitt relays in use in rail transport applications worldwide!**

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