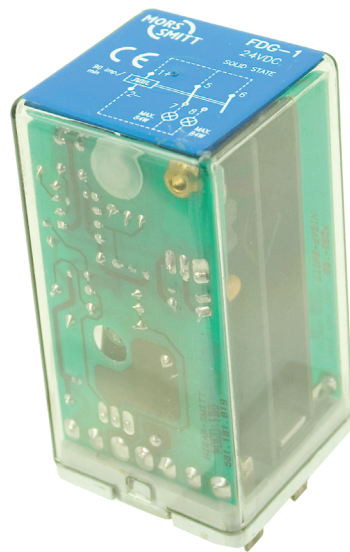


FDG-U200 relay - Flashing, 2 solid state contacts

Datasheet



(FDG-1 is shown)

Description

Plug-in electronic railway pulsing relay with two solid state contacts in counterphase. The pulse time and interval time are equal. There is no galvanic isolation between coil circuit and contacts.

The construction of the relay and choice of materials makes the FDG-U200 relay suitable to withstand low and high temperatures, shock & vibrating and dry to humid environments.

No external retaining clip needed as integrated 'snap-lock' will hold relay into socket under all circumstances and mounting directions.

Compact design and a wide range of sockets make the FDG-U200 relay an easy and flexible solution to use.

Application

These relay series are designed for demanding rolling stock applications. The FDG-U200 is designed to switch two sets of incandescent lamps (84 W maximum).

Features

- Flashing relay (symmetrical)
- Compact plug-in design
- Solid state contacts 1 N/O and 1 N/C in counterphase
- Fixed pulse and interval time
- Flat, square and silver plated relay pins for excellent socket connection
- Wide range sockets
- Integrated snap lock
- Transparent cover
- Optional positive mechanical keying relay to socket

Benefits

- Proven reliable
- Long term availability
- Easy to maintain
- Low life cycle cost
- No maintenance

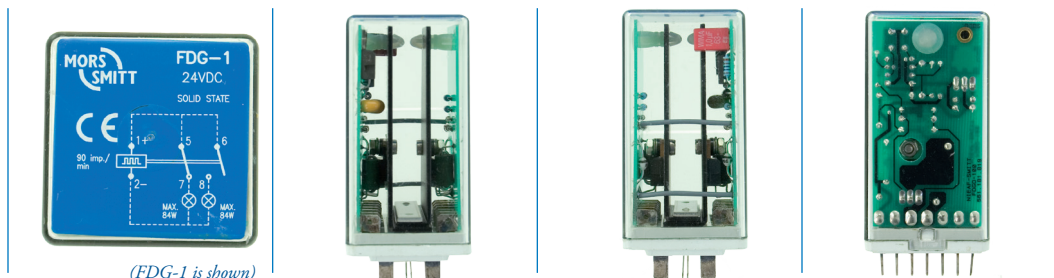
Railway compliancy

- EN 50155 Electronic equipment used on rolling stock for railway applications
- IEC 60571 Electronic equipment used on railway vehicles
- IEC 60077 Electrical equipment for rolling stock in railway applications
- IEC 60947 Low voltage switch gear and control gear
- IEC 61373 Rolling stock equipment - Shock and vibration test
- IEC 60947-5-4 Electromechanical components for control applications. This standard examines both coil and contact specifications in depth
- NF F 16-101/102, EN 45545-2 Fire behaviour - Railway rolling stock
- NF F 62-002 On-off contact relays and fixed connections

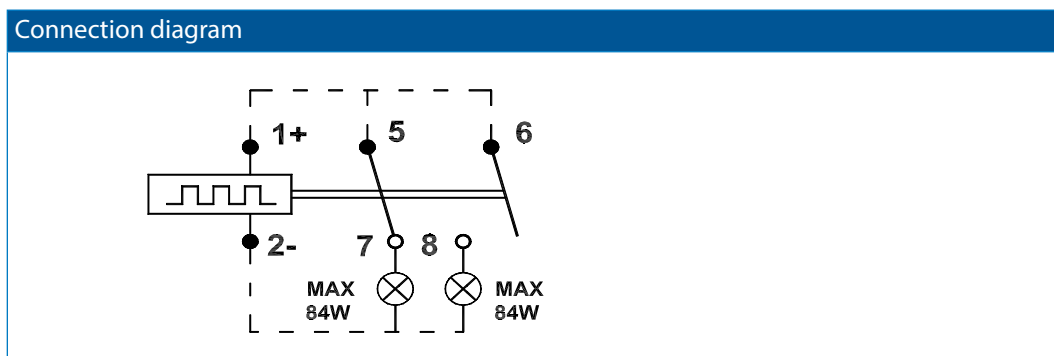
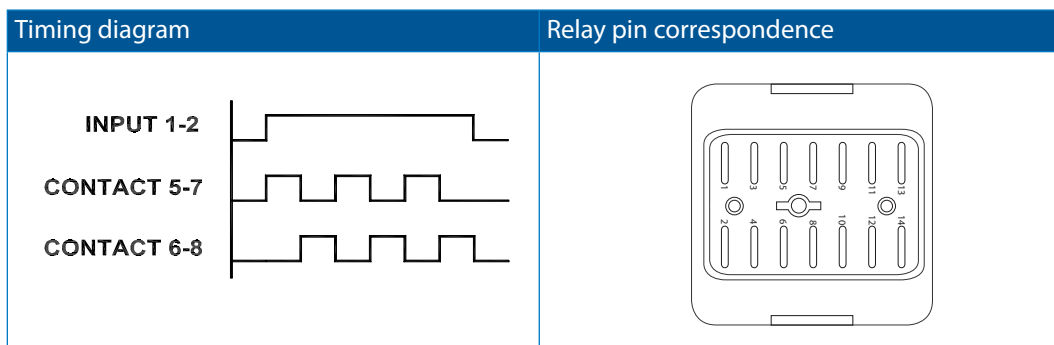


FDG-U200 relay

Technical specifications



Functional and connection diagrams



Time delay specifications

Time delay function	Flashing (symmetrical)
Pulsing frequency	30 / 60 / 90 / 120 per minute
Other times	On request

Coil characteristics

Operating voltage range	0.7...1.25 U_{nom}
Nominal power consumption	0.8 W

Type	U_{nom} (VDC)	U_{min} (VDC)	U_{max} (VDC)
FDG-U201	24	16.8	30

Other types on request



FDG-U200 relay

Technical specifications

Contact characteristics

Amount and type of contacts	1 N/O + 1 N/C solid state
Maximum switching capacity	2 lamps of 84 W

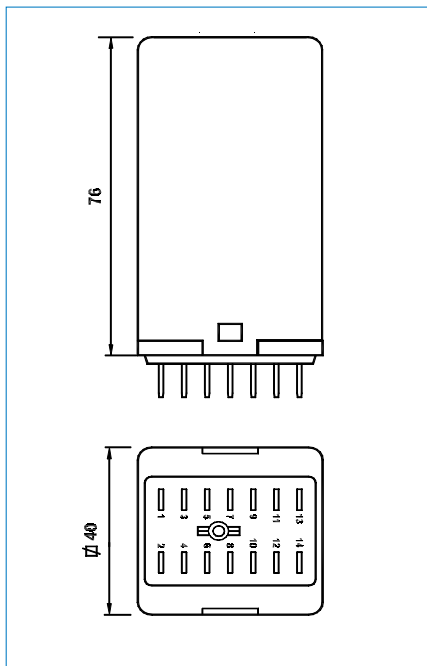
Mechanical characteristics

Weight	105 g
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Environmental characteristics

Environmental	EN 50125-1 and IEC 60077-1
Vibration	IEC 61373, Category I, Class B, Body mounted
Shock	IEC 61373, Category I, Class B, Body mounted
Operating temperature	-25 °C...+70 °C
Humidity	90 %
Protection	IEC 60529, IP40 (relay on socket)
Fire & smoke	NF F 16-101, NF F16-102, EN 45545-2
Insulation materials	Cover: polycarbonate Base: polyester

Dimensions



FDG-U200 relay Sockets

Mounting possibilities/sockets



Surface/wall mounting

338000302	V22BR	Screw socket, wall mount, front connection (9 mm terminals)
338000580	V23	Screw socket, wall mount, front connection (7.5 mm terminals)
338000610	V29	Spring clamp socket, wall mount, front dual connection (2.5 mm ²)

Rail mounting

338000580	V23	Screw socket, rail mount, front connection (7.5 mm terminals)
338000402	V23BR	Screw socket, rail mount, front connection (9 mm terminals)
338000610	V29	Spring clamp socket, rail mount, front dual connection (2.5 mm ²)

Panel/flush mounting

338100100	V3	Solder tag socket, panel mount, rear connection
328400100	V26	Crimp contact socket, panel mount, rear connection, A260 crimp contact
338000560	V31	Faston connection socket, rear dual connection (6.3 mm)
338000570	V33	Spring clamp socket, flush mount, rear dual connection (2.5 mm ²)

PCB mounting

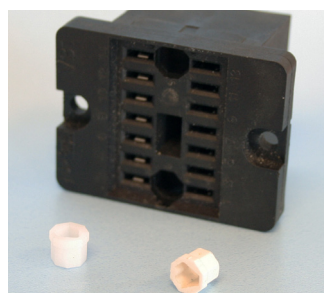
338000561	V32	PCB soldering socket
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For more details see datasheets of the sockets



FDG-U200 relay Keying

Mechanical keying relay and socket (optional)



Function:

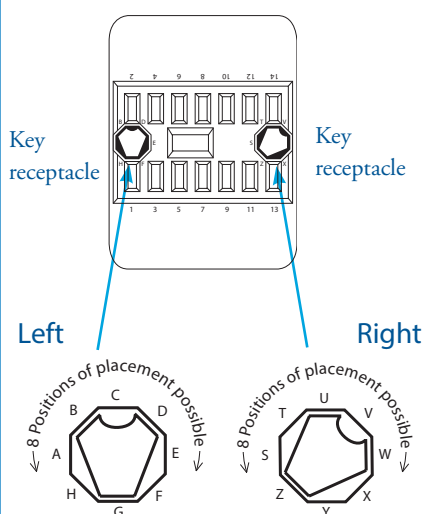
- To prevent wrong installation
- To prevent damage to equipment
- To prevent unsafe situations

Using keyed relays and sockets prevents a relay is inserted in a wrong socket. For example it prevents that a 24 VDC relay is put in a 110 VDC circuit. Positive discrimination is possible per different function, coil voltage, timing, monitoring, safety and non-safety.

The D relay socket keying option gives $8 \times 8 = 64$ possibilities. Upon ordering the customer simply indicates the need for the optional keying. Mors Smitt will assign a code to the relay and fix the pins into the relay. The sockets are supplied with loose key receptacles. Inserting the keys into the socket is very simple and self explaining.

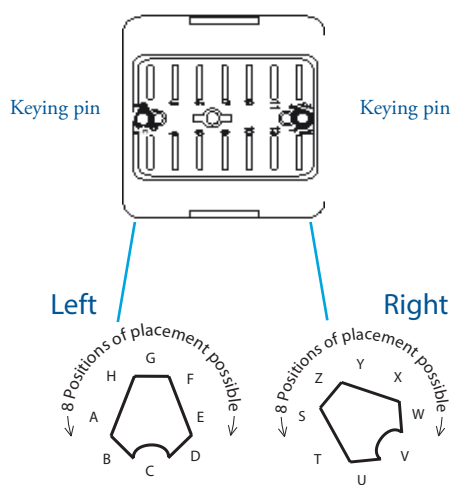
Remark: Sockets and relay shown are only examples.

Top view socket



Example keying position G-Z on socket

Bottom view relay



Example keying position G-Z on relay



FDG-U200 relay

Instructions

Installation, operation & inspection

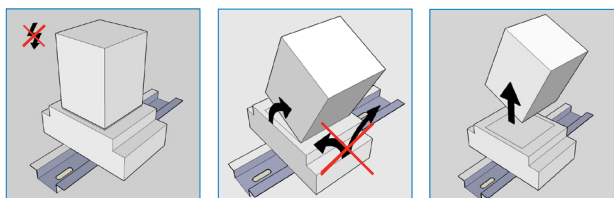
Installation

Before installation or working on the relay: disconnect the power supply first! Install socket and connect wiring according to the terminal identification. Plug relay into the socket ensuring there is no gap between the bottom of relay and the socket. Reverse installation into the socket is not possible due to the mechanical blocking snap-lock feature. Check to ensure that the coil connection polarity is not reversed. Relays can be mounted tightly together to save space.

When rail mounting is used, always mount the socket in the direction of the UP arrow, to have proper fixation of the socket on the rail.

Warning!

- Never use silicon in the proximity of the relays.
- To remove relays from the socket, employ up and down lever movements. Sideway movement may cause damage to the coil wires.



Operation

After installation always apply the rated voltage to the coil to check correct operation.

Long term storage may corrode the silver on the relay pins. When plugging the relay into the socket, the female bifurcated or trifurcated receivers will automatically cut through the corrosion on the pins and guarantee a reliable connection.

Condensation in the relay is possible when the coil is energised (warm) and the outside, environmental temperature is cold. This is a normal phenomenon and will not affect the function of the relay. Materials in the relay have no hygroscopic properties.

Inspection

If the relay does not seem to operate correctly, check for presence of the appropriate coil voltage and polarity using a suitable multimeter. If coil voltage is present, but the relay does not operate, a short circuit of the suppression diode is possible (This may be due to the coil connection having been reversed).

If the relay doesn't work after inspection, replace the relay unit with a similar model. Do not attempt to open the relay cover or try to repair. Re-soldering may affect correct operation. Since 2009 relays have tamper proof seals fitted and once broken, warranty is void.

Most relay defects are caused by installation faults such as over voltage, spikes/transients, high/short current far exceeding the relay specifications. When returning the relays for investigation, please provide all information on the RMA form. Send defective relays back to the manufacturer for repair or replacement. Normal wear and tear or external causes are excluded from warranty.



FDG-U200 relay

Ordering scheme

Configuration:



1. Relay model 2. Coil voltage 3. Pulse time

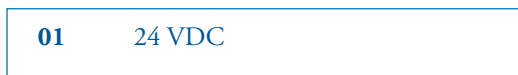
This example represents a **FDG-U201-90 imp/min**

Description: FDG-U200 series relay, U_{nom}: 24 VDC, 90 impulses per minute.

1. Relay model



2. Coil voltage



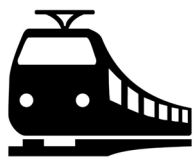
3. Pulse time

30 imp/min	30 impulses per minute
60 imp/min	60 impulses per minute
90 imp/min	90 impulses per minute
120 imp/min	120 impulses per minute

Other times on request

Upon ordering indicate keying if necessary





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