SPECIFICATIONS

OF

VIBRATION DETECTION SWITCH

MODEL NAME : D7E-1

OUTLINE DRAWING NO. 6421377-0

WRITTEN : Y. Kamihashi Aug 6, 1997

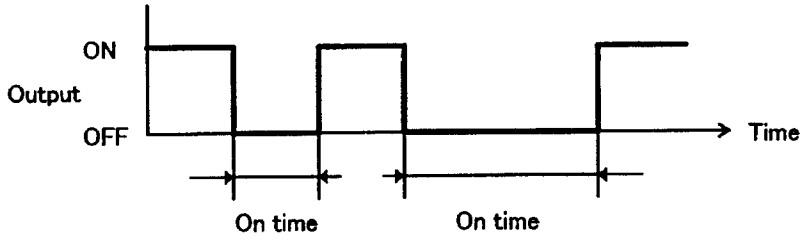
CHECKED: S. Mori Aug 6, 1997

APPROVED: N. Ashikaga Aug 6 1997

OMRON CORPORATION

1. CONSTRUCTION

1-1 Outline dimensions	DRWG. No. 6421377-0
1-2 Switching mechanism	To output the ON/OFF signal by mechanical switching of the internal switch contact by vibration.
1-3 Enclosure rating	IP67 (Only internal switch)
1-4 Operating seismic intensity	130 to 200 gal* (cycle : 0.3, 0.5, 0.7sec.) Target value not to operate at less than 130 gal, and operate within 5 sec. At 200gal. *: 1 gal (cm/s^2) : 0.001G.
1-5 Returning angle (From operating condition)	2.5 degree MIN. from the horizontal
1-6 On time	50msec. MIN. (cycle: 0.3, 0.5, 0.7 sec./200gal)



1-7 Return mechanism	Self-reset
1-8 Permissible mounting level	±0.5 degree MAX. from the horizontal
1-9 Gradient of sensitivity	20gal MAX. / 1 degree
1-10 Contact form	Single pole single throw (NC contacts / slow action)
1-11 Returning time	1 min. MAX.(mounting level ±0.5 degree MAX.)
1-12 Terminal	#187 quick connect /solder terminal (thickness=0.5mm)
1-13Mounting	Pitch: 30mm 2 screws(M3) Height of the product : 5.3mm (Please refer to drawing in detail.)
1-14 Soldering	Soldering iron : temperature 350±10℃, 3 sec. MAX.

2. ELECTRICAL CHARACTERISTICS

2-1 Ratings 5VDC, 0.1mA to 30VDC, 100mA (Resistive load)

2-2 Insulation resistance and dielectric strength

Measuring parts	Insulation resistance (250 VDC Megger)	Dielectric* strength (50 to 60 Hz 1 minute)
Between each terminal ** of the same polarity	100 M Ω MIN.	250 VAC

* Leak current is 1mA MAX.

** To measure off condition

2-3 Contact resistance 100 m Ω MAX. (Initial value)

3. MECHANICAL CHARACTERISTICS

3-1 Vibration during transporting

Must be free from any malfunctions both electrically and mechanically

Condition Vibration : 200 gal (1cycle : 0.5 sec.)

Vibration direction : in the three axial directions

Time : Total 50 hours

* Operating seismic intensity should be 130 to 200gal.

3-2 Shock

Must be free from any malfunctions both electrically and mechanically

Condition Acceleration : 980 m/s^2 (100G) 3 times

Shock direction : in the three axial directions

3-3 Shock during transporting

Must be free from any malfunctions both electrically and mechanically

The box which packaged switches are dropped from 50±1cm high toward a composite plate.

(thickness 30mm MIN.)

3-4 Terminal strength

Must be free from any malfunctions both electrically and mechanically (Refer to Note2.)

Apply force to the terminal, 78.4N vertically and 49N horizontally ,1 minute each.

4. ENVIRONMENT CHARACTERISTICS

4-1 Operating temperature and humidity

Temperature : -25℃ to + 60℃ (No icing and condensation)

Humidity : 45 to 95 %RH

4-2 Storage temperature and humidity

Temperature : -25℃ to + 60℃ (No icing and condensation)

Humidity : 45 to 95 %RH

5. ENDURANCE CHARACTERISTICS

5-1 Salt spray

The switch is sprayed with 5±0.5% salt water for 96 hours.

No remarkable corrosion is allowed and must be free from any malfunctions both electrically and mechanically

Contact resistance should be 100 Ω MAX. (To measure after salt is removed by water and the switch dries well.)

5-2 Moisture Endurance

Must be free form any malfunctions both electrically and mechanically after the switch is left in a temperature of 40±2℃ and humidity of 90 to 98%RH for 240 hours.(To measure after the switch dries well.)

5-3 Oil Endurance

Change of weight must be 20% MAX. after the switch is dipped in Gasoline 1 at 20±5℃ for 24 hours.

5-4 Heat Endurance

Must be free from any malfunctions both electrically and mechanically after the switch is left in a temperature of 70±5℃ for 96 hours.

5-5 Cold Endurance

Must be free from any malfunctions both electrically and mechanically after the switch is left in a temperature of -35±5℃ for 96 hours.

5-6 High temperature/humidity

Must be free from any malfunctions both electrically and mechanically after the switch is left in a temperature of 70±2℃ and humidity of 90 to 98%RH for 240 hours.

5-7 Corrosive gas

H_2S : 3±1ppm, SO_2 : 10±3ppm, 40℃, 75%RH, 96 hours

Must be free from any malfunctions both electrically and mechanically after the switch is left under above condition. Contact resistance should be 100 Ω MAX.

6. ELECTRICAL SERVICE LIFE

Must be free from any malfunctions both electrically and mechanically after 5,000 operations under the rated resistive load of 30VDC, 100mA at a frequency of 10 to 20 operations per minute.

7. OTHERS

Note1.

1) If mounting surface is warped, there is a possibility that switch performance might be changed because of switch deformation when it's mounted. (Warp of mounting surface : 0.3mm MAX.)
   Use two M3 screws with spring washers to mount the switch.
   Tighten the screws to a torque of 0.4N to 0.6N·m (4 to 6kgf·cm).
2) Do not set the switch where its mechanically characteristics is affected badly, like door opening, car passage and other vibration and shock.
3) Do not put the switch in direct sunshine.
4) Mechanical deterioration caused by water cleaning, water covered, leak of oil and other organic solvent. Is not guaranteed by us.

Note2.

To be evaluated as "free from any malfunctions both electrically and mechanically" the switch must satisfy following requirements.

When installed the sensor at 0.5 degree from the horizontal.

1) Contact resistance 1Ω MAX.
2) Insulation resistance 10MΩ MIN. (250VDC meggar)
3) Operating seismic intensity More than ±20% of specified range is not acceptable
4) Dielectric strength 250VAC 50/60Hz for 1 minute (Leak current : 1mA MAX.)

Note3.

This specification is invalid if we receive no approval or no order replacement of yours within a year since this is submitted. In a case of service parts, we will replace with new specifications.

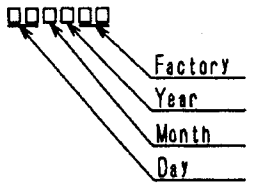
Note4.

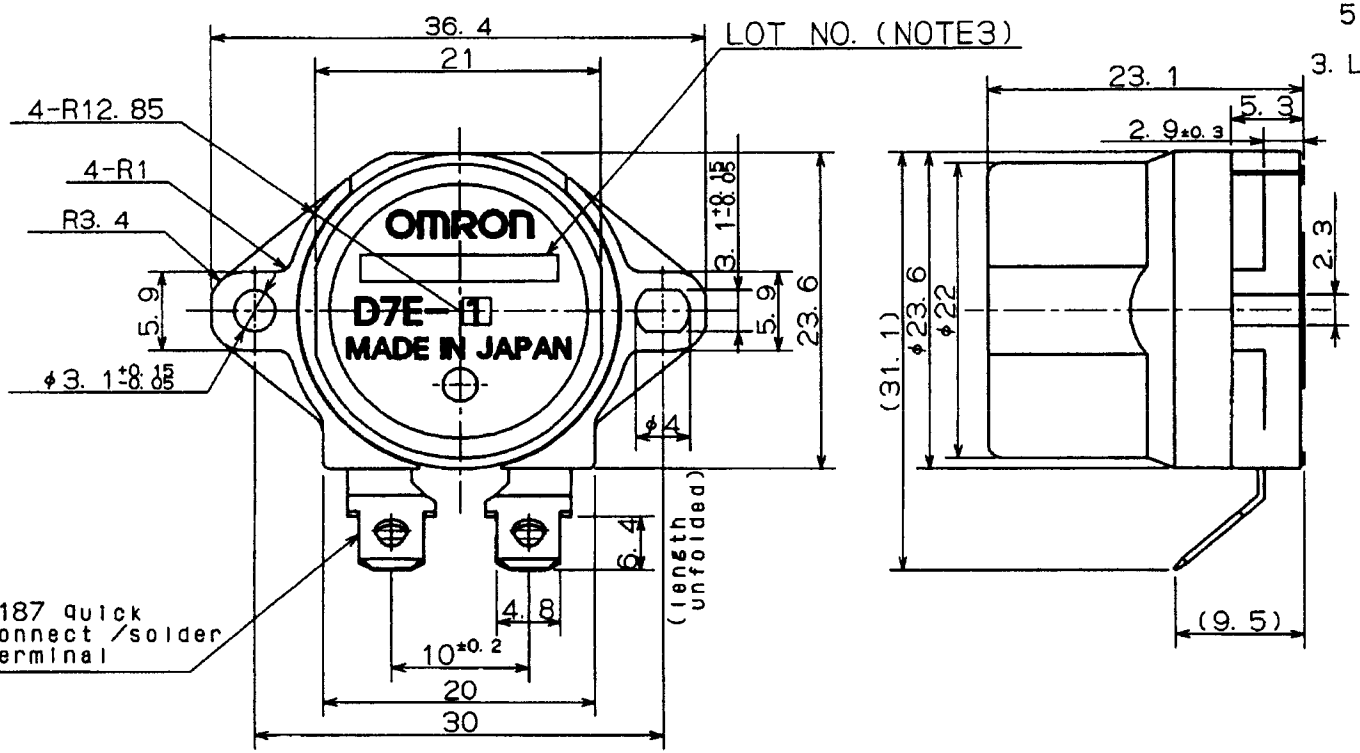
Others not included in this specifications are subjects to change without notice

注1. Operating seismic intensity 130 to 200 gal (cycle 0.7, 0.5, 0.3 sec)

2. Rating
5VDC 0.1mA ~ 30VDC 100mA

3. LOT NO.





SYM	DATE	E/C CONTENTS	E/C NO.	SIGN

MATERIAL		SCALE	2:1
FINISH		3RD ANGLE	
TOLERANCES UNLESS SPECIFIED ±0.4	DESIGNED Y Kamihashi Aug. 4 1997 / CHECKED S. Mori Aug. 4 1997 / APPROVED N' Ashikaga Aug. 4 1997	SHEET	1/1

THE MODEL D7E-1
VIBRATION DETECTION SWITCH
OUTLINE DRAWING

DRWG NO. 6421377-0 A

DESIGNED FOR D7E-1

© OMRON Corporation 1993
All Rights Reserved

OMRON

A4