

# MK2 Series

# MEDER electronic

Ferromagnetic Metal  
Detection Sensors

## DESCRIPTION

These reed proximity switches operate when in the presence of magnetically conductive material. Instead of an actuating magnet, only a simple piece of iron is required to operate the sensor from the front or from above. The standard cable is UL listed and is round twin core 2 x 0.35 mm<sup>2</sup> (AWG22).



## APPLICATIONS

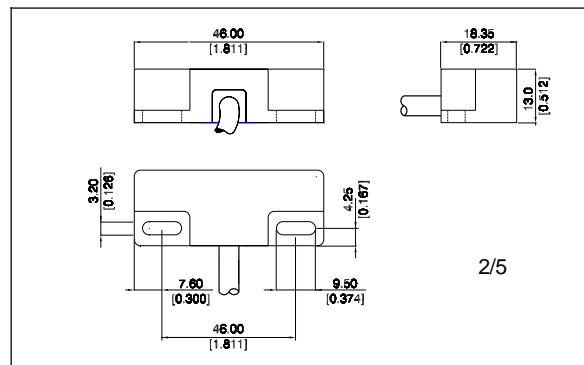
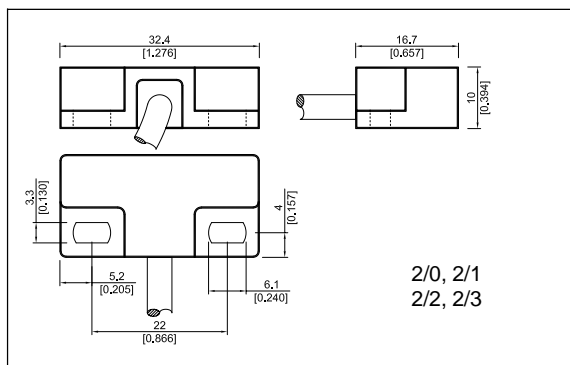
- Industrial applications
- End travel sensing limit switch in pneumatic cylinders
- Position control
- Control functions in plant and utility vehicles
- Security applications
- Door and window control
- Opening recognition contact
- Fire protection doors

## FEATURES

- Form A and B are available
- High power switches available
- Other cables, connectors and colors available
- A choice of cable terminations and lengths are available

## DIMENSIONS

All dimensions in mm [inches]



## ORDER INFORMATION

Part Number Example

MK2/0 - 1A66 - 500 W

**MK2/0** is the front operation series  
**1A** is the contact form  
**66** is the switch model  
**500** is the cable length (mm)  
**W** is the termination

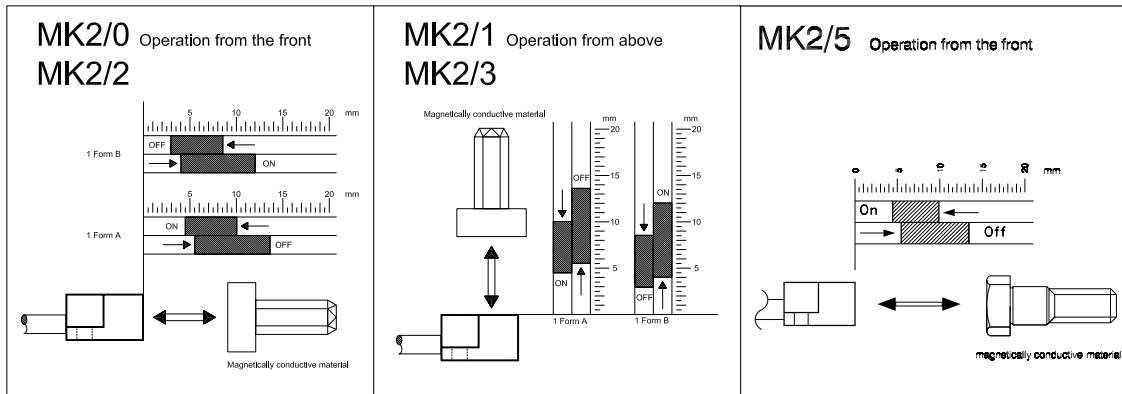
|         | SERIES                 | CONTACT FORM | SWITCH MODEL | CABLE LENGTH(mm) | TERMINATION    |
|---------|------------------------|--------------|--------------|------------------|----------------|
|         | MKX/X -                | XX           | XX -         | XXX              | X              |
| OPTIONS | 2/0, 2/1<br>2/2*, 2/3* | 1 Form A     | 66           | 500 **           | S*, W, X, Y, U |
|         |                        | 1 Form B     | 90           |                  |                |
|         | 2/5                    | 1 Form A     | 41           |                  |                |

\* S option only available with 22/ and 2/3.  
\*\* Other cable length available.

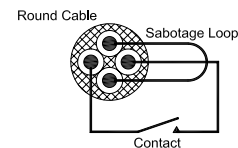
[www.meder.com](http://www.meder.com)

**OPERATION EXAMPLE**

For best operation it is recommended that you **DO NOT** mount these sensors on any ferromagnetic material **OR** use any ferromagnetic screws.



The MK2/2 and 2/3 are available as Form A and Form B sensors. The standard cable is a 4-wire round - core 4 x 0.14 mm<sup>2</sup> (cable sheath and wires are white) forming a sabotage loop. See example of this loop to the right.



(Sabotage loop for MK2/2 and 2/3.)

**TERMINATION**

For wire and termination details please consult factory.

|          |  |  |
|----------|--|--|
| <b>S</b> |  | The cable cut length includes: 30 mm of exposed insulated wire with 5 mm of wire stripped and tinned |
| <b>W</b> |  | The cable cut length includes: 30 mm of exposed insulated wire with 5 mm of wire stripped and tinned |
| <b>X</b> |  | The cable cut length includes: 30 mm of exposed insulated wire with individual crimped terminals     |
| <b>Y</b> |  | The cable cut length includes: 30 mm of exposed insulated wire with individual spade terminals       |
| <b>U</b> |  | Cable with click sensor-connector (3 pole, M8)   |

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Detection Sensors

## CONTACT DATA

| All data at 20 °C                         | Switch Model --><br>Contact Form -->                           | Switch 41<br>Form A |      |      | Switch 66<br>Form A |      |      | Switch 90<br>Form B |      |      |       |
|---|--|---------------------|------|------|---------------------|------|------|---------------------|------|------|-------|
| Contact Ratings                           | Conditons  | Min.                | Typ. | Max. | Min.                | Typ. | Max. | Min.                | Typ. | Max. | Units |
| Switching Power                           | Any DC combination of V & A not to exceed their individual max |                     |      | 16   |                     |      | 10   |                     |      | 3    | W     |
| Switching Voltage                         | DC or peak AC  |                     |      | 40   |                     |      | 200  |                     |      | 175  | V     |
| Switching Current                         | DC or peak AC  |                     |      | 0.4  |                     |      | 0.5  |                     |      | 0.25 | A     |
| Carry Current                             | DC or peak AC  |                     |      | 0.7  |                     |      | 1.25 |                     |      | 1.2  | A     |
| Static Contact Resistance                 | w/ 0.5 V & 50 mA   |                     |      | 100  |                     |      | 150  |                     |      | 150  | mΩ    |
| Dynamic Contact Resistance                | w/ 0.5 V & 50 mA   |                     |      | 150  |                     |      | 200  |                     |      | 250  | mΩ    |
| Insulation Resistance (100 Volts applied) | Across contacts<br>Contact to coil                             | 10 <sup>9</sup>     |      |      | 10 <sup>10</sup> *  |      |      | 10 <sup>9</sup>     |      |      | Ω     |
| Breakdown Voltage                         | > 60 sec   | 150                 |      |      | 225*                |      |      | 200                 |      |      | VDC   |
| Operate Time, incl. Bounce                | Measured w/ 100 % overdriv                                     |                     |      | 0.7  |                     |      | 0.5  |                     |      | 0.7  | ms    |
| Reset Time                                | Measured w/ no coil suppression                                |                     |      | 0.05 |                     |      | 0.1  |                     |      | 1.5  | ms    |
| Capacitance                               | Across contacts<br>Contact to coil                             |                     | 0.3  |      |                     | 0.2  |      |                     | 1.0  |      | pF    |
| Contact Operation**                       |  |                     |      |      |                     |      |      |                     |      |      |       |
| Must Operate Condition                    |  | 8                   |      | 12   | 4.5                 |      | 10   | 3.0                 |      | 8.5  | mm    |
| Must Release Condition                    |  | 10                  |      | 16   | 5.5                 |      | 13.5 | 4.0                 |      | 12   | mm    |
| Environmental Data                        |  |                     |      |      |                     |      |      |                     |      |      |       |
| Shock Resistance                          | 1/2 sine wave duration 11ms                                    |                     |      | 30   |                     |      | 30   |                     |      | 50   | g     |
| Vibration Resistance                      | From 10 - 2000 Hz  |                     |      | 10   |                     |      | 10   |                     |      | 20   | g     |
| Amvient Temperature                       | 10 °C/ minute max. allowable                                   | -20                 |      | 80   | -20                 |      | 85   | -20                 |      | 85   | °C    |
| Storage Temperature                       | 10 °C/ minute max. allowable                                   | -20                 |      | 80   | -35                 |      | 85   | -35                 |      | 85   | °C    |
| Soldering Temperature                     | 5 sec. dwell   |                     |      |      |                     |      | 260  |                     |      | 260  | °C    |

Please note: The indicated data are maximum values and can vary downwards when using a more sensitive switch.  
 \* Insulation resistance of 10<sup>12</sup> and breakdown voltage of 480 VDC is available.  
 \*\* These ranges refer to the uncut / unmodified Reed Switches described in our Reed Switch section. Consult factory if more details is required.



*Products for tomorrow...*

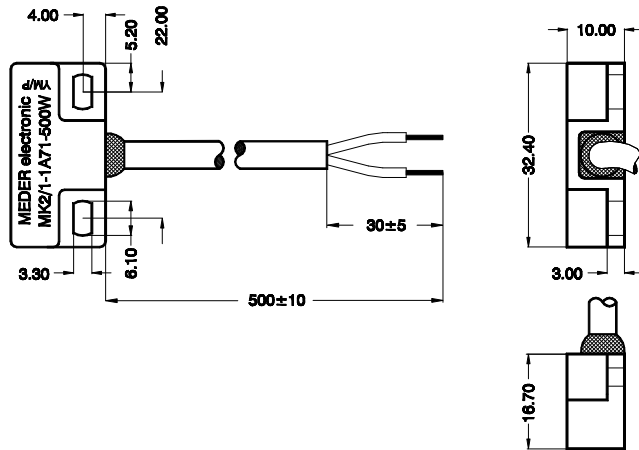
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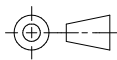
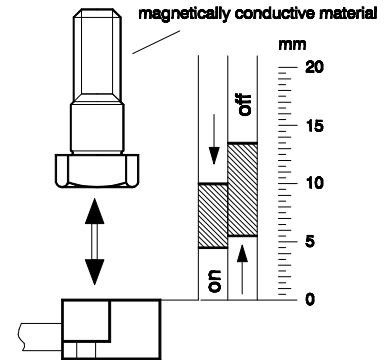
Reed Sensor: MK2/1-1A71-500W

Part Number: 2221711054

**Dimensions (mm) / Marking**



**Switching distance**



MEDER-Label

Type Production-Code EN60062/Factory Code

| Switching Distance               | Conditions at 20°C | Min. | Typ. | Max. | Units |
|----------------------------------|--------------------|------|------|------|-------|
| Contact closed / Switch modified |                    | 4,5  |      | 10   | mm    |
| Contact opened / Switch modified |                    | 5,5  |      | 13,5 | mm    |

| Contact Data 71/7 (Form A/Dry)      |  |                  |     |     |     |
|-------------------------------------|--|------------------|-----|-----|-----|
| Contact Rating                      | Any combination of the switching voltage and current must not exceed the given rated power |                  |     | 10  | W   |
| Switching Voltage                   | DC or Peak AC  |                  |     | 180 | V   |
| Switching Current                   | DC or Peak AC  |                  |     | 0,5 | A   |
| Carry Current                       | DC or Peak AC  |                  |     | 1,5 | A   |
| Static Contact Resistance (initial) | Measured with 40% overdrive  |                  |     | 150 | mΩ  |
| Insulation Resistance               | RH 45%   | 10 <sup>12</sup> |     |     | Ω   |
| Breakdown Voltage                   |  | 200              |     |     | VDC |
| Operate Time, including Bounce      | Measured with 40% overdrive  |                  |     | 0,5 | ms  |
| Release Time                        |  |                  |     | 0,1 | ms  |
| Capacitance                         |  |                  | 0,3 |     | pF  |

| Environmental Data            |                             |     |  |  |    |
|-------------------------------|-----------------------------|-----|--|--|----|
| Shock                         | ½ sine wave, duration 11ms  |     |  | 150  | g  |
| Vibration                     | from 10 - 2000 Hz           |     |  | 10   | g  |
| Operating Temperature         | 10°C/min max. allowable     | -20 |  | 85   | °C |
| Storage Temperature           | 10°C/min max. allowable     | -20 |  | 85   | °C |
| Soldering Temperature         | 5 sec. at                   |     |  | 260  | °C |
| Cleaning                      |                             |     |  | fully sealed   |    |
| Material of Case              |                             |     |  | Glassfibre reinforced polybutylene terephthalate (PBTP) self-extinguishing self-extinguishing V-0 according to UL94                                  |    |
| Sealing Compound              |                             |     |  | Polyurethane   |    |
| Cable                         |                             |     |  | Round cable 2 x 0,25 mm <sup>2</sup> , Ø3,4 mm, grey<br>Colour of wire: brown / blue (brown / white)<br>Ends of cable with approx. 5 mm tinned leads |    |
| Contact Resistance with Cable | Measured with 40% overdrive |     |  | 280  | mΩ |

|         |   |
|---------|---|
| Remarks | The MK2/1 must not be mounting on iron.<br>When mounting the sensor, magnetically conductive screws must not be used. |
|---------|---|

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