

### Functional principle

The HF read/write heads operating at a frequency of 13.56 MHz, form a transmission zone the size of which (0...500 mm) varies, depending on the combination of read/write head and data carrier.

The read/write distances mentioned here only represent standard values measured under laboratory conditions and free from any influences caused by materials.

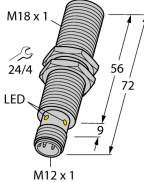
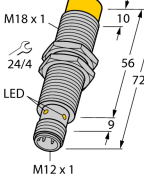
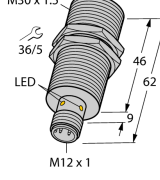
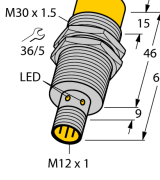
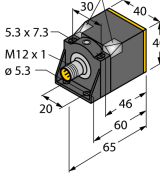
The read/write distances of data carriers suitable for mounting in/on metal were determined in/on metal.

Attainable distances may vary by up to 30 % due to component tolerances, mounting conditions, ambient conditions and material qualities (especially when mounted in metal)

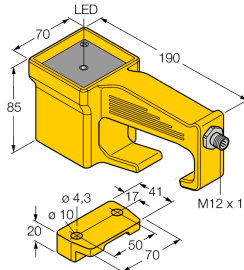
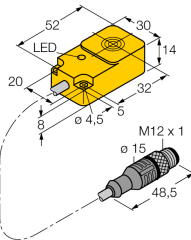
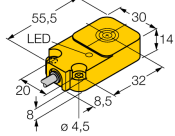
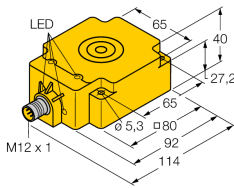
Testing of the application under real operating conditions is therefore essential, especially with read/write on-the-fly!

|                                                      |                     |
|------------------------------------------------------|---------------------|
| <b>Type designation</b>                              | TW-R50-M-K2         |
| Ident-No.                                            | 7030229             |
| <b>Type</b>                                          | TW-R50-M-K2         |
| Ident. no.                                           | 7030229             |
| <b>Data transfer</b>                                 | Inductive coupling  |
| Operating frequency                                  | 13.56 MHz           |
| Memory type                                          | FRAM                |
| Chip                                                 | Fujitsu MB89R118    |
| Memory                                               | 2048 Byte           |
| Memory                                               | Read/Write          |
| Freely usable memory                                 | 2000 Byte           |
| Number of read operations                            | unlimited           |
| Number of write operations                           | 10 <sup>10</sup>    |
| Typical read time                                    | 0.5 ms/byte         |
| Typical write time                                   | 0.5 ms/byte         |
| Radio communication and protocol standards           | ISO 15693           |
| <b>Minimum distance to metal</b>                     | 0 mm                |
| Temperature of data carrier during read/write access | -25...+85 °C        |
| Temperature of data carrier outside detection range  | 85                  |
|                                                      | 140, 1x100 h        |
| <b>Design</b>                                        | Hard tag, R50       |
| Diameter                                             | 50 mm               |
| Housing material                                     | PET                 |
| Active area material                                 | Plastic, PET, black |
| Protection class                                     | IP68                |
| <b>Packaging unit</b>                                | 1                   |

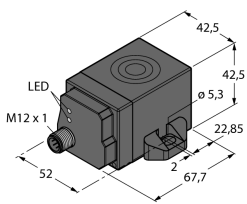
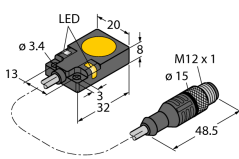
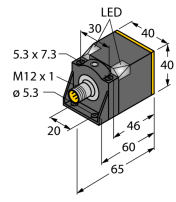
**Read/write heads**

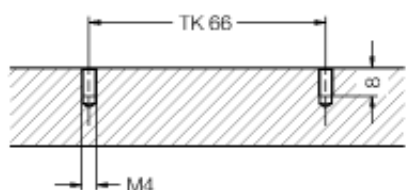
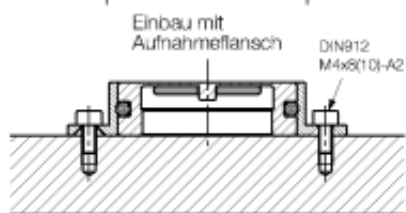
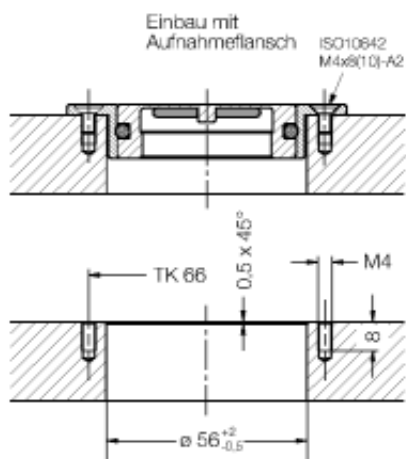
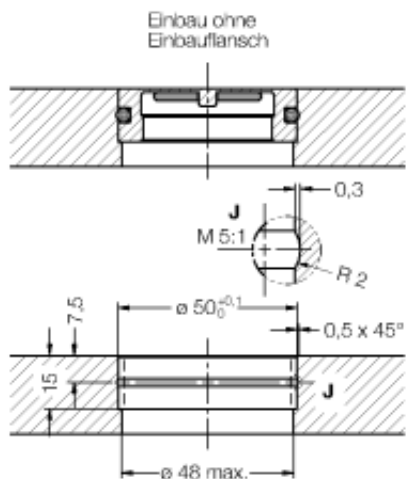
| Dimensions                                                                          | Type designation                          | Read-write distance   |           | Transfer zone       |                           | Minimum distance between two read-write heads |
|-------------------------------------------------------------------------------------|-------------------------------------------|-----------------------|-----------|---------------------|---------------------------|-----------------------------------------------|
|                                                                                     | Ident - no.                               | Recommend-<br>ed (mm) | max. [mm] | length<br>max. [mm] | width offset<br>max. [mm] | [mm]                                          |
|    | <b>TB-M18-H1147</b><br>7030001            | 7                     | 15        | 24                  | 12                        | 54                                            |
|                                                                                     | <b>TB-EM18WD-H1147</b><br>7030224         | 7                     | 15        | 24                  | 12                        | 54                                            |
|   | <b>TN-M18-H1147</b><br>7030002            | 10                    | 22        | 32                  | 16                        | 54                                            |
|                                                                                     | <b>TN-EM18WD-H1147</b><br>7030223         | 10                    | 22        | 32                  | 16                        | 54                                            |
|                                                                                     | <b>TN-M18-H1147/C53</b><br>7030728        | 10                    | 22        | 32                  | 16                        | 54                                            |
|  | <b>TB-M30-H1147</b><br>7030003            | 10                    | 21        | 26                  | 13                        | 90                                            |
|                                                                                     | <b>TB-EM30WD-H1147</b><br>7030221         | 10                    | 21        | 26                  | 13                        | 90                                            |
|  | <b>TN-M30-H1147</b><br>7030004            | 15                    | 30        | 32                  | 16                        | 90                                            |
|                                                                                     | <b>TN-EM30WD-H1147</b><br>7030222         | 15                    | 30        | 32                  | 16                        | 90                                            |
|                                                                                     | <b>TN-M30-H1147/C53</b><br>7030730        | 15                    | 30        | 32                  | 16                        | 90                                            |
|  | <b>TN-CK40-H1147</b><br>7030006           | 15                    | 37        | 46                  | 23                        | 120                                           |
|                                                                                     | <b>TN-CK40-H1147/C53</b><br>7030732       | 15                    | 37        | 46                  | 23                        | 120                                           |
|                                                                                     | <b>TN-CK40-H1147/CS30171</b><br>100016067 | 15                    | 37        | 46                  | 23                        | 120                                           |

**Read/write heads**

| Dimensions                                                                          | Type designation                          | Read-write distance   |           | Transfer zone       |                           | Minimum distance between two read-write heads |
|-------------------------------------------------------------------------------------|-------------------------------------------|-----------------------|-----------|---------------------|---------------------------|-----------------------------------------------|
|                                                                                     | Ident - no.                               | Recommend-<br>ed (mm) | max. [mm] | length<br>max. [mm] | width offset<br>max. [mm] | [mm]                                          |
|    | <b>HT-IDENT-H1147</b><br>7030236          | 15                    | 37        | 46                  | 23                        | 120                                           |
|                                                                                     | <b>HT-IDENT-H1187</b><br>7030238          | 15                    | 37        | 46                  | 23                        | 120                                           |
|  | <b>TN-Q14-0.15-RS4.47T</b><br>7030235     | 15                    | 30        | 32                  | 16                        | 90                                            |
|                                                                                     | <b>TN-Q14-0.15-RS4.47T/C53</b><br>7030779 | 15                    | 30        | 32                  | 16                        | 90                                            |
|  | <b>TN-Q14-0.1/C37</b><br>7030445          | 15                    | 30        | 32                  | 16                        | 90                                            |
|                                                                                     | <b>TN-Q14-0.55</b><br>100003964           | 15                    | 30        | 32                  | 16                        | 90                                            |
|  | <b>TN-Q80-H1147</b><br>7030007            | 15                    | 41        | 58                  | 38                        | 240                                           |
|                                                                                     | <b>TN-Q80-H1147/C53</b><br>100010648      | 15                    | 41        | 58                  | 38                        | 240                                           |
|                                                                                     | <b>TNLR-Q80-H1147</b><br>7030230          | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     | <b>TNLR-Q80-H1147/C53</b><br>100010649    | 30                    | 58        | 76                  | 38                        | 240                                           |

**Read/write heads**

| Dimensions                                                                          | Type designation                               | Read-write distance   |           | Transfer zone       |                           | Minimum distance between two read-write heads |
|-------------------------------------------------------------------------------------|------------------------------------------------|-----------------------|-----------|---------------------|---------------------------|-----------------------------------------------|
|                                                                                     | Ident - no.                                    | Recommend-<br>ed (mm) | max. [mm] | length<br>max. [mm] | width offset<br>max. [mm] | [mm]                                          |
|    | <b>TNSLR-Q42TWD-H1147</b><br>7030424           | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     | <b>TNSLR-Q42TWD-H1147/C51</b><br>7030722       | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     | <b>TNSLR-Q42TWD-H1147/C53</b><br>7030733       | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     | <b>TNSLR-Q42TWD-H1147/C44</b><br>100009610     | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     | <b>TNSLR-Q42TWD-H1147/CS30171</b><br>100016068 | 30                    | 58        | 76                  | 38                        | 240                                           |
|                                                                                     |                                                |                       |           |                     |                           |                                               |
|   | <b>TB-Q08-0.15-RS4.47T</b><br>7030553          | 7                     | 15        | 24                  | 12                        | 54                                            |
|                                                                                     | <b>TB-Q08-0.15-RS4.47T/C53</b><br>7030778      | 7                     | 15        | 24                  | 12                        | 54                                            |
|                                                                                     | <b>TB-Q08-0.22-RS4.47T</b><br>100004092        | 7                     | 15        | 24                  | 12                        | 54                                            |
|                                                                                     | <b>TB-Q08-0.15-RS4.47T/C43</b><br>7030675      | 7                     | 15        | 24                  | 12                        | 54                                            |
|                                                                                     |                                                |                       |           |                     |                           |                                               |
|  | <b>TN-CK40-H1147/CS30171</b><br>100016067      | 15                    | 37        | 46                  | 23                        | 120                                           |

**Mounting instructions**


Freimaßtoleranzen: ISO 2768-m

These data carriers can be mounted in 3 different ways:

1. Directly potted or glued in metal (without O-ring)
2. Installed in metal with O-ring (fixed with 2 screws)
3. Mounted upside down on metal (fixed with 2 screws)

**Accessories**

| Type code | Ident-No. | Description                                                                                 | Dimension drawing |
|-----------|-----------|---------------------------------------------------------------------------------------------|-------------------|
| MF-R50    | 6901151   | The flange facilitates mounting of the data carrier TW-R50-M-B128 (-K2) on or in the metal. |                   |