PRODUCT OVERVIEW
IDENTIFICATION SYSTEMS
Automatic product identification has been adopted in many areas of manufacturing production. It provides tracking information on materials, products, and persons, providing a link between the flow of data and materials. In tough industrial environments, RFID = Radio Frequency Identification, offering rugged and chemically-resistant data carriers are predominantly used.

Barcode and Data-Matrix based identification technologies are read-only systems that operate using optical technology. They are most effective in applications where identification labels will not become dirty or damaged.

**WHAT IS AN IDENTIFICATION SYSTEM?**

An IDENT- or identification system identifies objects with code or data carriers. Fixed code systems are only capable of reading the information contained in the identification tag. Read/write systems enable information to be stored on the data carrier.

**CUSTOMER BENEFITS**

**WHY CHOOSE AN IDENT SYSTEM?**

IDENT systems use integrated logistical data to save time and money in the automated production of different product types within an operation. Using an IDENT system, it is possible to trace and identify products throughout the entire production process. In some cases, the code or data carrier (such as the barcode) is available even on the end product, providing a record of the product’s history extending to the end customer. New, economically-priced code carriers and integrated logistics are available for the IDENT system, opening it up to new applications.

**DATA SECURITY**

Data security can be threatened by external effects on the code carrier as well as by incorrect data transfer. Inductive IDENT systems with an encapsulated EEPROM memory in the code carrier are robust and offer almost 100% protection against loss of data.

**NETWORK CONNECTION:**

IDENT systems can be controlled using all standard network interfaces. Because it allows redundant data in its data carriers, the system can be restarted following a system crash with no loss of data.
EXAMPLE APPLICATIONS

BRAUN CLINICAL THERMOMETER PRODUCTION
- Control of the assembly process via work piece holder identification
- Recording of the manufacturing process for quality assurance
- Very durable, even in rough cleaning applications using soap heated to 68 °C.
- Data tag embedded in metal
- Direct PROFIBUS connection to S7 PLC

DANISH CROWN ABATTOIRS
- Identification of livestock from beginning of the process to the completion of meat and sausage products
- Control of the conveyor systems
- Stainless steel housing for food preparation applications
- IDENT points with direct PROFIBUS connection

DAIMLERCHRYSLER AUTOMOBILE MANUFACTURING
- Identification of part carriers with sand casting forms used to cast engine blocks
- Robust mechanical data carrier (scratch resistant, cyclic up to 100 °C)
- On site commissioning of the IDENT Control system via display and function buttons
- Connection to PROFIBUS

BMW PRODUCTION OF THE X5
- MT microwave system offers decentralized solution for control tasks
- “Configuration Tag” data carriers provide automatic transfer of settings for simple device replacement
INDUCTIVE IDENTIFICATION SYSTEMS ...

... operate on the transformer principle in the near field using frequencies between 125 kHz and 13 MHz. Higher frequencies enable faster communication. The 125 kHz systems offer the advantage that many types of robust data carriers ideally suited for automation in industrial environments are available on the market, and even installation in metal is possible with a ferrite core integrated in the data carrier and ...

MICROWAVE SYSTEMS ...

... operate using the dipole principle with detached waves. The transmitter frequency is at 2.45 GHz. The data carriers contain a battery, so that the modulated response signal is actively scattered back, and no energy has to be transported to the data carrier via the transmitter signal. This technology can be used to achieve long ranges up to several meters. Therefore microwave systems can be used to detect larger objects, or when the position of the object is not precisely defined, and ...

... are normally selected when a durable data carrier with a high degree of protection is required; or if the process requires direct data exchange and many data carriers are required at minimal cost.

... are normally selected when large distances have to be bridged and when data has to be exchanged and stored again in the data carrier.
### SELECTION CRITERIA

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>INDUCTIVE</th>
<th>MICROWAVE</th>
<th>BARCODE</th>
<th>DATA MATRIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passing speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Read fixed code</td>
<td>10 m/s</td>
<td>30 m/s</td>
<td>20 m/s</td>
<td>6 m/s</td>
</tr>
<tr>
<td>- Read data</td>
<td>2 m/s</td>
<td>30 m/s</td>
<td>20 m/s</td>
<td>6 m/s</td>
</tr>
<tr>
<td>- Write data</td>
<td>0.2 m/s</td>
<td>30 m/s</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Memory requirement</td>
<td>8 kbytes</td>
<td>8 kbytes</td>
<td>32 bytes</td>
<td>1 kbyte</td>
</tr>
<tr>
<td>Possible read distances</td>
<td>30 cm</td>
<td>4 m</td>
<td>250 cm</td>
<td>10 cm</td>
</tr>
<tr>
<td>Mounting of the code carrier</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>- In metal</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- On metal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection class of the code carrier</td>
<td>IP68 / IP69k</td>
<td>IP67</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### BARCODE SYSTEMS ...

... scan barcodes and pass on the information they contain. A laser scanner reads the barcode using red light reflected back to a receiver. Suitable network interfaces are available to pass the information on to the PC or PLC. These compact reading devices can be used for close ranges and for distances up to approximately 250 cm at 100 to 1200 scans per second and ...

... are normally selected for a read-only system, when the costs for the code carrier must be kept low; and when the application does not contain factors that would affect the reading, such as dirt, dampness, or possible mechanical damage to the barcode label.

### DATA MATRIX SYSTEMS ...

... also read 2-dimensional codes. In comparison with barcodes, these can contain very large quantities of data in a very small space. Up to 1.5 kbytes can be encoded in a data matrix code. The bit codes, arranged in a checkered format, are quickly recorded by an imager, evaluated internally and passed on as decoded information. Illumination devices, lenses, and evaluation devices are available to expand the system and ...

... are selected when large quantities of data need to be encoded, when very little space is available, or when the code is directly etched in plastic or metal.
CODE/DATA CARRIERS
Special code/data carriers are available for inductive systems for installation both in metal and on metal.

READ/WRITE HEADS
When mounting inductive and microwave read/write heads, the minimum distances to a metallic environment and to neighboring read/write heads have to be taken into account. These values are given in the table for inductive heads. Typically, microwave heads should be 5 m to 10 m apart.

Read heads with square-shaped sensing faces mounted to steel have an operating distance of at least 75% of the nominal value:
- With alignment away from the metal surface (a)
- With alignment in the plane of the metal surface when the head is embedded (b)
- With the construction type “FP”, even when they are completely embedded in the metal (c)

## INSTALLATION/SURFACE MOUNTING CONDITIONS FOR MORE THAN 75% READ DISTANCE

<table>
<thead>
<tr>
<th></th>
<th>x</th>
<th>y</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>M18</td>
<td>&gt; 14 mm</td>
<td>Height of the plastic flap</td>
<td>&gt; 180 mm</td>
</tr>
<tr>
<td>M30</td>
<td>&gt; 15 mm</td>
<td>Height of the plastic flap</td>
<td>&gt; 270 mm</td>
</tr>
<tr>
<td>F61</td>
<td>&gt; 30 mm</td>
<td>Surface mounting</td>
<td>&gt; 290 mm</td>
</tr>
<tr>
<td>L2</td>
<td>&gt; 50 mm</td>
<td>Surface mounting only</td>
<td>&gt; 450 mm</td>
</tr>
<tr>
<td>FP</td>
<td>0 mm</td>
<td>Embedded</td>
<td>&gt; 550 mm</td>
</tr>
<tr>
<td>F15</td>
<td>&gt; 100 mm</td>
<td>Surface mounting only</td>
<td>&gt; 1100 mm</td>
</tr>
</tbody>
</table>
REACTION TIME AND PASSING SPEED

Read/write values depend on the type of technology used in the IDENT system (see Table). However, the same calculation formula is used to calculate the possible passing speed regardless of the technology used. Passing speed is calculated by:

\[ V_{\text{max}} = \frac{\text{Read field width (in m)}}{\text{Read time (in s)}} \]

If the passing motion takes place at approximately half the maximum read range, then for inductive systems, the applicable read field width is approximately equivalent to the diagonal width of the read head. For example: the F15 read head is 0.2 m and the fixed code reading time is 40 msec. The maximum passing speed is 5 m/s.

\[ V_{\text{max}} = \frac{0.2}{0.04} \text{ m/s} = 5 \text{ m/s} \]

However, in practice one half of the passing speed should be used due to the possible effects of noise in the environment:

\[ V_{\text{practice}} = \frac{V_{\text{max}}}{2} = 2.5 \text{ m/s} \]

### REQUIRED TIMES FOR READING AND WRITING WITH RFID SYSTEMS

<table>
<thead>
<tr>
<th></th>
<th>IP SYSTEM 125 KHZ</th>
<th>IS SYSTEM 250 KHZ</th>
<th>IQ SYSTEM 13.56 MHZ</th>
<th>MV SYSTEM 2.45 GHZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed code reading</td>
<td>40 ms</td>
<td>7 ms</td>
<td>20 ms</td>
<td>8 ms</td>
</tr>
<tr>
<td>Read N 4 byte blocks</td>
<td>(N x 30 ms) + 100 ms</td>
<td>N x 20 ms</td>
<td>10 ms + N x 5 ms</td>
<td>17 ms</td>
</tr>
<tr>
<td>Write N 4 byte blocks</td>
<td>(N x 100 ms) + 100 ms</td>
<td>N x 250 ms</td>
<td>N x 30 ms</td>
<td>30 ms</td>
</tr>
</tbody>
</table>

Barcode and data matrix code systems acquire data per scan or per image, making the number of scans or images per second a decisive factor. Our barcode scanners enable up to 1200 scans per second and the data matrix evaluation devices take up to 25 images per second.
The brand name **IDENT Control** represents an innovative identification system. It facilitates the connection of different physical identification methods such as inductive read heads, microwave antennae and optical IDENT systems. Implementation in the PLC program is easy due to an almost identical set of instructions in the **IDENT Control** interface.

Clear text display and function keys on the **IDENT Control** enable function tests to be carried out directly after installation, even without a PLC program.

**ADVANTAGES OF THE IDENT Control**
- Suitable for the control cabinet (with integrated DIN rail mount) and field mounting in protection class IP67
- Up to 4 read/write heads can be connected
- Mixed operation of inductive heads and microwave antennae is possible
- Trigger sensors for the start of read/write commands can be connected
- 2-line LC displays for data and device status

- Direct operation via function keys
- Programming using keys on display
- Built-in web server functionality with Ethernet connection enables notification of process faults by Email and SMS
- All components are connected using quick disconnect for fast replacement
FIELDBUS CONNECTION

The IDENTControl provides integrated interfaces to the dominant fieldbus systems currently used, such as PROFI BUS, EtherNet TCP/IP, Modbus/TCP, Profinet IO, Ethernet IP, DeviceNet, and serial connections (RS 232/RS 485/RS 422). The common control/evaluation provided by IDENTControl makes the command structure and operation very similar across all fieldbus types.

WEB SERVER FUNCTIONALITY

Networks already in use can often be used with IDENTControl, its Ethernet connection, high transfer rates, and new functions make intermediate bus systems obsolete. IDENTControl’s web server connection enables notification of system faults using SMS on your mobile phone. Using this feature, you can find out which replacement part is required and what action should be taken to reduce down time.

Remote parameter configuration is also protected using an access code. Changes can also be made locally.

CONTROL CABINET OR FIELD SOLUTION – THE USE HAS THE CHOICE IDENTControl

Two mounting options allow control cabinet or field installation. The IDENTControl features mounting clips for connecting to the DIN rail. It’s innovative L-shaped housing, allows the device, including bus connector, to fit in a 120 mm grid in the control cabinet. The depth of the housing is only 70 mm, enabling installation in a 100 mm deep flat junction box. There are also 3 mounting holes to facilitate field connection via M6 screws.

<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC-KP-B6-V15B</td>
<td>IDENTControl: Control/evaluation unit for control cabinet and field use, 4 inductive read/write heads and microwave antennae can be connected, all connections quick disconnect, display, direct operation, trigger function via sensors, dimensions 145 x 110 x 70 mm (L x W x H), connection to various bus systems, B6: PROFI BUS, B12: EtherNet, R2: Serial, R232, B7: DeviceNet</td>
</tr>
<tr>
<td>IC-KP-B12-V45</td>
<td>Accessory for connection of read/write heads</td>
</tr>
<tr>
<td>IC-KP-R2-V1</td>
<td>Accessory for connection of read/write heads</td>
</tr>
<tr>
<td>IC-KP-B7-V15</td>
<td>Accessory for connection of read/write heads</td>
</tr>
<tr>
<td>IC-KP-B6-SUB D</td>
<td>Accessory for connection of read/write heads</td>
</tr>
<tr>
<td>V1-G-2M-PUR-ABG-V1-W</td>
<td>Screened M12 connection leads in PUR (2 m, 5 m and 10 m lengths) for the connection of read/write heads</td>
</tr>
<tr>
<td>V1-G-5M-PUR-ABG-V1-W</td>
<td>Screened M12 connection leads in PUR (2 m, 5 m and 10 m lengths) for the connection of read/write heads</td>
</tr>
<tr>
<td>V1-G-10M-PUR-ABG-V1-W</td>
<td>Screened M12 connection leads in PUR (2 m, 5 m and 10 m lengths) for the connection of read/write heads</td>
</tr>
<tr>
<td>V15B-G-2M-PUR-ABG-V15B-W</td>
<td>Screened M12 connection leads (B coded) in 2 m, 5 m and 10 m lengths for PROFI BUS connection and R4 connection (serial, addressable)</td>
</tr>
<tr>
<td>V15B-G-5M-PUR-ABG-V15B-G</td>
<td>Screened M12 connection leads (B coded) in 2 m, 5 m and 10 m lengths for PROFI BUS connection and R4 connection (serial, addressable)</td>
</tr>
<tr>
<td>V15B-G-10M-PUR-ABG-V15B-G</td>
<td>Screened M12 connection leads (B coded) in 2 m, 5 m and 10 m lengths for PROFI BUS connection and R4 connection (serial, addressable)</td>
</tr>
<tr>
<td>V1-G-2M-PUR</td>
<td>M12 connector cables in 2 m, 5 m and 10 m lengths for power supply connection</td>
</tr>
<tr>
<td>V1-G-5M-PUR</td>
<td>M12 connector cables in 2 m, 5 m and 10 m lengths for power supply connection</td>
</tr>
<tr>
<td>V1-G-10M-PUR</td>
<td>M12 connector cables in 2 m, 5 m and 10 m lengths for power supply connection</td>
</tr>
<tr>
<td>ICZ-3T-V15B</td>
<td>T-plug connectors for the PROFI BUS connection, enables devices to be replaced without interrupting the bus, cables are jumpered internally, screened installation</td>
</tr>
<tr>
<td>V45-G-10M-V45-G</td>
<td>Patch cable for connection of the EtherNet interface in IP20, 10 m long</td>
</tr>
<tr>
<td>ICZ-V45</td>
<td>Sealing for patch cable connection, socket side to IP67</td>
</tr>
<tr>
<td>RFID Control CD Rom</td>
<td>Demo and parameter software for the IDENTControl System</td>
</tr>
</tbody>
</table>
The 125 kHz frequency is an industry standard. Code and data carriers from many suppliers can be purchased that can be read by our system.

Read/write heads of various types are available. The data carriers have a wound coil and an EEPROM for data storage.

### 125 kHz READ/WRITE HEADS AND TAGS FOR IDENT Control

**MODEL NUMBER** | **DESCRIPTION**
--- | ---
IPH-18GM-V1  | Inductive read/write heads, 125 kHz, diagnostic LEDs for operating voltage and read/write operation, protection class IP67, in models M18, M30, F61 (28 x 77 x 12 mm), L2 (40 x 55 x 40 mm), FP (80 x 80 x 60 mm) and F15 (140 x 170 x 40 mm), with M12 quick disconnect (4-pin, screened)
IPH-30GM-V1 | Inductive code carriers, 125 kHz, with 40 bit fixed code and 24 bit data security, ROM memory, unlimited read cycles, protection class IP67, polycarbonate (PC) housing
IPH-F61-V1  | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPH-L2-V1   | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPH-FP-V1   | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPH-F15-V1  | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing

**125 kHz DATA CARRIERS**

**MODEL NUMBER** | **DESCRIPTION**
--- | ---
IPC02-20P | Inductive code carriers, 125 kHz, with 40 bit fixed code and 24 bit data security, ROM memory, unlimited read cycles, protection class IP67, polycarbonate (PC) housing
IPC02-30P | Inductive code carriers, 125 kHz, with 40 bit fixed code and 24 bit data security, ROM memory, unlimited read cycles, protection class IP67, polycarbonate (PC) housing
IPC02-50P | Inductive code carriers, 125 kHz, with 40 bit fixed code and 24 bit data security, ROM memory, unlimited read cycles, protection class IP67, polycarbonate (PC) housing
IPC11-12 | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC11-30 | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC11-50 | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC03-20P | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC03-30P | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC03-50P | Inductive data carriers, 125 kHz, with 928 bit EEPROM memory and 32 bit ROM, unlimited read cycles, write cycles >100,000, protection class IP67, polycarbonate (PC) housing
IPC12-58-64K | 125 kHz FRAM data carriers with 64 kbit memory and 32 bit fixed code, unlimited number of read and write cycles, protection class IP67, in PUR housing, integrated distance spacer for mounting on metal

**HH**

**MODEL NUMBER** | **DESCRIPTION**
--- | ---
IPT-HH20 | Mobile read/write station for 125 kHz code/data carriers, LC display for data display, function keys and keypad for input (accessories such as battery, charger, transfer per Bluetooth / USB / PS2 sold separately, by request)
The frequency-modulated 250 kHz system offers high immunity to electromagnetic interference. By reading with a “Special fixed code” (32 bit) applications with a passing speed of up to 10 m/s can be accommodated. Many types of read heads and various data carriers are available and can be installed in metal.

<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISH-18GM-V1</td>
<td>Inductive read/write head, 250 kHz (frequency modulated), with display functions for operating voltage and read/write commands, protection class IP67, in models M18 (M18 x 65 mm), F61 (28 x 76 x 12 mm) and FP (80 x 80 x 60 mm) with M12 connector</td>
</tr>
<tr>
<td>ISH-F61-V1</td>
<td>Fixed code carrier with 28 bit fixed code, which is transferred in 7 byte ASCII coding. Round models in 8 mm, 12 mm, 50 mm diameter sizes. “T1”: Extended temperature range (see data sheet)</td>
</tr>
<tr>
<td>ISH-FP-V1</td>
<td>Housing styles with 16 and 30 threads “GK”. These models have a ferrite core, allowing the data carriers to be embedded in metal. “T1”/“T3”: Extended temperature range (see data sheet)</td>
</tr>
<tr>
<td>ICC-8A</td>
<td>Data carrier with 128 byte memory, divided into 32 blocks and with additional 32 bit fixed code. Round versions in 8, 10, 12, 15, 24, 30, 50 and 58 mm diameter sizes. Styles with “F” have lugs with mounting holes. The 58th tag has an integrated distance spacer for mounting on metal</td>
</tr>
<tr>
<td>ICC-12A</td>
<td>Models with 16 and 30 threads “GK”. These models have a ferrite core, allowing the data carriers to be embedded in metal</td>
</tr>
</tbody>
</table>
| ICC-12A-T1   | |}

Model: IST-HH20
Mobile read/write station for 250 kHz code/data carriers, LC display for data display, function keys and keypad for inputs (accessories such as battery, charger, transfer per Bluetooth/USB/PS2 sold separately, by request)
Our 13.56 MHz system complies with ISO 15693. This ensures, that at least the UID of tags of different chip manufacturers can be read by all systems. Due to the high transfer frequency the system is very fast, particularly with high quantities of data, and offers ranges of up to 300 mm via the large antenna. Many manufacturers offer very reasonably-priced tags in various label shapes to suit project requirements.

<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQH-18GM-V1</td>
<td>Inductive read/write heads with 13.56 MHz, with display function for operating voltage and read/write command, protection class up to IP67, in the versions M18 (M18 x 65 mm), FP (80 x 80 x 60 mm) and F100 (290 x 290 x 28 mm, IP54) with M12 connector</td>
</tr>
<tr>
<td>IQH-FP-V1-V1</td>
<td>Data carrier with 8 byte fixed code (UID) and 112 byte memory. 30 mm, 50 mm, and 58 mm diameter models. The 58 mm diameter X 20 mm height model has an integrated distance spacer for mounting on metal</td>
</tr>
<tr>
<td>IQH-F100-V1</td>
<td>Data carriers with 8 byte fixed code (UID) and 256 byte memory. Models: C1 (86 x 54 x 0.8 mm), C4 (96 x 64 x 5 mm) and C5 (42 x 30 x 0.6 mm)</td>
</tr>
<tr>
<td>IQC21-30P</td>
<td>Mobile read/write station for 13.56 MHz code/data carrier, LC display for data display, function keys and keypad for inputs (accessories such as battery, charger, transfer per Bluetooth / USB / PS2 sold separately by request)</td>
</tr>
</tbody>
</table>
In contrast to the inductive read/write heads, microwave antennae operate with detached waves where the signal is reflected back and modulated by an active data carrier. The data carrier has a battery with a typical lifespan of 5 to 8 years. In addition to a range of several meters, the microwave system offers a very fast transfer rate for large amounts of data.

<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVH500-F15-V1</td>
<td>Microwave antennae for connecting to the IDENTControl with a 2.45 GHz operating frequency, with display function for operating voltage and read/write command, protection class IP67, high-grade steel plate with 2 mounting holes, housing dimensions of (140 x 170 x 40 mm), M12 connector</td>
</tr>
<tr>
<td>MVH2000-F15-V1</td>
<td>ˈ</td>
</tr>
<tr>
<td>MVC-60B-64K</td>
<td>Microwave data carrier with 8 k RAM memory, replaceable battery with approximate lifespan of 5 years (depending on usage), protection class IP65, dimensions: 90 x 60 x 19 mm on metal</td>
</tr>
<tr>
<td>MVT-HH12</td>
<td>Mobile read/write station for 2.45 GHz code/data carriers, PALM based display and operating functions</td>
</tr>
</tbody>
</table>
125 kHz READ/WRITE STATION
WITH INTEGRATED INTERFACE

The IPT1-FP system is an excellent choice when the IDENT read points are distributed over large distances in the system. These read/write stations contain the evaluation and the fieldbus interfaces along with the actual read/write head in a single device. These devices are designed for harsh industrial use, up to protection class IP67, and can be directly interfaced to an upper-level control system. Serial interfaces are provided for simple point-to-point connections, addressable RS 485 interfaces for building simple bus systems, and fieldbus interfaces for PROFIBUS and Interbus are also available.

These read/write stations are frequently used in material handling systems because their installation and wiring is particularly simple. Mounting can be done using 2 or 4 mounting screws. The address assignment is done via DIP switches, which are accessed via a cover plate. Models with a quick disconnect are available for the electrical connection, or with terminal compartment connection via threaded connections.

The Interbus version can be adjusted to the baud rate of 500 kHz or 2 MHz.

The PROFIBUS version supports data communication with self-synchronization up to 12 Mbaud, allowing up to 7 x 32 bits to be transferred in a PROFIBUS cycle. Bus termination can be activated at the device. Connection is achieved via an M12 connector for PROFIBUS and the power supply, or via EMC tight connections.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>IPT1-FP</td>
<td>Read/write heads in the FP format, (H x W x D in mm) 80 x 80 x 65, can be plugged into different bases for connection to various network interfaces</td>
</tr>
<tr>
<td>U-P3-RX</td>
<td>Base with integrated interface for RX: RS 232/485</td>
</tr>
<tr>
<td>U-P3-R4</td>
<td>R4: RS 485 multidrop</td>
</tr>
<tr>
<td>U-P3V4A-R4</td>
<td>B5: Interbus</td>
</tr>
<tr>
<td>U-P6-R4</td>
<td>B6: PROFIBUS DP</td>
</tr>
<tr>
<td>U-P6-B5</td>
<td>Housing style P3: (H x W x D in mm) 80 x 80 x 30</td>
</tr>
<tr>
<td>U-P6-B6</td>
<td>Housing style P6: (H x W x D in mm) 160 x 80 x 50</td>
</tr>
<tr>
<td>U-P6V4A-B6</td>
<td></td>
</tr>
<tr>
<td>IPT-HH20</td>
<td>Portable read/write device</td>
</tr>
</tbody>
</table>
REFERENCES AND SUPPORT SERVICES

### REFERENCES

#### Automobile industry
- Audi, Ingolstadt, Győr Hungary, Neckarsulm
- BMW, Dingolfing, Munich, Regensburg, Steyr Austria, Spartanburg USA, Oxford UK, Hams Hall UK
- Chrysler in Toledo
- DaimlerChrysler, Bremen, Sindelfingen
- Ford, Genk, Saarlouis, Köln, Rossenville and in Detroit, USA
- General Motors, Detroit, USA
- Land Rover, Solihull UK
- MAN Nutzfahrzeuge AG
- OPEL, Eisenach
- Porsche, Zuffenhausen
- Rover, Birmingham UK
- Toyota in the UK and France
- Toyota vendors Denso, Tennessee, USA
- Volvo in Sweden
- VW, Wolfsburg, Emden, Salzgitter, Hanover
- Wilhelm Karmann GmbH, Osnabrück

#### Logistics
- Bus station, Fribourg
- Frankfurt airport
- Airport, Korea
- Harbor facilities, Singapore
- Steinbock-Boss, Moosburg, Nr. Munich
- Walt Disney Company, California USA
- WTT Förderelemente GmbH, Wermelskirchen
- Wetron GmbH, Rosenheim

#### Mechanical handling, conveying
- AFAG in Switzerland
- AFT, Schopfheim
- CFC, Karlsruhe
- Dürr GmbH, Stuttgart
- Eisenmann, Böblingen
- Hansa Metallwerke AG, Burg Langenfeld
- Helmut Lehmer GmbH, Bruck
- Moll Maschinenbau GmbH, Leibfing
- RESA GmbH, Saarwellingen
- Rofa, Rosenheim
- Schierholz, Bremen
- Siemens AG, Munich
- Swisslog GmbH, Switzerland
- WTT Förderelemente GmbH, Wermelskirchen
- Wetron GmbH, Rosenheim

#### Chemicals
- Aventis, Offenbach
- BASF, Ludwigshafen
- Bayer, Leverkusen
- Honeywell specialty chemicals in Seetze

#### Manufacturing technology
- ABB in Mannheim and Lampertheim
- AEG Hausgeräte GmbH, Nuremberg
- BOSCH, Nuremberg, Heilbronn, Ansbach and Italy
- Braun, Walldürn
- Canon, Geilen
- Continental, Hanover
- Dell Computer, USA
- Dyckerhoff, Wiesbaden
- Dynamit Nobel GmbH, Stuttgart
- E.G.O. Elektrogeräte, Oberderdingen
- Euchner GmbH & Co., Leinfelden-Echterdingen
- Festo, Esslingen
- GROB GmbH, Mindelheim
- Hansgrohe AG, Schiltach
- Heidelberger Druckmaschinen, Wiesloch
- Hella, Lippstadt
- Hitachi Seiki in Japan
- IBM, Stuttgart
- John Deere, Mannheim
- Kennametal Hertel AG, Fürth and France
- Klöckner-Moeller, Unna
- KUKA Schweißanlagen GmbH, Augsburg
- Lego, Denmark
- LuK, Bühl (Automobile supplier)
- Mannesmann Dematic, Offenburg
- Notheifer GmbH, Ravensburg
- Philips Nederland, Aachen
- Reis GmbH & Co.
- Sachsenring Maschinenbau GmbH, Zwickau
- Siemens AG, Bremen
- System Ceramics, Italy
- Temic Automotive Electric, Berlin
- Tesa-Werke, Offenburg
- Thyssen, Essen
- Varta, Singapore
- Whirlpool USA
- YTONG Deutschland AG, Rheinau (Baden)

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- GM Powertrain
- Porsche
- Bus Station (Fribourg)
- Airport (Geneva)
- VW
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