Identification systems for industrial production control.

www.ifm.com/gb/identification
Identification systems from ifm electronic.
The optimum solution for every requirement.

- **Optical code reader**
- **Multicode reader type O2I**
- **RFID system DTS125**
- **RFID system DTE100**
- **RFID system DTE800**

**Identification Systems:**
- **LF system**
  - 125 KHz
- **LF/HF system**
  - 125 KHz
  - 13.56 MHz
- **UHF system**
  - 868 MHz (EU)
  - 913 MHz (USA)
<table>
<thead>
<tr>
<th>Identification</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Production and logistics</td>
<td>Large data volumes</td>
<td>Monitoring of process operations</td>
<td>Production and logistics</td>
</tr>
<tr>
<td>1D bar codes, 2D matrix codes</td>
<td>1D and 2D codes</td>
<td>10 bar codes, 2D codes</td>
<td>Smart tag, low-cost adhesive tape</td>
</tr>
<tr>
<td>Long ranges, many tags</td>
<td>High speed</td>
<td>Large data volumes</td>
<td>Long ranges, many tags</td>
</tr>
<tr>
<td>Ethernet, TCP/IP</td>
<td>AS-i</td>
<td>Ethernet, TCP/IP</td>
<td>Ethernet, TCP/IP</td>
</tr>
<tr>
<td>up to 10 m</td>
<td>up to 100 mm</td>
<td>up to 2 m</td>
<td>16 bit</td>
</tr>
<tr>
<td>240 bit EPC, 512 bit user</td>
<td>32 KB</td>
<td>32 KB</td>
<td>32767</td>
</tr>
<tr>
<td>Hard tag, adapted to the application condition</td>
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</table>
High reading reliability:
Automatic setting of the exposure time, adaptation by segmented lighting for critical surfaces.

Intelligence in the sensor:
Verifier system reduces data transmission.

Flexible connection:
RS-232 and Ethernet TCP/IP interface.

Quick in the process:
Object speeds of up to 7 m/s.

Compact integration:
Illumination, optics, evaluation and interfaces in an industrially compatible housing.

Easy handling:
The system is configured and ready for use within a few minutes – with PC software or directly on the sensor.

Powerful identification.
In addition to the Data Matrix code ECC200, the ifm multicode reader handles further 2D and 1D codes. Reading is not dependent on the orientation of the code to the sensor. Even damaged or soiled codes are reliably identified, even if 28 % of the information has been damaged.
Further functions include the output of the code position via the process interface, adjustable total...
Orientation-independent identification of 1D and 2D codes.

quality parameters, individual illumination settings for each configuration in a group, integrated fault memory and access protection with password. The professional software of the multicode reader takes the high reading reliability of the Data Matrix code to a new dimension.

Top choice for price/performance: the multicode reader provides high functionality and performance at the price of a sensor.

Optimum illumination. In addition to an automatic exposure setting, manual adjustment is also possible. Four lighting segments can be deactivated and activated manually. So optimum results are achieved even with highly reflective metal surfaces.

The ifm multicode reader detects numerous 2D and 1D codes. The standardised 2D code can be applied in different ways: printed on paper, engraved by laser or dot-peened onto a metal surface.

Orientation-independent identification of 1D and 2D codes.

QR code

PDF code

DMC code

Bar code

The ifm multicode reader detects numerous 2D and 1D codes. The standardised 2D code can be applied in different ways: printed on paper, engraved by laser or dot-peened onto a metal surface.

O2I in the application.

There is a wide range of applications for the multicode reader in industry – from product tracking and production control to product identification. They are used for the automotive and food industries, conveying, the production of solar installations as well as machine tools and print machines.

Production control for solar modules of the company Conergy AG: the decision in favour of the multicode reader was taken due to its high reading rate. The compact dimensions and the integrated lighting ensure installation requiring only little space.

Further information at www.ifm.com/gb/multicodereader
Plug and play:
Cost reduction with quick and easy set-up.

Efficient:
Connection of up to 31 RFID readers to one AS-i master.

Safe:
High reading reliability for compact design.

Ready for operation at once:
No programming for read / write systems with AS-Interface. The stored value is automatically provided by the transponder when the antenna is passed.

Certified:
The AS-Interface certification guarantees interoperability in automation technology.

The DTS125 RFID system ensures smooth logistics flow on a production line for transmissions. All workpiece carriers can be identified by means of RFID. Optical processes such as bar codes were eliminated due to the severe operating conditions (oils, metal swarf).
The DTA300 RFID reader with increased read / write distances up to 100 mm solves tasks in assembly and conveying technology and in handling automation.

ID tags for assembly and conveyor systems. The robust transponders, which do not require any batteries, are particularly suited for use in high temperature ranges.

The compact read / write heads include, in addition to the antenna, the complete evaluation and the interface to AS-i. So the units can be operated directly on the AS-Interface and enable data transmission to the controller.

Further information at www.ifm.com/gb/dts125
RFID system DTE100
The “electronic route card”.

Clear:
Status display via LED and integrated web server.

Flexible:
Connection of RFID antennas or digital inputs / outputs. Antenna and transponder combinations of some bits to several Kbytes.

Easy:
Connection of the antennas with unshielded standard cables of 0.3 m to 20 m.

Integrable:
Function blocks enable easy integration into the higher level automation or process control.

Certified:
The Profibus DP certification guarantees interoperability in automation technology.

Robust:
Protection rating IP 67 for harsh industrial environments.

Scan code and watch the video on the DTE100 system!

The LF or HF read / write antennas in an industrially compatible housing are simply connected to the evaluation unit via a standard M12 connector.

RFID system with evaluation unit, antennas and transponders.
Ifm electronic has developed a new RFID system for production and conveying in particular. The robust evaluation unit has a Profibus DP interface. The integrated web server enables easy parameter setting via the web browser.
The requirements of harsh industrial environments are met by a stable metal housing, a wide temperature range and the high protection rating IP 67.

The new RFID evaluation unit DTE100 has four antenna connections, which can alternatively be used as digital I/Os. The antennas are connected via standardised M12 connectors.

The standard pin assignment of the I/O connections ensures that common sensors or actuators are directly connected and powered from the RFID evaluation unit.

**LF and HF transponder.**

In addition to LF transponders with up to 2-Kbit memory, the product portfolio of ifm electronic also covers HF transponders with 16 Kbits as FRAM version which can be rewritten an unlimited number of times.

All connections are for standard M12 connectors. Current is also directly supplied via an M12 connection. The wide range of accessories such as Profinet connection cables and terminating resistors facilitate the system set-up.

**DTE100 in the application.**

The RFID system platform is widely used in production for identifying tools or monitoring production steps.

Data can be saved and read in the transponder as on an electronic route card.

Further applications can be found in quality assurance, in the automotive industry as well as in automation and conveying.

Easy use and flexible parameter setting allow the user to solve each identification task precisely and without any problems.

Further information at www.ifm.com/gb/dte100
Clear:
Status display via LED and integrated web server.

Flexible:
Ultra low, low, mid and wide range antennas for every application.

Easy:
UHF evaluation unit with four external antenna terminals.

Certified:
Ethernet TCP/IP interface for parameter setting and data transmission.

Robust:
The protection rating IP 65 meets all requirements for harsh industrial environments.

RFID system DTE800
Long ranges for production and logistics.

UHF evaluation units.
As components of the UHF system platform, the evaluation units DTE800 for Europe and DTE900 for the USA are compliant with 865-870 MHz and 902-928 MHz respectively.

The stationary units in the UHF range allow long read and write ranges with passive tags.

Connection of 4 antennas.
Only for ifm: UHF evaluation unit with different types of antenna, also for mixed operation. With Ethernet interface and digital inputs and outputs.

Up to 10 m:
Wide range antenna for the simultaneous detection of large quantities, e.g. boxes on pallets when gates are passed.
Ultra low and low range antennas.
These antennas are distinguished by the near field. In order to achieve a high selectivity, the smallest possible designs are used as they manage short reading ranges.

Mid range antennas.
Due to its smaller dimensions the mid range antenna is chosen for applications in the near / far field with reading ranges of up to 2 m.

Wide range antennas.
With an angle of aperture of 30° these antennas have been developed for applications in the far field where reading ranges of up to 10 m are required.

Up to 20 cm:
(Ultra) low range antenna for the selective detection of individual products in the close range.

DTE800 in the application.
The UHF system platform from ifm electronic is used in production, intralogistics and conveying due to the application-specific antennas.

Goods such as packaging or pallets can be detected without contact. The UHF RFID is optimised for applications in production and material flow control, the asset and supply chain management as well as track & trace.

Up to 2 m:
Mid range antenna for the reliable identification of larger units, e.g. on a conveyor belt.

Further information at www.ifm.com/gb/dte800
Efficient control of processes with RFID.

Example:
RF identification system DTS125 with integrated antenna.

Inductive RFID technology
The RFID system (Radio Frequency IDentification) from ifm electronic generates an electromagnetic field for reading and writing of data. The electromagnetic field emitted by the antenna induces voltage in the passive ID tag (transformer principle). This activates the ID tag (transponder) which returns its code. Processing of the code and transmission e.g. to the AS-Interface are carried out in the read / write head. Advantage: reliable data transmission in dynamic reading processes Depending on application, range, data volumes, and read / write distances different

RFID frequencies are used, e.g. 125 KHz (LF), 13.56 MHz (HF), 868 MHz (UHF, Europe) and 913 MHz (UHF, USA).
## System at a glance:

### Multicode reader

<table>
<thead>
<tr>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating distance [mm]</td>
<td>50</td>
</tr>
<tr>
<td>Operating distance [mm]</td>
<td>100</td>
</tr>
<tr>
<td>Operating distance [mm]</td>
<td>200</td>
</tr>
<tr>
<td>Operating distance [mm]</td>
<td>200</td>
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<tr>
<td>Operating distance [mm]</td>
<td>1000</td>
</tr>
<tr>
<td>Operating distance [mm]</td>
<td>2000</td>
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<tr>
<td>Field of view size [mm]</td>
<td>20 x 14</td>
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<tr>
<td>Field of view size [mm]</td>
<td>36 x 26</td>
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<tr>
<td>Field of view size [mm]</td>
<td>68 x 50</td>
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<tr>
<td>Field of view size [mm]</td>
<td>46 x 32</td>
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<tr>
<td>Field of view size [mm]</td>
<td>77 x 56</td>
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<tr>
<td>Field of view size [mm]</td>
<td>140 x 100</td>
</tr>
<tr>
<td>Field of view size [mm]</td>
<td>40 x 30</td>
</tr>
<tr>
<td>Field of view size [mm]</td>
<td>200 x 150</td>
</tr>
<tr>
<td>Field of view size [mm]</td>
<td>400 x 300</td>
</tr>
</tbody>
</table>

### LF RFID system and transponders (selection)

<table>
<thead>
<tr>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFID read / write system, AS-Interface, range max. 10 mm</td>
<td>DTA100</td>
</tr>
<tr>
<td>RFID read system, AS-Interface, range max. 20 mm</td>
<td>DTA101</td>
</tr>
<tr>
<td>RFID read / write system, AS-Interface, range max. 65 mm</td>
<td>DTA200</td>
</tr>
<tr>
<td>RFID read system, AS-Interface, range max. 100 mm</td>
<td>DTA300</td>
</tr>
<tr>
<td>RFID read system, AS-Interface, range max. 110 mm</td>
<td>DTA301</td>
</tr>
</tbody>
</table>

### LF/HF RFID evaluation units, antennas and transponders

<table>
<thead>
<tr>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFID evaluation unit, Profibus DP EU/ETSI</td>
<td>DTE100</td>
</tr>
<tr>
<td>RFID antenna 125 KHz</td>
<td>AN512</td>
</tr>
<tr>
<td>RFID antenna 13.56 MHz</td>
<td>AN513</td>
</tr>
</tbody>
</table>

### UHF RFID evaluation units, antennas and transponders

<table>
<thead>
<tr>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFID UHF evaluation unit, Ethernet, 2 DI / 2 DO, EU/ETSI</td>
<td>DTE800</td>
</tr>
<tr>
<td>RFID UHF evaluation unit, Ethernet, 2 DI / 2 DO, US/FCC</td>
<td>DTE900</td>
</tr>
<tr>
<td>RFID UHF ultra low range antenna, EU/ETSI/US/FCC</td>
<td>AN805</td>
</tr>
<tr>
<td>RFID UHF low range antenna, EU/ETSI</td>
<td>AN810</td>
</tr>
<tr>
<td>RFID UHF low range antenna, US/FCC</td>
<td>AN910</td>
</tr>
</tbody>
</table>

### Description

- **Order no. red light**: O2I100, O2I102, O2I104
- **Order no. infrared**: O2I101, O2I103, O2I105
Overview
ifm product range:

- Position sensors
- Sensors for motion control
- Industrial imaging
- Safety technology
- Process sensors
- Industrial communication
- Identification systems
- Condition monitoring systems
- Systems for mobile machines
- Connection technology
- Accessories

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