HARTING Ha-VIS RFID System Components
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Real-time information and tight synchronisation of computer data and real processes play a critical role in process management and process optimisation. Only when you are sure that your information agrees with reality can you optimally control your processes and thus reduce costs.

**Railway transport: determining positions and transmitting signals with RFID**

Safety is the most important factor for the railway sector. UHF RFID helps to improve safety in a simple way. Precise position control using UHF RFID ensures that vehicle doors can only be opened if the vehicle is in the intended position, and then only for those doors on the railway platform side. UHF RFID also enables signal states to be transmitted to the driver’s cab; this supports the driver and eliminates another source of error. Whether in the vehicle, on the railway platform or in the track bed: RFID technology designed with proven, robust HARTING quality also exists for these demanding environments.

**Tracking operating materials**

Operating materials are necessary, but also quite expensive. That’s why it is important to always know which tool is in which condition and where it is located.

For example, the customised production using plastics injection-moulding machines requires an ever-increasing number of tools. Efficient administration and tracking is required in order to avoid costs for searching or even lost tools. Also, not every tool can be used on every machine; the tool and machine must fit together. Otherwise, the machine and tools risk being damaged.

Tools equipped with UHF RFID transponders can be reliably tracked. The compatibility of each machine and tool can also be checked at the machine. Only then can production be safely started. HARTING offers RFID solutions that have been developed and optimised for this special purpose.

**Intra-logistics: RFID on conveyor belts**

Only rarely do conveyor belts run totally straight. The space for attaching additional equipment such as antennas is often limited. The Ha-VIS LOCFIELD® antennas are the perfect solution for such conditions. Its body consists of a coaxial cable; this enables the antenna to be easily adapted to non-linear distances.
Smart infrastructure solutions
Real-time information plays a key role in managing and optimising processes. Quick, reliable synchronization between virtual data and the real process world is also very important.

Any lack of information inevitably has a negative impact. Equally critical, however, is the information that already exists in the company but cannot be used due to inadequate infrastructures. Such information costs money but is of no use.

This is where HARTING’s RFID solutions help: They capture objects and information belonging to them, process them and forward them to the existing infrastructure. HARTING’s RFID systems can be easily integrated into existing topologies. The Ha-VIS middleware enables centralised management of data and readers. This means that there are no breaks in the system where information can be lost.
Smart infrastructure solutions

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Tool management / Maintenance: Ha-VIS RFID VT series (HT)
- > 4 m read range on metal for the smallest sizes
- Variable mounting options
- Especially resistant to heat and chemicals (e.g. during autoclaving)

RFID out-of-the-box solution
- Includes RFID reader, switch, protection against overvoltage, and power supply
- Protection class IP65
- Customised configurations possible
- Robust enclosure

For identifying and tracking products and components: Ha-VIS RFID4SMT
- Enables integration of UHF transponders onto printed circuit boards
- Complete solution for use in the production of PCBs

Robust smart labels: Ha-VIS RFID FT 86/92
- > 2 m read range
- Resistant surface
- Flat design
- Customised print

Automatic process mapping using RFID readers Ha-VIS RF-R500
- Read range up to 16 m
- 4 antennas can be connected
- Up to IP64 when using protection cover
- 5 GPIOs

Tool management / Maintenance: Ha-VIS RFID4MoldTracking
- Optimised for integration in plastics injection-moulding machines
- Robust and heat-resistant (up to 150°C) thanks to the high temperature antenna WR24-t

Tracking materials with the Ha-VIS ANT-WR24-i
- Versatile mounting options
- Reading ranges > 10 meters
- 70° aperture angle
- Ideal energy utilisation thanks to down pitch
- Suitable for industrial use

Using RFID to detect objects and monitor maintenance intervals
- Systems with wider reading range
- Transponder can be recessed-mounted in depressions, thanks to its flat and compact design
- Components with protection up to IP67

Mobile object detection and communication: the Ha-VIS RF-R300-M
- Location-independent: with WiFi and LTE
- GPS-based location possible
- Protection class IP67

Ha-VIS LOCFIELD® follows the production line
- Create application-specific read zones
- No reflections
- Custom lengths and connection options – adapted to the intended usage

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HARTING smart infrastructure solutions for harsh railway environments

HARTING connectors are synonymous with robustness and longevity. They prove this day in and day out – for example in jumper cables connecting rail cars.

HARTING’s RFID systems follow in this tradition. Despite their intelligence, they are so robust and durable that they do their job reliably even under the most difficult operating conditions. The customer can decide whether the transponder is mounted on the train and the reader on the rails, or whether the reader is mounted on the train and the transponder on the rails. HARTING systems have, of course, been tested in accordance with the railway standard EN 50155.

The RF-R350 RFID reader on the train
- Vibration EN 61373 Cat 1B
- Shock EN 61373 Cat 1B
- Isolation EN 50155
- Cold/heat: EN 50155
- Damp heat (cyclical) EN 50155

Ha-VIS RFID LT 2.0 series
> 8 meters read range on metal
- Resistant to weathering
- Robust
- Maintenance-free

RFID out-of-the-box solution
- Includes RFID reader, switch, protection against overvoltage, and power supply
- Protection class IP65
- Customised configurations possible
- Robust stainless steel enclosure
- Tested for applications at trackside

Ha-VIS middleware
- RFID readers are easy and quick to connect
- Configurable without programming effort
- Reports cumulative data in standardised formats
- Conforms with the EPCglobal ® ALE 1.1 standard

RFID transponder on the railway platform
- Extremely robust and durable
- Maintenance-free

Adapted to the railway sector: Ha-VIS RFID4Rail
- Reliable detection of the railway platform
- Precise vehicle localisation
- Transmits signal states into the vehicle
- Robust enough for the toughest environmental requirements
- For speeds of more than 250 km/h

Localisation or signal transmission with protected transponders
- Suitable for installation on railway sleepers
- Protection class IP65
- Maintenance-free
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**RFID antenna on the railway platform**
- Impact-resistant enclosure
- Read range: > 15 m
- Variable mounting positions: horizontal and vertical

**Train positioning on the platform or train localisation along the route**
- Using an RFID antenna on the train
- Extremely robust stainless steel antenna
- IP67, IK08
- No connector on the antenna

**Maintenance and repair using the Ha-VIS RFID VT series (HT)**
- > 4 m read range on metal for the smallest sizes
- Variable mounting options
- Resistant to many chemicals
- Extremely robust

**Ha-VIS RFID4Rail**
- Reliable detection of the rail -way platform
- Precise vehicle localisation
- Transmits signal states into the vehicle
- Robust enough for the toughest environmental requirements
- For speeds of more than 250 km/h

**Localisation or signal transmission with protected transponders**
- Suitable for installation on railway sleepers
- Protection class IP65
- Maintenance-free
RFID Products & Accessories

Ha-VIS UHF long-range RFID reader RF-R500

Characteristics
- Suitable for use in harsh industrial and railway environments
- Very wide read range of up to 16 m
- Power over Ethernet capability (PoE) (RF-R500-p)
- 4 antenna connections SMA
- Output power max. 4 W (RF-R500-p) or 2 W (RF-R500-c)
- 5 GPIOs
- Interfaces (Ethernet, USB, RS 232, RS 485)
- More than 150 transponders can be read quickly
- 860 – 960 MHz
- Tested according to EN 50 155

Identification  Part number
Ha-VIS RF500-c, EU  20 91 104 1103
Ha-VIS RF500-c, US  20 91 104 1104
Ha-VIS RF-R500-p, EU  20 91 104 1101
Ha-VIS RF-R500-p, US  20 91 104 1102

Accessories
- DIN rail mounting adapter kit
  - Board and screws for installing the RF-R500 on the DIN rail
- Ha-VIS protection cover RF-R500
  - Increased protection class IP64
  - Up to 8 PG feed-throughs
  20 93 102 0201
  20 93 901 0101

Ha-VIS UHF rugged long-range RFID reader RF-R400

Characteristics
- Specialised for harsh usage in trains and on the track
- High transponder population
- Very high multiplexer speed
- Robust M12 (Ethernet) and M8 (VCC, RS 232, IO) connectors
- Tested up to +70°C
- Tested according to EN 50 155
- 4 antenna connections SMA
- Output power max. 2 W

Identification  Part number
Ha-VIS RFID Reader RF-R400, EU  20 91 107 1101
Ha-VIS RFID Reader RF-R400, US  20 91 107 1102

Accessories
- DIN rail mounting adapter kit
- M8 cable (2 m, for power supply - VCC) *
- M8 cable (2 m, for RS 232, relay) *
- M8 cable (2 m, for IO) *
- M12 Ethernet cable, D-coded (3 m) *
- Han® 3 A RF-R400, M8 adapter (ideal for railway applications)
  20 93 102 0201
  21 34 810 0489 020
  21 34 820 0821 020
  21 34 730 0821 020
  09 45 700 5025
  61 04 204 0036 00

* Sample length; other lengths available on request
Ha-VIS UHF rugged mid-range reader RF-R300

**Characteristics**
- Suitable for harsh industrial environments
- M12 connector sockets
- 2 antenna connections TNC-R
- Output power max. 0.5 W
- Power over Ethernet enabled (PoE)
- 8 configurable digital inputs and outputs
- High degree of protection IP67

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RF-R300, LLRP interface, EU/FCC</td>
<td>20 91 105 1101</td>
</tr>
<tr>
<td>Ha-VIS RF-R350 EU/FCC (ALE 1.1 middleware, tested according to railway standards)</td>
<td>20 91 105 1111</td>
</tr>
</tbody>
</table>

**Accessories**
- Software update ALE 1.1 for Ha-VIS RF-R3x0 (embedded middleware)
- DIN rail mounting adapter kit
- Wall mounting kit
- M12 Ethernet cable, X-coded (2 m) *
- M12 A-coded cable assembly (2 m) *
- (IOs / ext. power supply)
- Ha-VIS Coax TNC/TNC-RP, H155 PVC, 3 m *

<table>
<thead>
<tr>
<th>Part number</th>
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<tbody>
<tr>
<td>26 99 400 0000 02</td>
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<td>20 95 200 0004</td>
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<td>20 95 300 0007</td>
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<tr>
<td>09 47 841 1002</td>
</tr>
<tr>
<td>21 34 840 0C79 020</td>
</tr>
<tr>
<td>20 93 204 0121</td>
</tr>
</tbody>
</table>

* Sample length; other lengths available on request

Ha-VIS UHF wireless mid-range reader RF-R300-M

**Characteristics**
- Suitable for harsh environments
- Location-independent: with WiFi and LTE interface
- GPS-based location possible
- 2 antenna connections TNC-R
- Output power max. 0.5 W
- 1 SMA connector each for WiFi, 2G/3G/4G and GPS antenna
- Protection class IP67

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
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<td>Ha-VIS RF-R300-M</td>
<td>20 91 105 2101</td>
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</table>

**Accessories**
- Software update ALE 1.1 for RF-R3x0 (embedded middleware)
- DIN rail mounting adapter kit
- Wall mounting kit
- M8 cable assembly 4 poles, 2.0 m
- 5GHz WiFi antenna 6GK5793-4MN00-0AA6
- 2.4GHz WiFi antenna 6GK5792-4MN00-0AA6
- LTE antenna 6NH9860-1AA00 (2G/3G/4G EU)

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<th>Part number</th>
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<tr>
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<td>20 95 300 0104</td>
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<tr>
<td>20 95 300 0103</td>
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<td>20 95 300 0105</td>
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</table>
Ha-VIS UHF mid-range reader RF-R200

**Characteristics**
- 3 external antenna connections (max. range up to 2 m)
- 1 internal antenna (max. range approx. 20 cm)
- Output power max. 0.5 W
- Power over Ethernet
- 3 antenna connections SMA
- Automatic reporting of transponders that were read

<table>
<thead>
<tr>
<th>Identification</th>
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<tr>
<td>Ha-VIS RF-R200 PoE</td>
<td>20 91 106 1101</td>
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<tr>
<td>Ha-VIS RF-R200 module</td>
<td>20 91 106 1103</td>
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</tbody>
</table>

**Accessories**
- DIN rail adapter Ha-VIS RF-R200
- Mounting kit Ha-VIS RF-R200
- Desktop power supply for Ha-VIS RF-R200 (EU)
- Desktop power supply for Ha-VIS RF-R200 (GB)
- Desktop power supply for Ha-VIS RF-R200 (US)

<table>
<thead>
<tr>
<th>Identification</th>
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<tbody>
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<td>DIN rail adapter Ha-VIS RF-R200</td>
<td>20 93 102 0202</td>
</tr>
<tr>
<td>Mounting kit Ha-VIS RF-R200</td>
<td>20 93 102 0203</td>
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<tr>
<td>Desktop power supply for Ha-VIS RF-R200 (EU)</td>
<td>20 93 310 0203</td>
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<tr>
<td>Desktop power supply for Ha-VIS RF-R200 (GB)</td>
<td>20 93 310 0204</td>
</tr>
<tr>
<td>Desktop power supply for Ha-VIS RF-R200 (US)</td>
<td>20 93 310 0205</td>
</tr>
</tbody>
</table>

Ha-VIS RFID Box

**Characteristics**
- Completely installed RFID system in control cabinet
- Tested and ready for connection
- Robust 2mm VA steel control cabinet with protection class IP65
- All configurations are also available with integrated cooling system
- All RFID boxes are also available in FCC approved versions
- Customised configurations on request

<table>
<thead>
<tr>
<th>Identification</th>
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<tbody>
<tr>
<td>Ha-VIS RFID Box (RF-R500-p-EU, eCon 2050-A)</td>
<td>20 91 421 1001</td>
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<tr>
<td>Ha-VIS RFID Box (RF-R500-c-EU, eCon 2050-A)</td>
<td>20 91 411 1001</td>
</tr>
<tr>
<td>Ha-VIS RFID Box (RF-R400-EU, eCon 2050-A, MICA Base)</td>
<td>20 91 481 1010</td>
</tr>
<tr>
<td>Ha-VIS RFID Box High Temp (RF-R500-p-EU)</td>
<td>2091 491 1001</td>
</tr>
</tbody>
</table>

Ha-VIS UHF mobile reader Nordic ID

HARTING relies on Nordic ID products for its handheld UHF RFID readers. This enables HARTING to provide its customers with mobile UHF RFID readers from the entire Nordic ID product line. These handheld readers feature outstanding robustness and reading ranges of up to 5 meters. They are also fully compatible with the Ha-VIS Application Suite.

<table>
<thead>
<tr>
<th>Identification</th>
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<tbody>
<tr>
<td>We can prepare a customised offer for you on request.</td>
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</tbody>
</table>
Ha-VIS RFID UHF rugged wide-range antenna, 30° aperture angle

Characteristics
- Different aperture angles for azimuth and elevation planes (30° / 70°)
- Rugged enclosure
- Compact design
- Wide read range
- Antenna gain: 11 dBi
- Suitable for industrial environment
- Optimised for portal applications
- High degree of protection IP65
- Suitable for outdoor applications
- N socket
- 865 – 870 MHz (EU) or 902 – 928 MHz (US)

Identification
- Ha-VIS RF-ANT-WR80-30-EU
- Ha-VIS RF-ANT-WR80-30-US

Accessories
- Ha-VIS RF-MOUNT-ANT-B

Part number
- 20 93 201 0203
- 20 93 201 0204
- 20 93 102 0104

Ha-VIS RFID UHF wide-range antenna

Characteristics
- Suitable for harsh environments
- Circular UHF antenna
- Wide range
- Designed for harsh industrial applications: RF-ANT-WR24-i
- Version for high-temperature applications in industry and rail: RF-ANT-WR24-t
- Stainless steel version for joist applications below railcars: RF-ANT-WR24-r
- Antenna gain: 8 dBi (WR24-r, WR24-t) or 9 dBi (WR24-i)

Identification
- Ha-VIS RF-ANT-WR24-i, EU
- Ha-VIS RF-ANT-WR24-i, US
- Ha-VIS RF-ANT-WR24-r, EU
- Ha-VIS RF-ANT-WR24-r, US
- Ha-VIS RF-ANT-WR24-t, EU
- Ha-VIS RF-ANT-WR24-t, US

Part number
- 20 93 201 0501
- 20 93 201 0504
- 20 93 201 0502
- 20 93 201 0505
- 20 93 201 0503
- 20 93 201 0506
**Ha-VIS RFID UHF mid-range antenna**

**Characteristics**
- Very compact design
- Average read range (0.2 m – 2 m)
- Suitable for industrial environments with near- and far-field applications
- 100° aperture angle
- Antenna gain: 2.5 dBiC
- High degree of protection IP67
- Suitable for outdoor areas
- TNC socket
- 865 – 870 MHz (EU) or 902 – 928 MHz (US)

**Identification**

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<tr>
<td>Ha-VIS RF-ANT-MR20-EU</td>
<td>20 93 201 0301</td>
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<tr>
<td>Ha-VIS RF-ANT-MR20-US</td>
<td>20 93 201 0302</td>
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</tbody>
</table>

**Ha-VIS RFID UHF low-range antenna**

**Characteristics**
- Minimal size
- Extremely high spatial selectivity
- Suitable for industrial environments
- Optimised for near-field applications (< 5 cm)
- High degree of protection IP67
- Suitable for outdoor areas
- TNC socket
- Can be used worldwide (860 – 930 MHz)

**Identification**

<table>
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<td>Ha-VIS RF-ANT-LR10</td>
<td>20 93 201 0303</td>
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</tbody>
</table>

**Ha-VIS RFID UHF ultra low-range antenna**

**Characteristics**
- Minimal size
- Extremely high spatial selectivity
- Suitable for industrial environments
- Optimised for muRata MAGICSTRAP®
- High degree of protection IP67
- TNC socket

**Identification**

<table>
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<tr>
<td>Ha-VIS RF-ANT-µLR10-EU</td>
<td>20 93 201 0305</td>
</tr>
<tr>
<td>Ha-VIS RF-ANT-µLR10-US</td>
<td>20 93 201 0306</td>
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### Characteristics
- Create customised read zones
- Read ranges up to 2 m
- No reflection
- 865 – 870 MHz (EU) or 902 – 928 MHz (FCC)
- Additional antenna configurations available on request

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
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<tr>
<td>0.3 m (active length), total length 0.6 m, diameter 3 mm, SMA (m), EU</td>
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<tr>
<td>0.3 m (active length), total length 0.6 m, diameter 3 mm, SMA (m), FCC</td>
<td>20 93 610 1200 30</td>
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<tr>
<td>0.3 m (active length), total length 0.6 m, diameter 3 mm, RP-TNC (m), EU</td>
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<td>2 m (active length), total length 2.5 m, diameter 3 mm, RP-TNC (m), EU</td>
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<td>2 m (active length), total length 2.5 m, diameter 3 mm, TNC female jack, EU</td>
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<td>2 m (active length), total length 2.5 m, diameter 3 mm, TNC female jack, FCC</td>
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<td>2 m (active length), total length 3 m, diameter 5 mm, TNC female jack, FCC</td>
<td>20 93 630 2200 10</td>
</tr>
</tbody>
</table>

### Accessories
- Coax extension cables
- Extension cable, SMA male – SMA female, 1 m | 20 93 204 0112 |
- Extension cable, SMA male – SMA female, 3 m | 20 93 204 0113 |
- Extension cable, SMA male – SMA female, 5 m | 20 93 204 0114 |
- TNC adapter TNC reverse-male – SMA female | 20 93 204 0302 |
- Adapter SMA female – N female | 20 93 204 0303 |
Ha-VIS RFID standard antenna cable

Characteristics
- 3 m standard cable
- SMA-TNC
- Attenuation: 68 dB/100 m (@800 MHz)

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
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</tbody>
</table>

Ha-VIS RFID low-loss antenna cable

Characteristics
- 3 m and 10 m low-loss cable
- Attenuation: 26.5 dB / 100 m (@800 MHz)
- Outer diameter: 5.4 mm

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS Coax SMA-TNC, LL 240 flex, 3 m</td>
<td>20 93 204 0102</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA-TNC, LL 240 flex, 10 m</td>
<td>20 93 204 0103</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA-N, LL 240 flex, 3 m</td>
<td>20 93 204 0104</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA-N, LL 240 flex, 10 m</td>
<td>20 93 204 0105</td>
</tr>
<tr>
<td>Ha-VIS Coax TNC/TNC-RP, H155 PVC, 3 m</td>
<td>20 93 204 0121</td>
</tr>
<tr>
<td>Ha-VIS Coax TNC/TNC-RP, H155 PVC, 10 m</td>
<td>20 93 204 0122</td>
</tr>
<tr>
<td>Ha-VIS Coax N/TNC-RP, H155 PVC, 3 m</td>
<td>20 93 204 0131</td>
</tr>
<tr>
<td>Ha-VIS Coax N/TNC-RP, H155 PVC, 10 m</td>
<td>20 93 204 0132</td>
</tr>
</tbody>
</table>

Ha-VIS RFID heavy-duty low-loss antenna cable

Characteristics
- 3 m and 10 m low-loss cable
- Suitable for harsh environments
- Attenuation: 22 dB / 100 m (@800 MHz)
- Outer diameter: 10.3 mm
- TNC-N

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS Coax TNC-N, RG 213, 3 m</td>
<td>20 93 204 0106</td>
</tr>
<tr>
<td>Ha-VIS Coax TNC-N, RG 213, 10 m</td>
<td>20 93 204 0107</td>
</tr>
</tbody>
</table>

Accessories
- Adapter TNC-SMA 20 93 204 0301

Additional lengths and connector variants available on request
Ha-VIS RFID railway antenna cable

**Characteristics**
- For the harsh railway environment
- Complies with railway standards: DIN 5510-2, EN 45545-2, NF F 16-101
- Attenuation: 26 dB / 100 (at 1 GHz)
- Rigid inner conductor

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS Coax SMA/TNC, SPU240FR, LSFH, 10 m</td>
<td>20 93 204 0123</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA/TNC, SPU240FR, LSFH, 4.5 m</td>
<td>20 93 204 0139</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA/TNC, SPU240FR, LSFH, 2 m</td>
<td>20 93 204 0138</td>
</tr>
<tr>
<td>Ha-VIS Coax TNC/TNC-R, SPU240FR, LSFH, EN 45545-2, 10 m</td>
<td>20 93 204 0133</td>
</tr>
</tbody>
</table>

Ha-VIS RFID heavy-duty low-loss antenna cable ECOFLEX 10

**Characteristics**
- 25 m and 35 m low-loss cable
- Suitable for harsh environments
- Attenuation: 12.5 dB/100 m (at 800 MHz)
- Outer diameter: 10.2 mm

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS Coax SMA-N, ECOFLEX, 25 m</td>
<td>20 93 204 0108</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA-TNC, ECOFLEX, 25 m</td>
<td>20 93 204 0110</td>
</tr>
<tr>
<td>Ha-VIS Coax SMA-TNC, ECOFLEX, 35 m</td>
<td>20 93 204 0111</td>
</tr>
</tbody>
</table>

Additional lengths and connector variants available on request
Ha-VIS RFID VT series (HT)

**Characteristics**
- Functions on metal
- Robust, chemical-resistant enclosure
- EPC Class 1 Gen 2 compatible
- Protection class IP69K
- Expanded memory
- Versatile mounting options
- Version available for medical applications
- Customised solutions for mounting plates possible

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RFID VT 89 S (HT) - 512 Bit - global, 10 pieces</td>
<td>20 92 641 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 89 S (HT) - 512 Bit - global, 50 pieces</td>
<td>20 92 641 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 86 S (HT) - 512 Bit - EU, 10 pieces</td>
<td>20 92 611 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 86 S (HT) - 512 Bit - EU, 50 pieces</td>
<td>20 92 611 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 92 S (HT) - 512 Bit - US/Asia, 10 pcs.</td>
<td>20 92 621 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 92 S (HT) - 512 Bit - US/Asia, 50 pcs.</td>
<td>20 92 621 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 89 L (HT) - 3.3 kBit - global, 10 pieces</td>
<td>20 92 642 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 89 L (HT) - 3.3 kBit - global, 50 pieces</td>
<td>20 92 642 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 86 L (HT) - 3.3 kBit - EU, 10 pieces</td>
<td>20 92 612 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 86 L (HT) - 3.3 kBit - EU, 50 pieces</td>
<td>20 92 612 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 92 L (HT) - 3.3 kBit - US/Asia, 10 pcs.</td>
<td>20 92 622 0201</td>
</tr>
<tr>
<td>Ha-VIS RFID VT 92 L (HT) - 3.3 kBit - US/Asia, 50 pcs.</td>
<td>20 92 622 0202</td>
</tr>
<tr>
<td>Ha-VIS RFID VT - medical version</td>
<td>On request</td>
</tr>
<tr>
<td>Ha-VIS RFID VT set - customised mounting holder according to customer request</td>
<td>On request</td>
</tr>
</tbody>
</table>

Ha-VIS RFID FT series (NT)

**Characteristics**
- High quality RFID label
- Scratch- and smudge-resistant surface
- Washable, resistant to chemicals
- Variants with extremely high protection
- Variants for lower protection requirements
- Versatile printing options (custom logo, barcode, QR code, etc.)
- Versatile mounting on different surfaces
- Mounting with adhesive pad
- Variants for metallic or non-metallic surfaces
- Can be used worldwide
- EPC Class 1 Gen 2 compatible

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RFID FT 89 (NT), 500 pieces</td>
<td>20 92 641 0703</td>
</tr>
<tr>
<td>Ha-VIS RFID FT 89 on small (NT), 500 pieces</td>
<td>20 92 641 0803</td>
</tr>
<tr>
<td>Ha-VIS RFID FT 89 light (NT), 500 pieces</td>
<td>20 92 641 0713</td>
</tr>
<tr>
<td>Ha-VIS RFID FT 89 paper (NT), 500 pieces</td>
<td>20 92 641 0723</td>
</tr>
<tr>
<td>Label with customised printing (for orders over 10000 pieces)</td>
<td>On request</td>
</tr>
</tbody>
</table>
Ha-VIS RFID Control ETB series

Characteristics
- Intelligent RFID transponder: for operating with sensors and actuators, also in passive mode
- Can be used for monitoring the (switch-state) conditions on rotating objects
- UHF RFID transponder with sensor functionality
- Monitoring function, e.g. for monitoring the status of a switch
- Requires no maintenance in passive mode, since no battery replacement is necessary
- Connection of sensors / actuators using a cable of up to 8 metre length
- EPC Class 1 Gen 2 compatible
- Functional read range (in passive mode) of up to 3 m
- Robust chemical-resistant enclosure – optimised for industrial use

Identification | Part number
--- | ---
Ha-VIS RFID Control ETB 86v1 - EU Version, 1 piece | 20 92 614 7055
Ha-VIS RFID Control ETB 92v1 - US Version, 1 piece | 20 92 624 7055
Ha-VIS RFID Control ETB 86v2 - EU Version, 1 piece | 20 92 615 7055
Ha-VIS RFID Control ETB 92v2 - EU Version, 1 piece | 20 92 625 7055
Ha-VIS RFID Control ETB 86v1 Plus - EU Version, 1 piece | 20 92 614 7555
Ha-VIS RFID Control ETB with sensors / actuators – customised solution | On request

Ha-VIS RFID LT 2.0 series (MT)

Characteristics
- Different variants for EU and US/Asia frequencies
- Large user memory: 3.3 kBit
- EPC Class 1 Gen 2 compatible
- Optimised for metallic surfaces
- Robust chemical-resistant enclosure – optimised for industrial use

Identification | Part number
--- | ---
Ha-VIS RFID LT 2.0 86 L - EU Version, 1 piece | 20 92 612 7155
Ha-VIS RFID LT 2.0 92 L - US/Asia Version, 1 piece | 20 92 622 7155
Ha-VIS RFID ETBv1 Protection Box

**Characteristics**
- Very safe enclosure for ETB transponders
- For transmitting signal states into the vehicle
- Suitable for mounting in the track bed
- Protection class IP65
- Maintenance-free, since no additional battery is required

<table>
<thead>
<tr>
<th>Identification</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RFID ETB 86v1 Rail Protection Box</td>
<td>20 92 614 8055</td>
</tr>
<tr>
<td>Ha-VIS RFID ETB 92v1 Rail Protection Box</td>
<td>20 92 624 7855</td>
</tr>
</tbody>
</table>

**Accessories**
- Cable for Ha-VIS RFID ETBv1 Rail Protection Box, 5.5 m
  - Part number: 61 04 201 2216 00
Ha-VIS RFID Solution Packages

Ha-VIS RFID4Logistics - Gate2Go

Characteristics
- RFID gate application that can be set up quickly and easily
- Fully equipped for immediate commissioning
- Suitable for proof-of-concepts or temporary use
- Adjustable for gates up to 3x3 meters

Identification | Part number
--- | ---
Ha-VIS RFID4Logistics - Gate2Go, EU | 20 91 000 0029
Ha-VIS RFID4Logistics - Gate2Go, FCC | 20 91 000 0030

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Ha-VIS RFID4Mold Tracking

Characteristics
- Automated tracking of tools
- Can be integrated in plastics injection-moulding machines
- Robust and heat resistant
- Configured with Ha-VIS ALE middleware

Identification | Part number
--- | ---
Ha-VIS RFID4MoldTracking Master, EU | 20 91 000 0025
Ha-VIS RFID4MoldTracking Master, FCC | 20 91 000 0026
Ha-VIS RFID4MoldTracking, EU | 20 91 000 0027
Ha-VIS RFID4MoldTracking, FCC | 20 91 000 0028
Ha-VIS RFID4Rail - SLP

Characteristics
- Reliable detection of the railway platform
- Transmits signal states into the vehicle
- Robust enough for mounting in the track bed
- Suitable for speeds of more than 250 km/h

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RFID4Rail - SLP-500, EU</td>
<td>20 91 104 9000</td>
</tr>
<tr>
<td>Ha-VIS RFID4Rail - SLP-500, FCC</td>
<td>20 91 104 9001</td>
</tr>
<tr>
<td>Ha-VIS RFID4Rail - SLP-400, EU</td>
<td>20 91 107 9000</td>
</tr>
<tr>
<td>Ha-VIS RFID4Rail - SLP-500, FCC</td>
<td>20 91 107 9001</td>
</tr>
<tr>
<td>Ha-VIS RFID4Rail - SLP-300</td>
<td>20 91 105 9000</td>
</tr>
</tbody>
</table>

Ha-VIS RFID4SMT

Characteristics
- Enables precise tracking of components and products using UHF RFID
- Easily integrates into production
- Package contains all the required UHF RFID components
- Optimised for printed circuit board production
- Includes ALE 1.1 middleware (Master version only)

<table>
<thead>
<tr>
<th>Identification</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS RFID4SMT Master, EU</td>
<td>20 91 000 0021</td>
</tr>
<tr>
<td>Ha-VIS RFID4SMT Master, FCC</td>
<td>20 91 000 0022</td>
</tr>
<tr>
<td>Ha-VIS RFID4SMT, EU</td>
<td>20 91 000 0023</td>
</tr>
<tr>
<td>Ha-VIS RFID4SMT, FCC</td>
<td>20 91 000 0024</td>
</tr>
</tbody>
</table>
Ha-VIS middleware, certified software

**Characteristics**
- Easy integration of UHF RFID for every project
- No programming effort required
- Reliable standardised solution
- Reading and writing of tag information
- Easy installation because it is delivered as a virtual appliance
- Various filter and aggregation options
- Possible to configure customised solutions
- Supports digital IO port cycle
- Reader monitoring
- Fast data processing
- Modular and scalable

<table>
<thead>
<tr>
<th>Identification</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha-VIS middleware app appliance</td>
<td>26 99 210 1110 10</td>
</tr>
</tbody>
</table>

**Service**
- RFID proof-of-concept at customer’s site or in the RFID laboratory
- Configuration service for the Ha-VIS RFID reader and middleware
- Consulting for RFID systems
- Training
- Telephone and e-mail support
- Auto-ID@HARTING.com
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