

***logident***<sup>®</sup>

**UDL500**

**Wiring & Installation  
Instructions**

V17/01/08

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January 2008 SK/IO/BF

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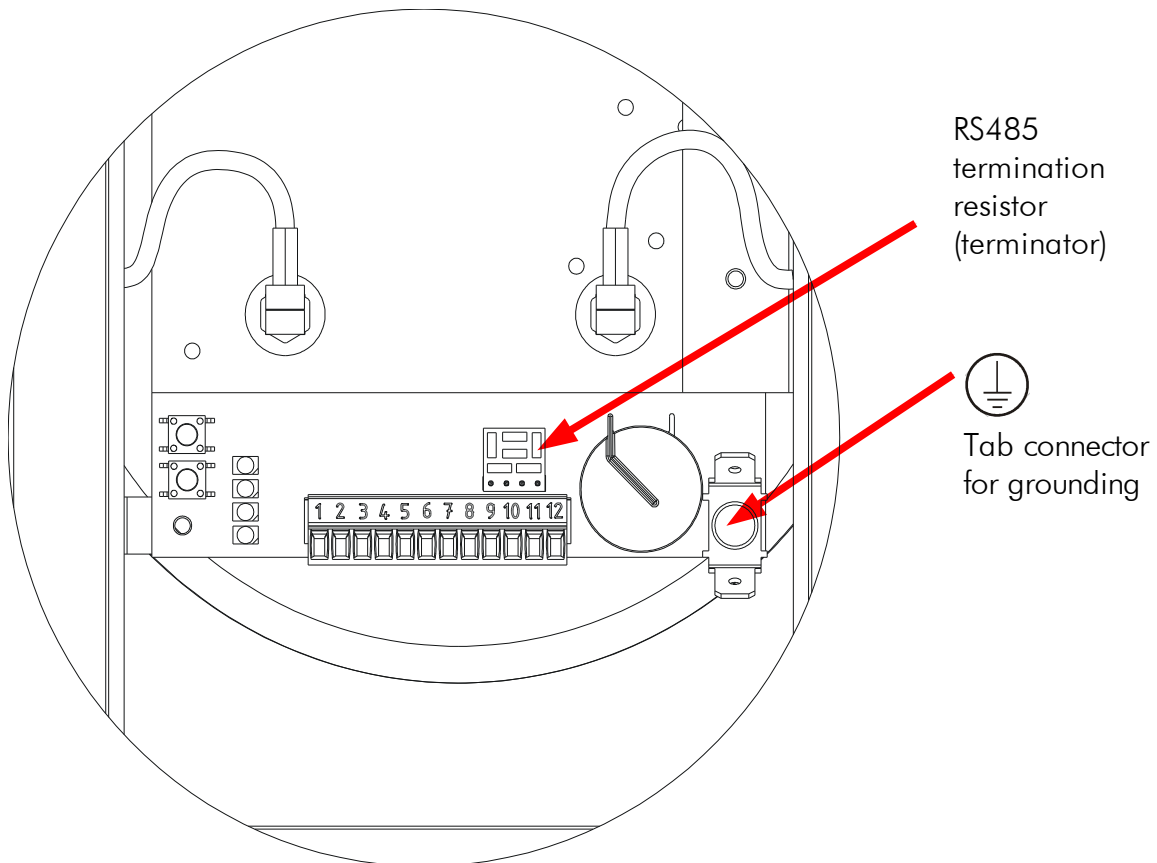
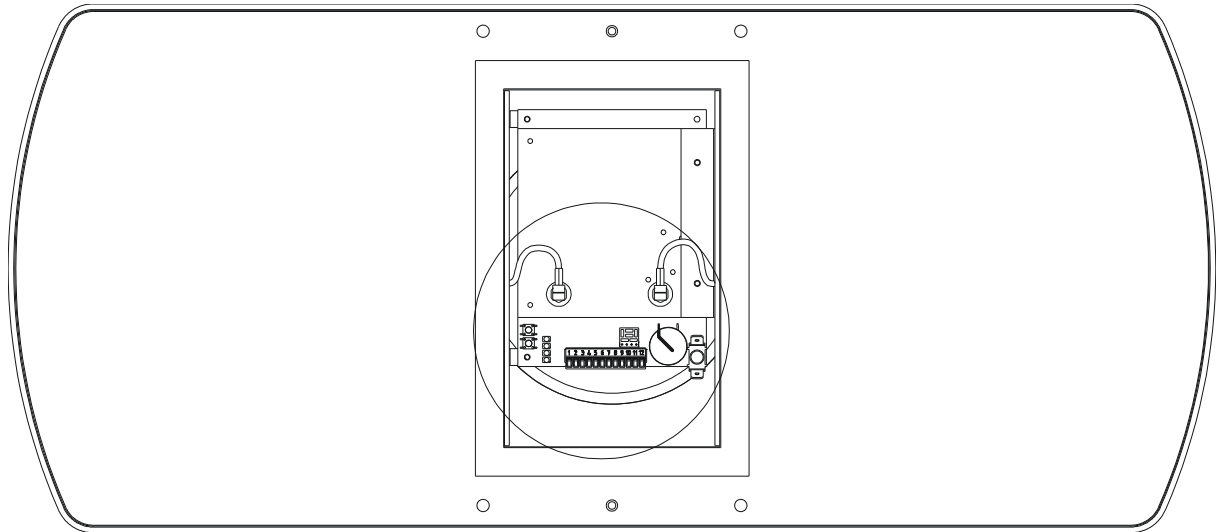
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## 1. Technical Data

<b>Dimensions (mm):</b>	640 x 280 x 75
<b>Housing material:</b>	ABS/PMMA, ALUMINUM, V2A
<b>Color:</b>	silver
<b>Protection class:</b>	IP65
<b>Operating temperature:</b>	-20 ... +70°C
<b>Storing temperature:</b>	-40 ... +85°C
<b>Relative humidity:</b>	5% ... 95% non condensing
<b>Voltage supply:</b>	10 ... 30V/DC
<b>Power consumption:</b>	10W (during operation) 2W (standby)
<b>Transmission frequency:</b>	865 – 868MHz (EU) 902 – 928MHz (USA)
<b>Writing-/reading distance:</b>	up to 5m, depending on type of transponder and the local environment
<b>Antennas:</b>	2 patch antennas (transmitting and receiving antennas)
<b>Polarization:</b>	circular
<b>Radiated output power:</b>	2W ERP (ETSI EN 302 208) or 4W EIRP (FCC Part 15), configurable in 10 steps
<b>Transponder protocol:</b>	ISO 18000-6 Type C EPC Class1 Gen2 <b>optional:</b> ATMEL ATA 5590 (TAGIDU), EM 4022, 4222, 4422
<b>Trigger Input:</b>	8 ... 36V/DC
<b>Digital Output:</b>	6 ... 32V/DC (I<500mA) 32 ... 48V/DC (I<300mA)
<b>Interface:</b>	RS485
<b>Anticollision:</b>	high-speed detection for multiple tag identification
<b>Operating modes:</b>	single reader (stand alone), portal mode (up to 4 readers can be connected to the DCU1)
<b>Acoustical indicator:</b>	beeper
<b>Optical indicator:</b>	3 LEDs (yellow, green, red)
<b>Conformity:</b>	
Human exposure	EN 50364
EMC	EN 301 489
air interface (EU)	EN 302 208 (listen before talk)

## 2. Connectors



### 2.1 Installation note

**Attention:**

It is important to take care that the marked tab connector is connected to the supplied cable plug. The device always needs to be professionally grounded using a yellow/green flexible line with a minimum profile of 0.75mm<sup>2</sup>.

## Attention:

The procedures and working activities described in this document are intended to be performed by technical professionals only.

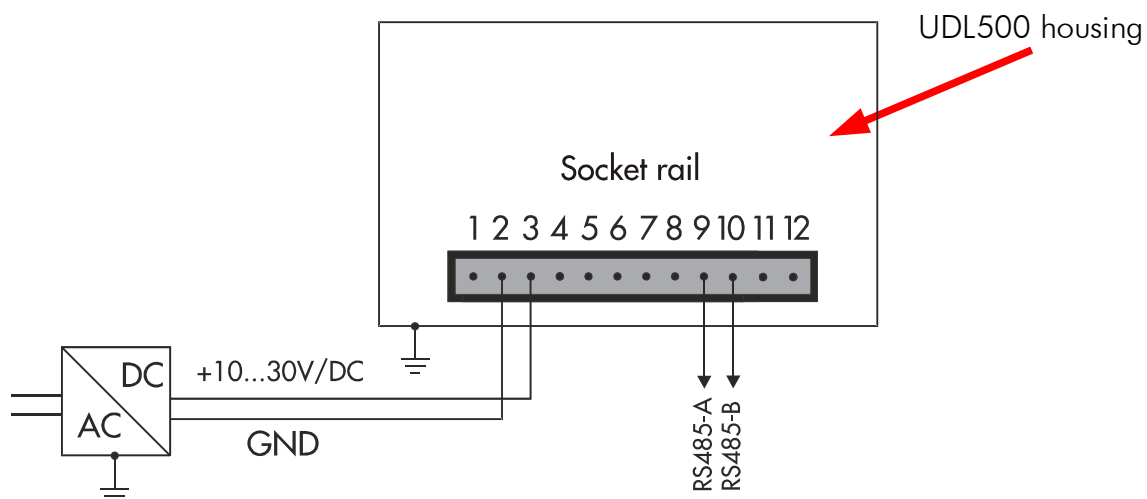
## 2.2 Pin assignment UDL500

Pin	Name	Function
1	–	not connected
2	GND	ground
3	+10 ... 30V/DC	voltage supply +10 ... 30V/DC
4	OUT <sub>GND</sub>	external ground for digital output
5	OUT	digital output voltage, max. +48V/DC, I<300mA
6	OUT <sub>VCC</sub>	external voltage supply for digital output, max. +48V/DC, I<300mA
7	–	not connected
8	–	not connected
9	RS 485-A	RS485 interface, data line A
10	RS 485-B	RS485 interface, data line B
11	IN -	external ground for trigger input
12	IN +	external voltage supply for trigger input, max. +36V/DC

Table 1: pin assingment UDL500

## 2.3 UDL500: RS485 interface

**Installation note:** We recommend professional grounding of the device (see 2.1 Installation note).



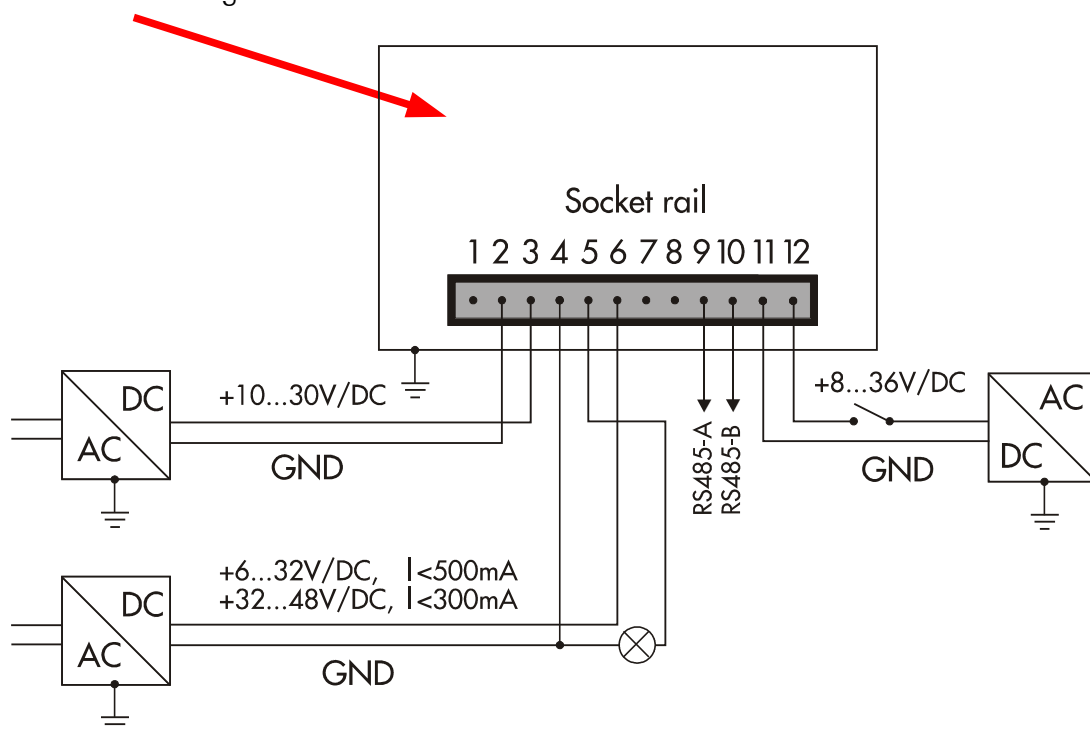
## 2.4 UDL500: Control digital output via hardware trigger

**Installation notes:** We recommend professional grounding of the device (see 2.1 Installation note). Output OUT and Input IN are potential-free. Take care that the grounding will be sufficient (use second tab connector)!

The potential-free input IN may be used to control the reader by a hardware trigger (e.g. tip switch). The control of the potential-free output OUT can be configured within the software. For this the reader has to be operated in trigger mode.

In the following example of circuits, the output OUT has not been potential isolated:

UDL500 housing



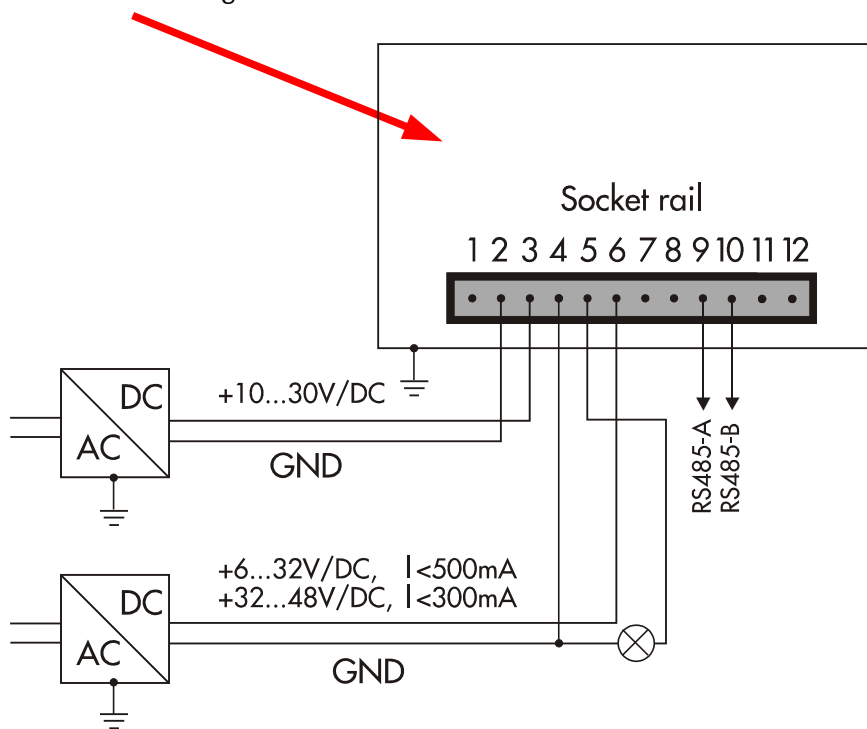
## 2.5 UDL500: Control digital output via software trigger

**Installation notes:** We recommend professional grounding of the device (see 2.1 Installation note). Output OUT is potential-free. Take care that the grounding will be sufficient (use second tab connector)!

The reader can be controlled by a trigger signal via software. Therefore, it is not necessary to use the potential-free input IN. The control of the potential-free OUT can be configured within the software. For this the reader has to be operated in trigger mode.

In the following example of circuits the output has not been potential isolated:

UDL500 housing





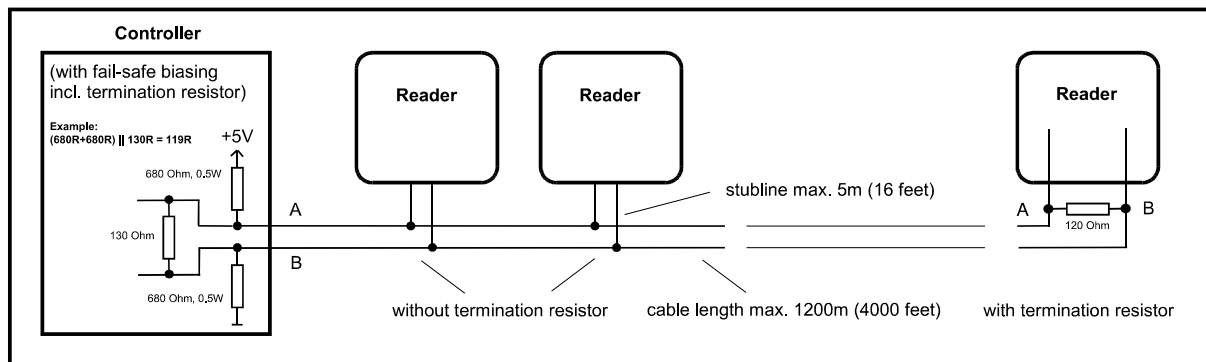
### 3. RS485 interface

Most RS485-buses require termination resistors across the conductor pair. The need for termination has to be checked for each installation. Especially for high data rates, steep edges or long cables termination resistors are absolutely mandatory. Only both ends of the main cable, i.e. at the first and the last device, require termination resistors, additional resistors excessively load the drivers. The resistor value matches the cable's differential mode characteristic impedance (in most cases 100 ... 120Ω).

#### Attention!

**This termination resistor (Terminator, 120Ω) has been factory built-in into all UDL500 and has to be removed if necessary (see chapter 2).**

At the RS485-bus you need a controller with fail-safe biasing meaning a pull-up and a pull-down resistor on the cable. The fail-safe biasing provides a known-state, in which there is no active driver on the bus. Therefore this is absolutely mandatory regardless of data rates and length of cables.



#### Technical data (for baud rates up to 100kBps):

**Max. bus length:** 1200m (4000 feet)

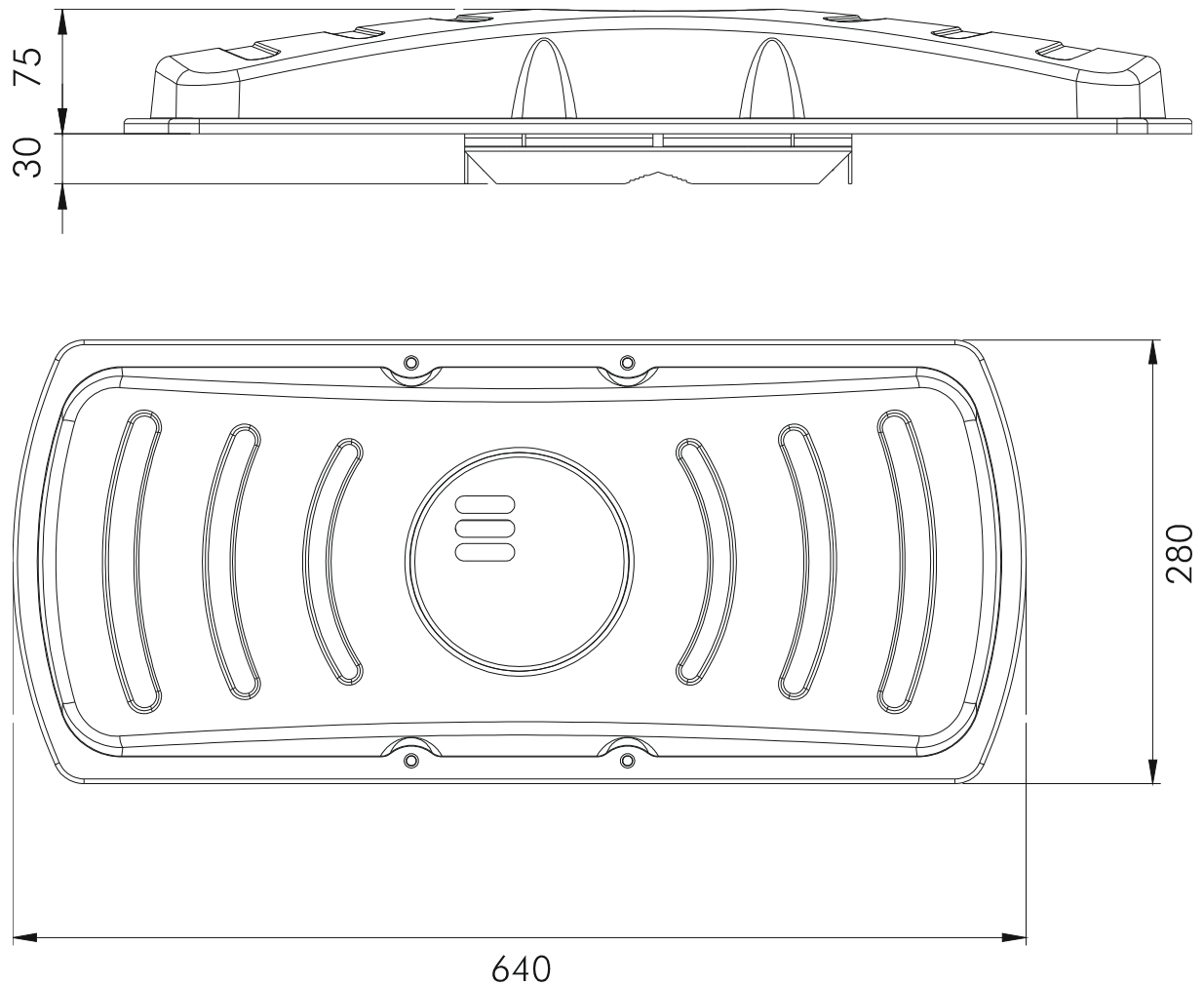
**Max. stub length:** because of reflections stubs should be kept as short as possible; exceptions allow a length up to 5m (16 feet)

**Recommendation for the cable:** twisted pair, cable-cross section at least 0.22mm<sup>2</sup> (AWG 24) differential-mode characteristic impedance 100 ... 120Ω

## 4. Mechanical dimensions

### 4.1 UDL500 housing

All dimensions in mm:



## 5. Transmission protocol

The RS485 interface is being operated with 8 data bits, 1 stop bit and no parity bit. The transmission rate can be adjusted to 9600, 19200, 38400 or 115200 baud.

The reader works with the "deBus" protocol. For details refer to document "UDL/UDK deBus Protocol".

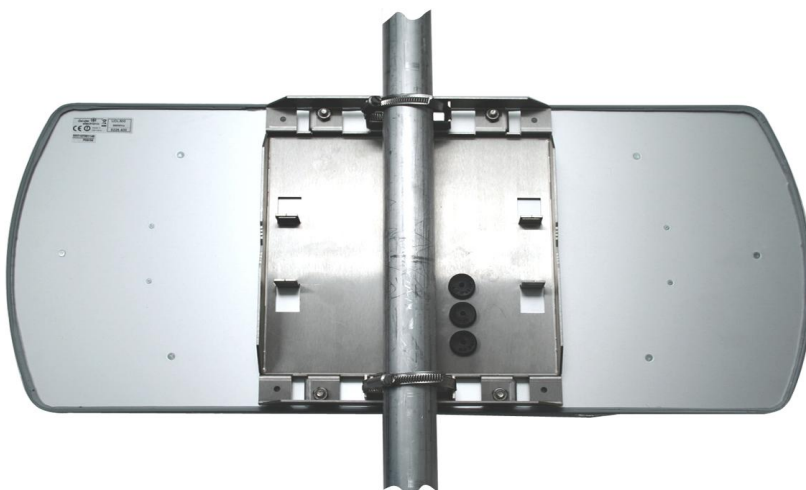
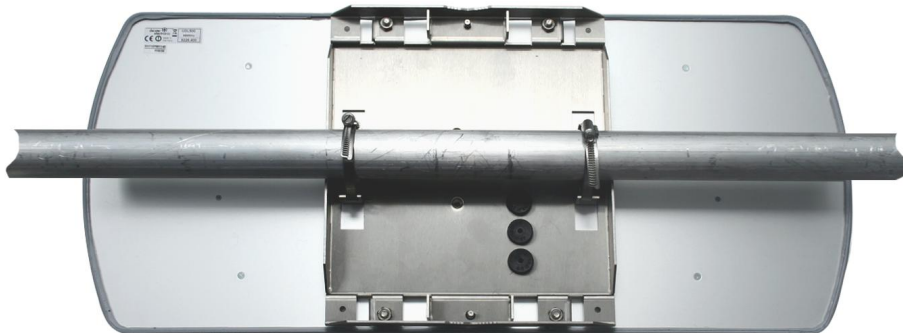
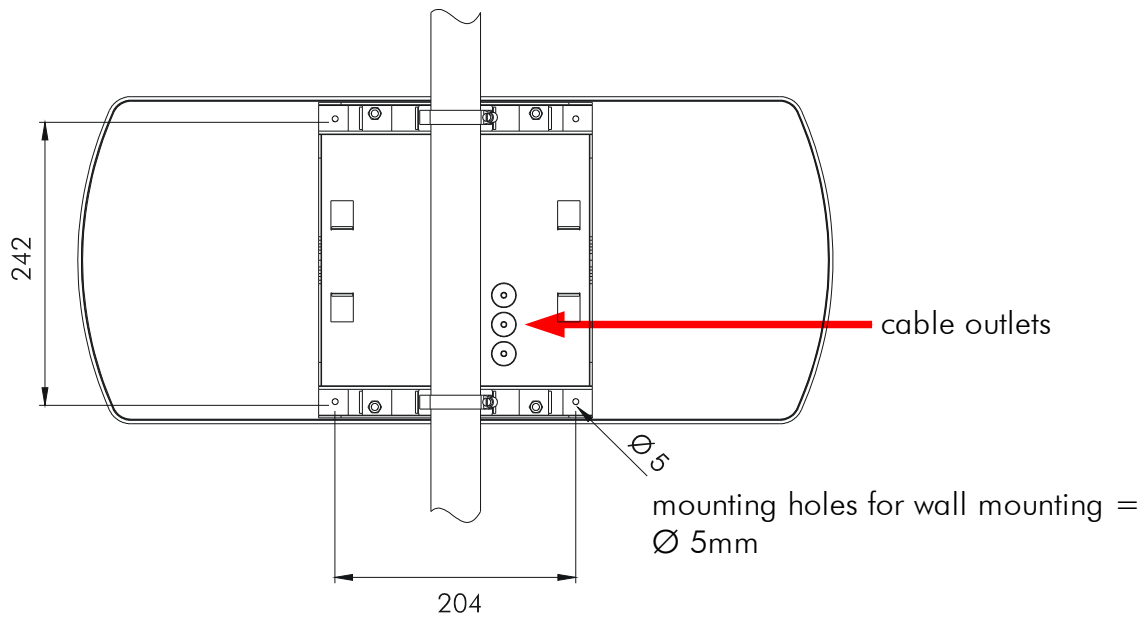
## 6. Mounting

The back of the reader is prepared for mounting on masts and tubes. For mounting on masts or ceilings, deister electronic provides the link holder LRM1 as an ideal supplement (optional, art. nr. 6103.000).

### 6.1 Mast/Tube mounting

For mounting on masts/tubes the back of the reader is prepared in the way, that alignment of the reader around its vertical or horizontal axis is possible. The jagged pipe guidings on the back guarantee a safe tube mounting with a 360° justification round the tube and a safe mounting of the reader as well.

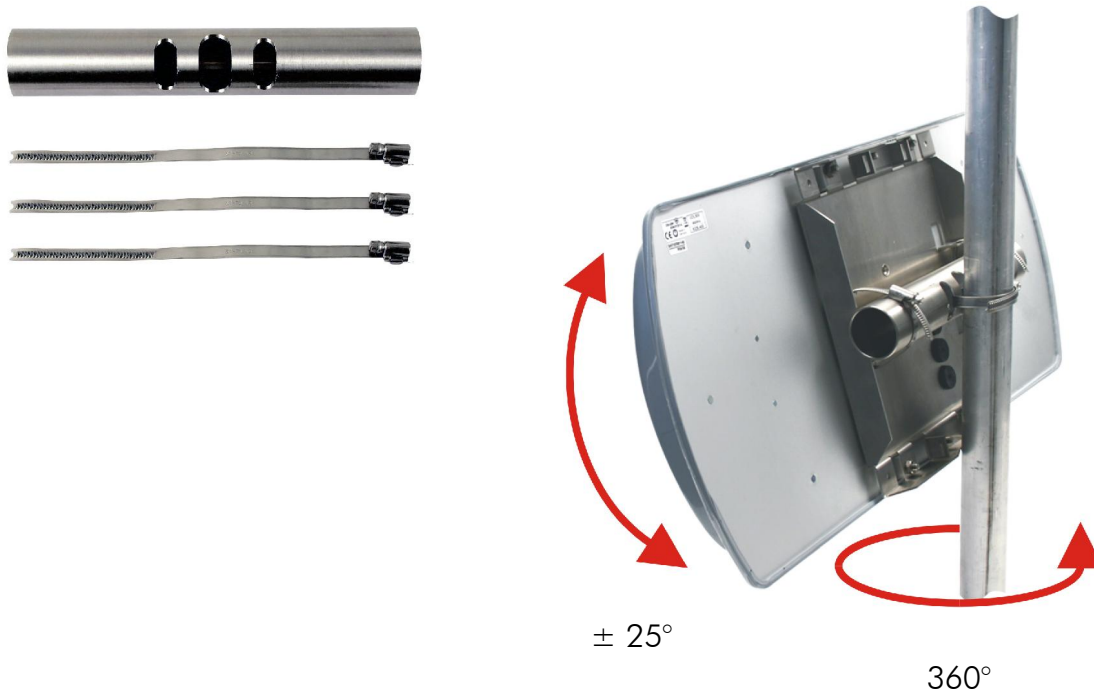
All dimensions in mm:



## 6.2 Extended mast holding device LRM2

(optional, art. nr. 6104.000)

For even more flexibility in mounting and alignment on the mast we recommend the use of the extended mast holding device LRM2. This will give you the possibility to change the angle of vertical inclination up to  $\pm 25^\circ$ .

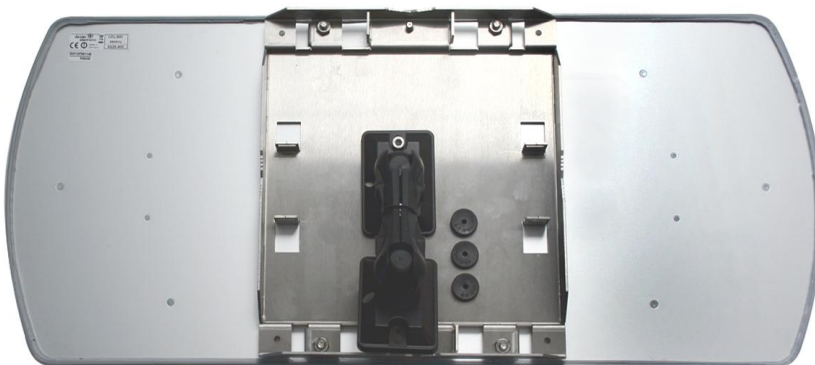
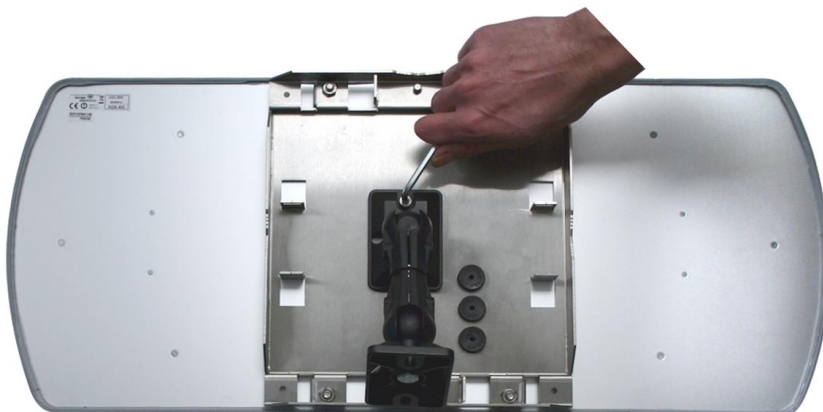


### 6.3 Wall mounting with link holder LRM1

For mounting on walls or ceilings the reader can be mounted directly or by help of the link holder LRM1. With the LRM1 the reader can be positioned in many directions. Both mounting plates of this device are connected ball-bearred to a rotatable axis. Fixing the correct position is carried out with a hexagon spanner.

### 6.4 Fixing link holder LRM1

(optional, art. nr. 6103.000)



## 6.5 Function principle and environmental influences

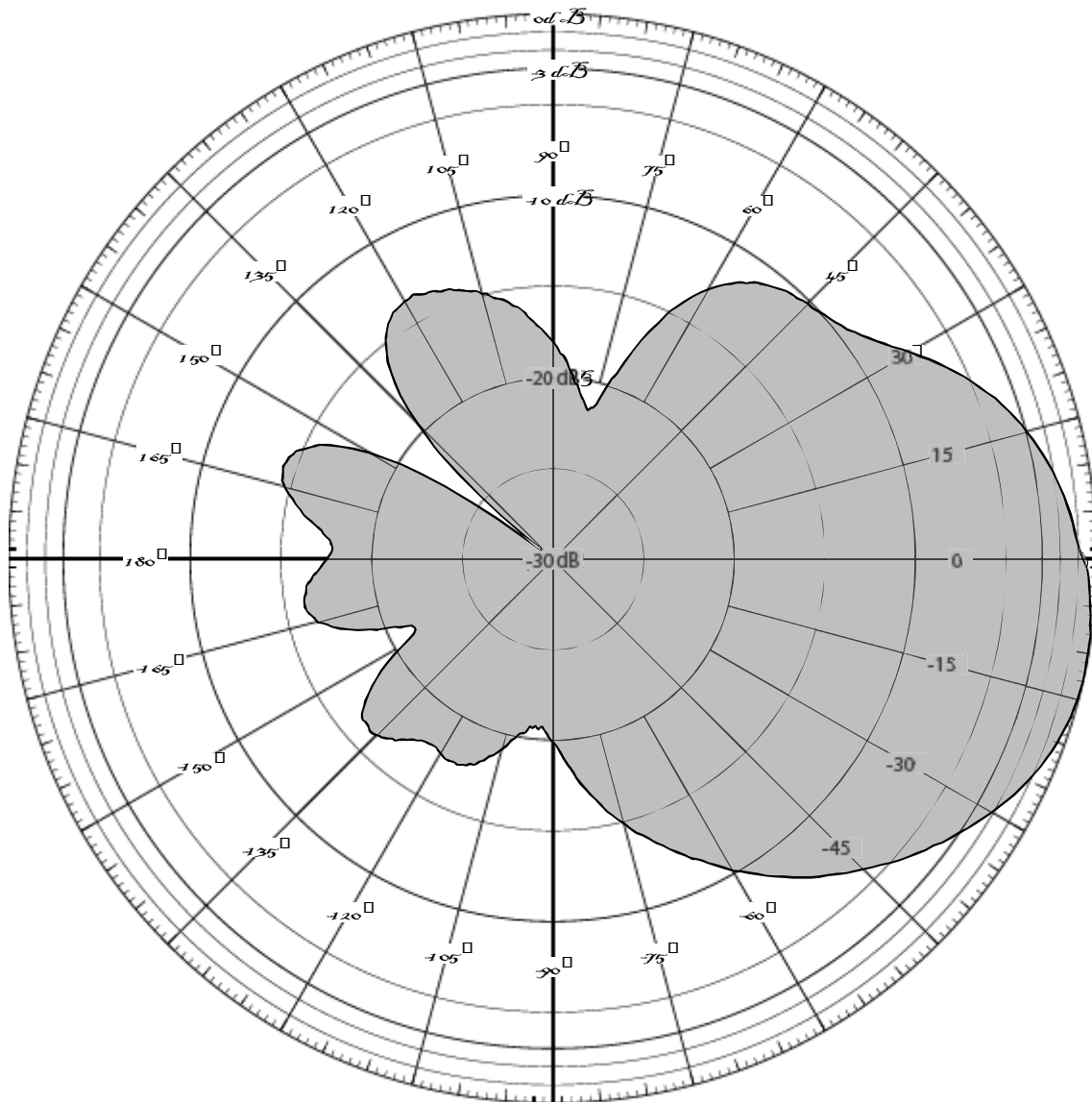
The reader sends a high-frequent carrier signal. A transponder, which is located within the area of this transmitted carrier, transmits this signal back with its own transponder data in a modulated way. This very weak signal is being analyzed by the reader.

Because of the particular small-bandwidth and the high carrier frequency within MHz-range this system is almost fail-safe. Nevertheless the range of the reader can be negatively influenced. The following list shows what to pay attention to:

1. The reader must have visual contact to the transponder. **There must not be any walls or other devices between reader and transponder.** Reading through plastic film, card board, papers or glass windows may be possible in some cases, but will reduce the reading range depending on the condition of the material.
2. **Water, ice and snow will absorb the carrier signal.** Therefore the installer should take care, that the front of the reader as well as the transponder can not be covered with water, ice or snow.
3. If more than one reader will be installed, they may influence each other. To avoid any problems, there can be fixed channels assigned to each single reader. **It is absolutely mandatory, that the readers operate on different channels.** The more the frequencies of the channels are apart, the less the influence will be. In case the air interface **EN 302 208** is being used, the reader carries out a listen before talk (LBT) and chooses a free channel by its own.
4. Reflexions within the surrounding of the reader can influence the reading result in a negative way. Therefore the reader should be mounted as free-standing as possible. **We strictly discourage from sunk-in installations.**

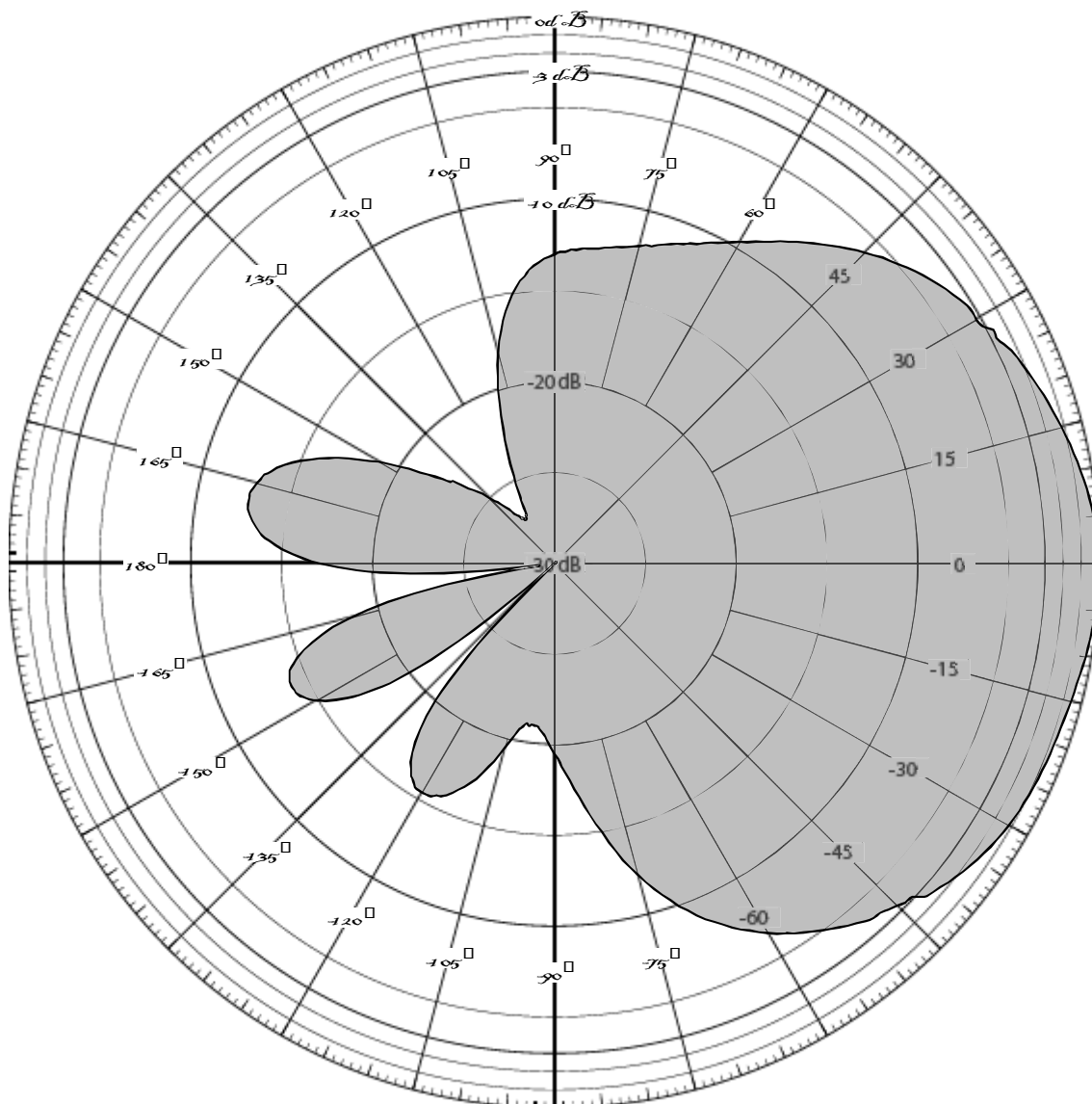
## 6.6 Radiation pattern of the transmitting antenna

Beamwidth horizontal:	$\leq 70^\circ$
Beamwidth vertical:	$\leq 70^\circ$
Gain:	4dBd
Polarization:	circular (LHCP)
Pictured frequency:	$f = 866.8\text{MHz}$

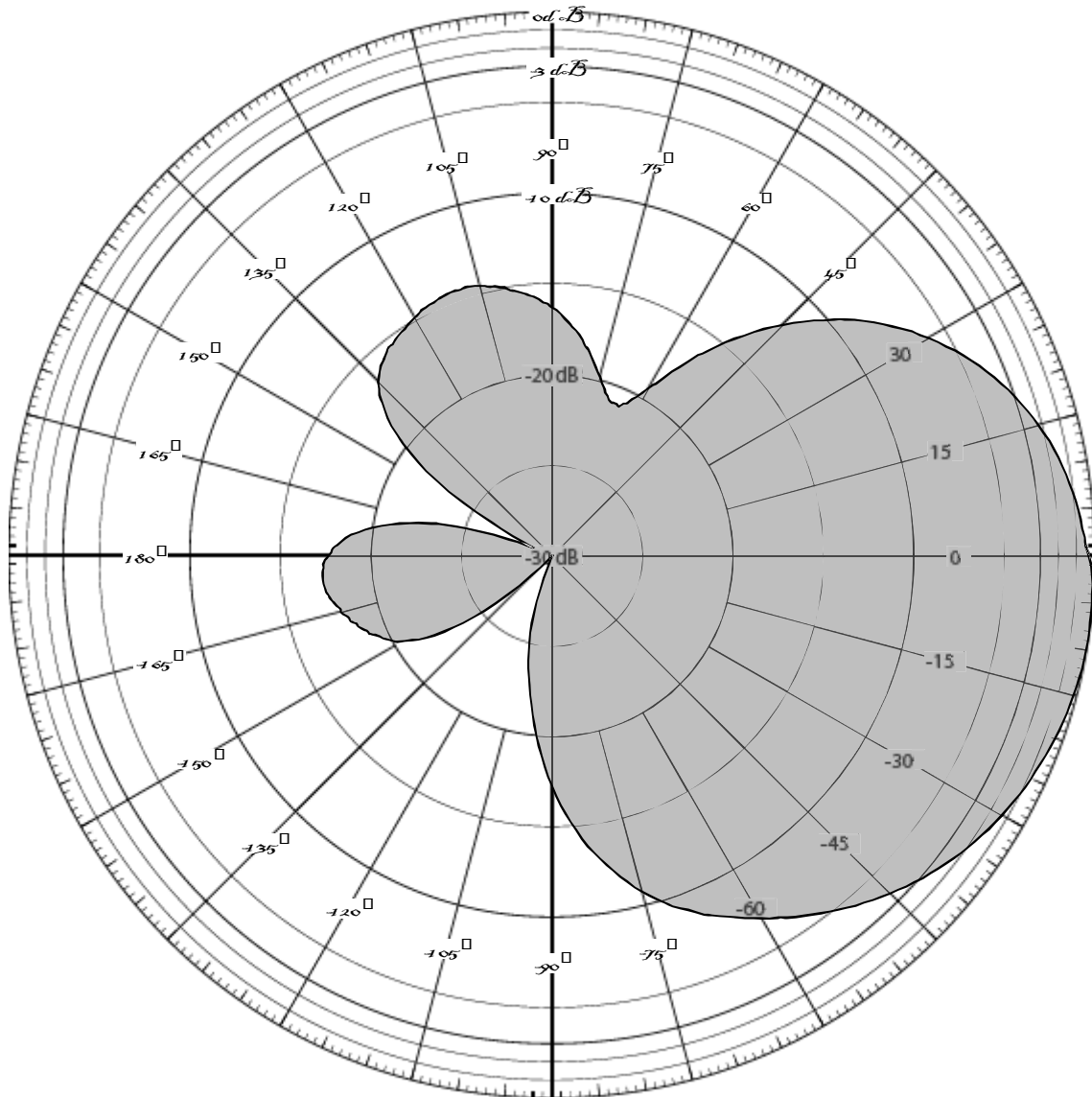


reader horizontal, polarization horizontal

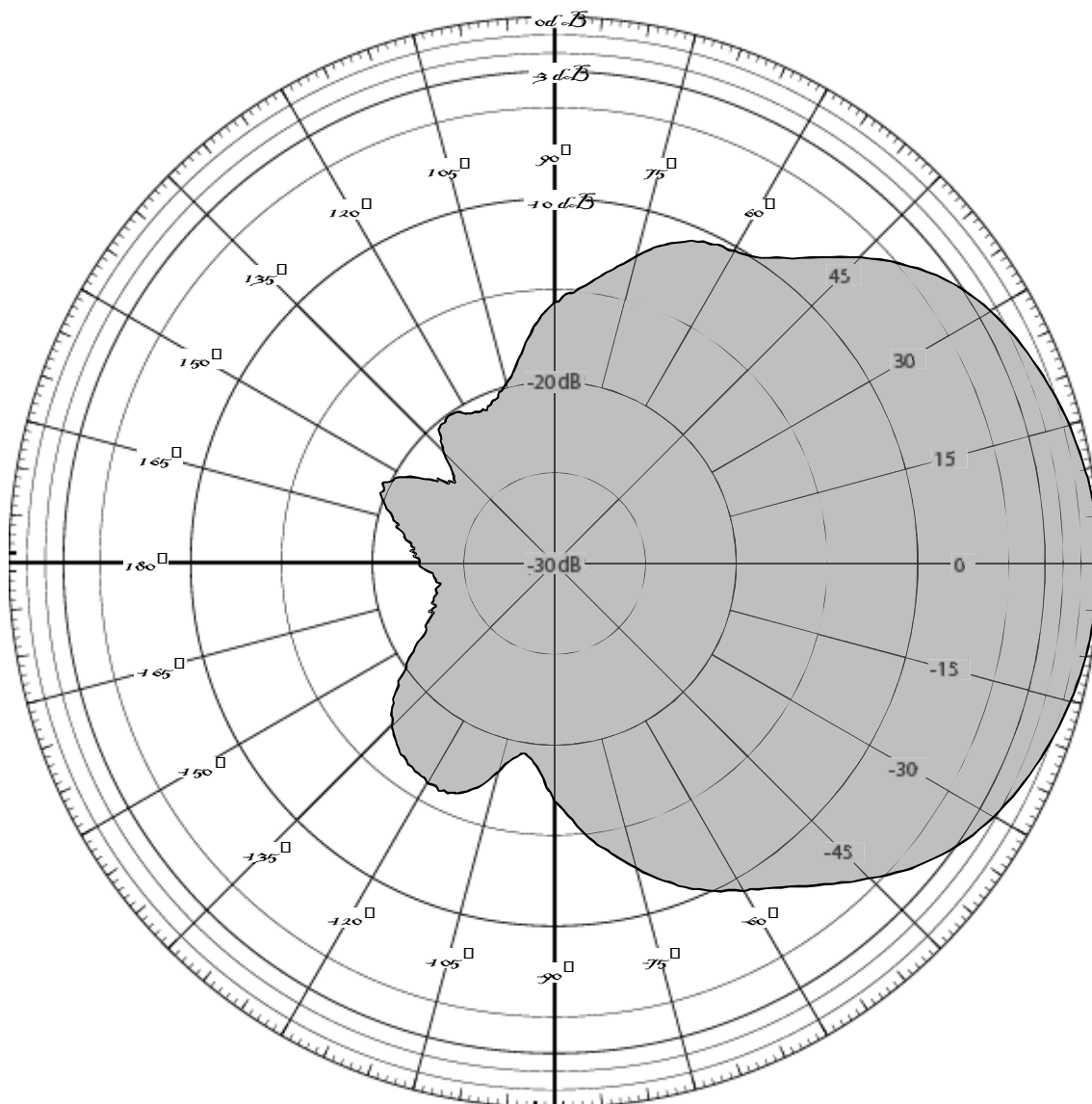




reader horizontal, polarization vertical



reader vertical, polarization horizontal



reader vertical, polarization vertical

## 7. Configuration software

The configuration software “WebConfig” can be found on the CD delivered. It can be started directly from the CD with no further installation.

### 7.1 SNG3 interface converter

(optional, art.nr. 8782.000)



For connecting the reader to a host/PC via USB you can use the interface converter SNG3. The driver needed is also to be found on the CD within delivery. In addition to that the SNG3 powers the reader. For this a special wall power supply is available (optional, art. nr. 8812.000).

UDL500	Name	Function	SNG3
Pin 3	+VCC	voltage supply UDL500 (10 ... 30V/DC)	Pin 1
Pin 2	GND	ground	Pin 2
Pin 9	RS 485 - A	RS 485 interface, data line A	Pin 3
Pin 10	RS 485 - B	RS 485 interface, data line B	Pin 4

Table 2: connection cable UDL500 to SNG3

## 7.2 Configuration

Configuring the reader in combination with the SNG3 (optional) and the wall power supply (optional) is carried out as follows:

Step	Configuration Software "WebConfig"	Reader UDL500
1		connecting reader to SNG3 (see table 2), connecting SNG3 to PC via USB-cable, connecting wall power supply to SNG3
2	starting configuration software "WebConfig"	
3	select USB Serial Port	
4	click on „Device“ – „Search addresses“	
5	software searches for reader connected to selected COM Port	
6	after successful search the reader found will be indicated	
7	current reader configuration will be read	
8	configuration menu will open	
9	configuration can be modified by user	
10	transfer the changed configuration to the reader by click on "Apply Changes"	
11		reader will store the new configuration within its internal non-volatile memory
12	end connection by click on "Offline"	
13	program will be closed by „File“ - „Exit“	

**Table 3: configuration**

## 7.3 Parameters

For a detailed description of the configuration parameters please refer to the document “UDL/UDK deBus protocol”. Application notes regarding the configuration settings can be found at “deister RFID Portal” ([www.deister.com](http://www.deister.com) – deister RFID Portal). If transponder type EPC class1 gen2 is used, the configuration parameters refer to the specification of EPCglobal™ (EPCglobal™, Class 1 Generation 2 UHF Air Interface Protocol Standard).

### 7.3.1 Basic Setup

Summary	Basic Setup	Frequency Setup	Mode Control	Selection Settings	Selection Mask
<p><b>Operating mode</b> <input checked="" type="radio"/> single reader <input type="radio"/> portal mode <input type="radio"/> trigger mode</p> <p><b>Anti collision</b> <input type="radio"/> single tag in field <input checked="" type="radio"/> handle multiple tags</p> <p><b>Regulatory Settings</b> ETSI 302 208 Regulation</p> <p><b>Transponder type</b> EPC class1 GEN2</p> <p><b>Read content</b> serial number</p> <p><b>RF Power</b> <input checked="" type="checkbox"/> RF on 2.00 W Output power</p> <p><b>Execute selftest after reset</b> <input checked="" type="checkbox"/></p> <p><b>Temperature protection level</b> 80 °C</p>					
Apply Changes		Reset ALL (factory settings)			

#### Operating Mode

Single reader	for operating of a single reading-/writing device
Portal mode	for operating several reading-/writing devices using a data concentration unit (DCU1)
Trigger mode	for operating of a reading-/writing device using the trigger mode

#### Anticollision

single tag in field	operation mode for reading transponder data, in case there is only one tag in the field (anticollision deactivated)
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handle multiple tags	operation mode for reading transponder data, in case there is more than one tag in the field (anticollision activated)
----------------------	--

#### Regulatory Settings

Selection of the regulation used by reader	ETSI 302 208 (EU) ETSI 300 220 (EU), optional FCC Part 15 (US), optional
--	--

#### Transponder Type

selection of transponder type, which has to be read/written

#### Read content

Serial number	reading the EPC
Read	mode for reading transponder data
Write	mode for writing a transponder

### **RF Power**

RF switching field on/off

Output power output power of the reading/writing unit. The adjusted value indicates the emitted power:

0.10W (ERP)

0.25W (ERP)

0.50W (ERP)

0.75W (ERP)

1.00W (ERP)

1.25W (ERP)

1.50W (ERP)

1.75W (ERP)

2.00W (ERP)

4.00W (EIRP, US)

### **Execute selftest after reset**

executing a self test after reset

### **Temperature protection level**

protection against overheating of the reading/writing device. In case of exceeding the adjusted temperature the field will be switched off.

### 7.3.2 Frequency Setup

Summary	Basic Setup	Frequency Setup	Mode Control	Selection Settings
<p><b>Channel Setup</b> <input type="text" value="0"/> Preferred Channel</p> <p><b>Active channels</b> <input checked="" type="checkbox"/> Channel 1 <input checked="" type="checkbox"/> Channel 2 <input checked="" type="checkbox"/> Channel 3 <input checked="" type="checkbox"/> Channel 4 <input checked="" type="checkbox"/> Channel 5</p> <p><input checked="" type="checkbox"/> Channel 6 <input checked="" type="checkbox"/> Channel 7 <input checked="" type="checkbox"/> Channel 8 <input checked="" type="checkbox"/> Channel 9 <input checked="" type="checkbox"/> Channel 10</p> <hr/> <p><input type="button" value="Apply Changes"/> <input type="button" value="Reset ALL (factory settings)"/></p>				

#### Channel Setup

the channel that will preferably be selected when switching the device on

#### Active channels

the channels that may be used by the reading/writing unit. This selection depends on the particular regulatory chosen (see also Basic Setup).

ETSI 302 208 (EU)		
Channel Nr.	Frequency	ERP
1	865.7MHz	≤ 2,00W
2	865.9MHz	≤ 2,00W
3	866.1MHz	≤ 2,00W
4	866.3MHz	≤ 2,00W
5	866.5MHz	≤ 2,00W
6	866.7MHz	≤ 2,00W
7	866.9MHz	≤ 2,00W
8	867.1MHz	≤ 2,00W
9	867.3MHz	≤ 2,00W
10	867.5MHz	≤ 2,00W
11	867.7MHz	≤ 500mW
12	867.9MHz	≤ 500mW

Table 4: ETSI 302 208 (EU)



### 7.3.3 Mode Control

Summary	Basic Setup	Frequency Setup	Mode Control	Selection Settings	Selection Mask
<b>LED &amp; Beeper</b>					
Beeper	always OFF				
green LED	flash on READING				
red LED	always OFF				
yellow LED	always ON				
<b>Read options</b>					
Speed reading	<input type="checkbox"/>				
break between tag commands	0 $\mu$ s				
first block to read	0				
number of blocks to read	1				
<b>Anti collision timing</b>					
Select command rate	30 (distance between select commands)				
Transponder reset rate	20 (distance between reset commands)				
<b>Portal timing</b>					
max. reading time per antenna	4000 ms				
successful read attempts before changing antenna	15				
Apply Changes		Reset ALL (factory settings)			

#### LED & Beeper

configuration beeper	always OFF indicate READING	beeper off beeper sounds, while transponder is being read
LEDs green, yellow, red	always OFF flash on READING  always ON	LED off LED active, while transponder is being read  LED permanently active

**Speed reading**

increase of data rate between reader and transponder

**Break between tag commands**

break time between transponder command in 100 $\mu$ s steps

**First block to read/write** (only in reading-/writing mode)

first block (decimal), which has to be read/written

**Number of blocks to read/write** (only in reading-/writing mode)

number of blocks (decimal) which have to be read/written

**Single Shot transmission** (only with "single tag in field", see 7.3.1)

idle time in 100ms steps between transmission of transponder data

**Select command rate** (only with "handle multiple tags", see 7.3.1)

number of anticollision rounds after a select command has been sent

**Transponder reset rate** (only with "handle multiple tags")

number of anticollision rounds after a reset command has been sent

**Max. reading time per antenna** (only in portal mode)

active time of the reader in portal mode

**Successful read attempts before changing antenna** (only in portal mode)

counter for anticollision rounds in which no tag has been read. After this, the reading process will be aborted.

**Interface mode** (only in single reader mode or trigger mode)

report mode            transponder data read will immediately be transmitted via RS485 interface

polling mode            transponder data read will be stored within the reader memory and will only be transmitted via RS485 interface after a poll command is been received.

### 7.3.4 Trigger

The menu item “Trigger” is only available within the trigger mode (see also 7.3.1).

Summary	Basic Setup	Frequency Setup	Mode Control	Trigger	Selection Settings	Selection Mask
<p><b>Trigger condition</b> read while level is High ▾</p> <p><b>Activity time</b> 52 ms</p> <p><b>Output Control</b> output inactive ▾</p> <p><b>Output Polarity</b> pulsing LOW ▾</p> <p><b>Output pulse time</b> 52 ms</p> <hr/> <p>Apply Changes      Reset ALL (factory settings)</p>						

#### Trigger condition

configuration of the trigger condition:

read while level is high	triggering to „high level“
read after rising edge	triggering to rising edge
read after falling edge	triggering to falling edge
anticollision trigger	anticollision trigger: triggering ends, when no further transponder can be read

#### Activity time

time in 6.5ms steps, while the field stays active after a trigger pulse (only for edge controlled trigger conditions)

#### Output Control

configuration of output:

output inactive	output switched off
pulse after READ	switch output on after successful reading
pulse on NO READ	switch output on after non successful reading

#### Output Polarity

configuration of output, when „pulse after READ“ or „pulse after NO READ“ have been set in “Output Control”:

pulsing LOW	setting output on „low“
pulsing HIGH	setting output on „high“

#### Output pulse time

depending on the set output polarity, the digital output is set to “low” or “high” for the time set (6,5ms steps), if a trigger condition is met

### 7.3.5 Selection Settings

Summary	Basic Setup	Frequency Setup	Mode Control	Selection Settings	Selection Mask
<b>Selection start position</b> <input type="text" value="0"/> <input type="text" value="0x0000"/> (as EBV pattern)					
<b>Selection bits in use</b> <input type="text" value="0"/>					
<b>Selection Register</b>					
<b>Target flag</b> <input type="text" value="Inventoried S0"/>					
<b>Change to target flag</b> <input type="text" value="SET on match, RESET otherwise"/>					
<b>Memory bank</b> <input type="text" value="EPC"/>					
<b>Selection register (as bit pattern)</b> <input type="text" value="0x01"/>					
<b>Query Register</b>					
<b>Miller coding level</b> <input type="text" value="M=1"/>					
<b>required SL flag condition</b> <input type="text" value="don't care"/>					
<b>required Session flag condition</b> <input type="text" value="S0 = 0"/>					
<b>Truncate</b> <input type="checkbox"/>					
<b>Query register (as bit pattern)</b> <input type="text" value="0x00"/>					
<b>Min number of slots per Round</b> <input type="text" value="Q = 2, slots = 4"/>					
<input type="button" value="Apply Changes"/> <input type="button" value="Reset ALL (factory settings)"/>					

#### Selection start position

address (decimal) of the selected memory bank the selection is started at

#### Selection bits in use

number (decimal) of bits to be compared within selection

#### Target flag

used flag for the selection process

#### Change to target flag

change to target flag, in case selection matches

#### Memory bank

memory bank the selection is carried out at

#### Selection register (as bit pattern)

deBus selection register byte (hexadecimal)

#### Miller coding level

setting of the Miller coding level used

#### Required SL flag condition

required SL flag condition to let these tags participate in the anticollision round

**Required Session flag condition**

required Session flag condition to let these tags participate in the anticollision round

**Truncate**

activating the truncate function to use a shorter reply from the tag

**Query register (as bit pattern)**

deBus query register byte (hexadecimal)

**Min number of slots per Round**

minimum number of slots per anticollision round

**7.3.6 Selection Mask**

Summary	Basic Setup	Frequency Setup	Mode Control	Trigger	Selection Settings	Selection Mask
<b>Mask 1-4</b>	0x20	0x02	0x00	0x00		
<b>Mask 5-8</b>	0x00	0x00	0x00	0x00		
<b>Mask 9-12</b>	0x00	0x00	0x00	0x00		
<b>Mask 13-16</b>	0x00	0x00	0x00	0x00		
<b>PC Word</b>	112	BitsEPC length				
	0x3000	(as bit pattern)				
<b>Selection mask prefix</b>						
<b>Prefix 1-4</b>	0x30	0x00	0x00	0x00		
<b>Prefix 5-8</b>	0x00	0x00	0x00	0x00		
<b>Prefix 9-12</b>	0x00	0x00	0x00	0x00		
<b>Prefix 13-16</b>	0x00	0x00	0x00	0x00		
Apply Changes		Reset ALL (factory settings)				

**Selection Mask**

selection mask divided into separate bytes (hexadecimal)

**PC Word** (only with “Truncate”)

length of PC + EPC bits (decimal) and PC bits as bit pattern (hexadecimal)

**Selection Mask Prefix** (only with “Truncate”)

prefix mask for truncate function

### 7.3.7 Prog data

The menu item „Prog data“ is only available within writing mode (see 7.3.1).

Summary	Basic Setup	Frequency Setup	Mode Control	Selection Settings	Selection Mask	Prog data
<b>Offset 00</b>	0x00	0x00	0x00	0x00	0x00	0x00
<b>Offset 08</b>	0x00	0x00	0x00	0x00	0x00	0x00
<b>Offset 10</b>	0x00	0x00	0x00	0x00	0x00	0x00
<b>Offset 18</b>	0x00	0x00	0x00	0x00	0x00	0x00
<input type="button" value="Apply Changes"/> <input type="button" value="Reset ALL (factory settings)"/>						

Input mask for hexadecimal data to be written into transponder memory. Division into separate bytes, writing takes place from Offset 00.

## 7.4 LEDs and Beeper

The reader has three LEDs and one beeper in order to indicate the reader status. The following table refers to the standard settings.

LEDs	Status UDL500
yellow: on red and green: off	reader is ready to operate, field is switched on reader is ready to read/write transponder
yellow and red: on green: off	reader is ready to operate, field is switched off
yellow and green: on red: off	reader is ready to operate, communication between reader and tag (reading/writing)
green and red: on yellow: off	reader carries out a reset, field is switched off reader is not ready to operate
yellow: blinking red and green: off	supply voltage too low
red: blinking and beeper sound green and yellow: off	malfunction

table 5: reader status indication UDL500

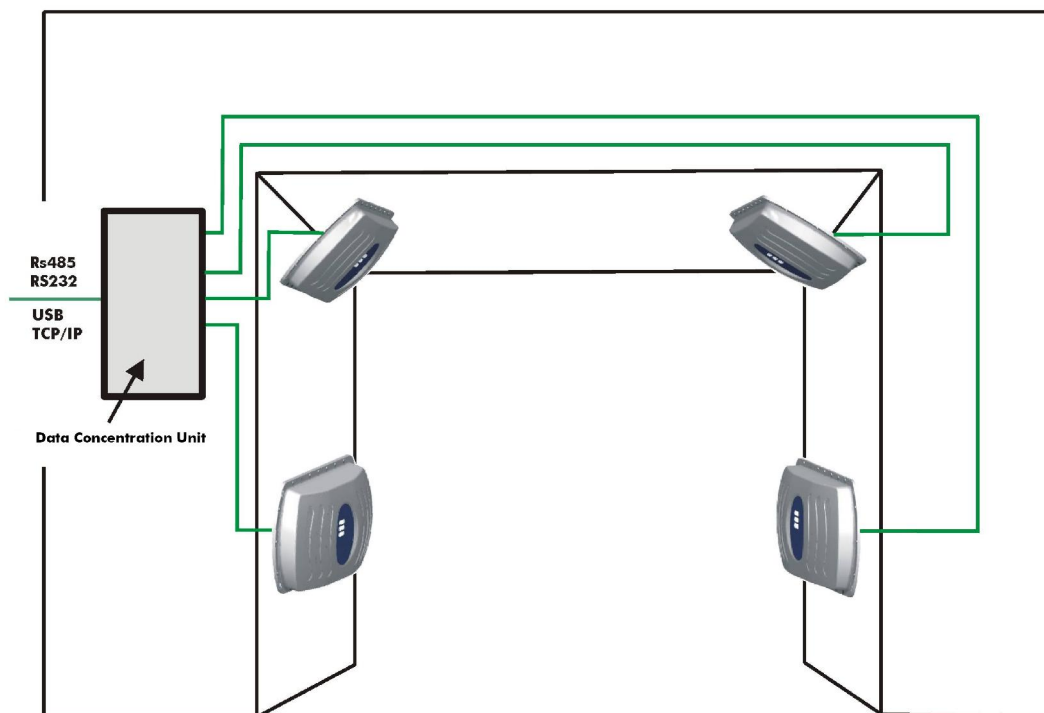
## 8. Portal application with DCU1 Data Control Unit

(optional, art. nr. 9240.100)

In order to realize portal/gate solutions, up to four UDL500 can be connected to the DCU1 Data Control Unit via RS485 interface. The readers have to be connected radially to the DCU1 using 4-core cables (4 x 0.5mm).

The DCU1 manages and controls all the readers, while each reader can be configured separately. In case of multiple reading of transponder data, the data can be filtered first and will then be transmitted to the host system.

### Portal-Application



### Portal/Gate application with UDL500 readers

For a detailed description of the portal installation please refer to the document „Application Note UHF Portal“.

## 9. Accessories of the UHF product family

Article	Description	Article number
LRM1	Link holder	6103.000
LRM2	Extended link holder	6104.000
Mounting plate	Mounting plate for UDL500	9292.000
AC/DC Adapter Euro	Wall power supply, input voltage 230V/AC, output voltage 12V/DC (1A), Friwo® plug	8812.000
AC/DC Adapter International	Wall power supply, input voltage 100-240V/AC, output voltage 12V/DC (1.25A), Friwo® plug	6757.000
AC/DC Power Supply	AC/DC rail power supply, input voltage 100-260V/AC, output voltage 24V/DC (2.5A)	6756.000
SNG3 Smart Network Gateway	Interface converter USB/RS485, incl. USB cable and driver software	8782.000
MOXA Adapter	Interface converter Ethernet/RS485/RS232, incl. wall power supply and driver software	8783.000
DCU1	Data Control Unit for operation with up to four UDL500 readers, interfaces: RS232, RS485, Ethernet, 4 trigger inputs, 4 switch outputs, rail mounting	9240.100



## 10. Regulatory Notices

### 10.1 Europe

Hereby, deister electronic GmbH declares, that this equipment - if used according to the instructions - is in compliance with the essential requirements and other relevant provisions of the RTTE Directive 1999/5/EG.

**A full declaration of conformity can be requested at:**

**[info@deister-gmbh.de](mailto:info@deister-gmbh.de)**



**Approved for use in the following European countries:**

**A, B, BUL, CH, CYP, CZ, D, DK, E, EST, F, FIN, GB, GR, H, HNG, ICE, IRL, LIE, LTU, LUX, LVA, MA, N, NLP, PL, ROU, S, SK, SVN**

### 10.2 FCC Digital Device Limitations

#### Radio and Television Interference

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and television reception.

Caution! Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

### **10.3 FCC Notice**

To comply with FCC part 15 rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

### **10.4 FCC Radiation Exposure Statement**

This equipment complies with the FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and the human body.

### **10.5 Industry Canada**

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.



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