

## Documentation

### **Obstruction Lights pro-series**



<b>Revision</b>	1
<b>Valid from delivery date</b>	28.08.2014
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<b>Unit SN</b>	

#### **ENERTRAG Systemtechnik GmbH**

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Germany

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## Changelog

<b>Revision</b>	<b>Date</b>	<b>Editor</b>	<b>Changes</b>	<b>Page</b>
0	18.11.2014	MWeg	Document construction	all
1	16.05.2015	MWeg	Expansion of product range, adjustments	all

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### III. Copyrights

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## 1 Notes to this documentation

If it is not clear whether this documentation is included in the corresponding unit's scope of delivery, check whether a more recent version is available!

Qualified electricians may only perform installation and commissioning of the unit, on which this documentation is based.

This documentation has to be read thoroughly before work on the unit commences.



**Safety information in this documentation is marked with this „warning sign“!**



**Particularly important information in this documentation is marked with this „info signs“!**

Please note the following general safety information:

**The lights will generate very bright, focused light, which can harm your eyes at direct impact. For light operation control wear eye protection! Don't look directly into the centre of the light-emitting surface. Warn persons around!**

The responsibility for appropriate use, correct installation and proper operation of the unit resides with the unit operator or the supplier.



## 2 Environmental conditions

### **Storing and transport:**

- Storing: dry and dust-free
- Avoid strong shocks
- Operating temperature -40°C to +50°C

### **Operation conditions:**

- relative air humidity to 100%
- stationary use
- Operating temperature -40°C to +50°C

### 3 Scope of delivery

Ex works, obstruction lights of pro-Serie are equipped with a power regulator and are provided for the operation with 24VDC. There are versions with a 10cd and 32cd light intensity and a horizontal emission of >180° and 360°.

A connection cable is not included in the scope of delivery!

**Table 1: Scope of delivery pro-serie**



Photo	Component	Montage	Matchcode	Art.-no.
	Obstruction light, 10cd, red, 180° Excl. connection cable	Flange plate	pro10-180	100808
	Obstruction light, 10cd, red, 360° Excl. connection cable	Flange plate	pro10-360	100809
	Obstruction light, 32cd, red, 180° Excl. connection cable	Flange plate	pro32-180	100810
	Obstruction light, 32cd, red, 360° Excl. connection cable	Flange plate	pro32-360	100811
	Obstruction light, 10cd, red, 180° Excl. connection cable	M8 bolts	pro10-180 M8	100827
	Obstruction light, 32cd, red, 180° Excl. connection cable	M8 bolts	pro32-180 M8	100828
	Obstruction light, 10cd, red, 180° Excl. connection cable	Magnet	pro10-180 Magnet	100829
	Obstruction light, 32cd, red, 180° Excl. connection cable	Magnet	pro32-180 Magnet	100830
	Obstruction light, 10cd, red, 180° Excl. connection cable	Stick through	pro10-180 St	100831
	Obstruction light, 32cd, red, 180° Excl. connection cable	Stick trough	pro32-180 St	100832

**Technical data of the Obstruction light versions mentioned before:**

- Light intensity: 10cd, 32cd (constant light)
- Illumination: 3 LEDs rot (180°), 6LEDs red (360°)
- Power consumption: 1,5w (10cd), 7W (32cd)
- Housing: Aluminium, resistant to sea water, anodized
- protection class: IP66/IP67
- Power supply: 24VDC
- Approval: AVV, ICAO low-intensity Type A/B

In line of pro-Serie, there are also Infrared Obstruction lights available. These lights are equipped with LED's, with a wavelength of 850nm. This guaranties an optimum visibility with night-vision goggles. The light-emitting surface of this obstruction lights is 360°. A connection cable is not included in scope of delivery and can be ordered separately.

**Table 2: Scope of delivery IR light**

Photo	Component	Montage	Matchcode	Art.-no.
	Obstruction light, IR, 850nm, Excl. connection cable	Flange plate	pro32-360 IR	100833
	Obstruction light, 32cd, rot + IR, 850nm, Excl. connection cable	Flange plate	pro32-360 R-IR	100834

**Technical data IR obstruction light:**

- Light intensity: Infrared (IR), IR + 32cd (constant light)
- Illumination: 6LEDs IR, 6LEDs IR + 6 LEDs red
- Power consumption: 9W (IR), 16W (IR + 32cd)
- Housing: Aluminium, resistant to sea water, anodized
- protection class: IP66/IP67
- Power supply: 24VDC
- Approval: ICAO low-intensity Type B and according to MOD

## 4 Accessories

The following components complement the obstruction lights of pro-serie with the needed connection cables. It is important to distinguish between the cables for the connection of the classical low-intensity lights and the connection cables for the infrared lights. Furthermore there are different types of control cabinets.

Please notice that the connection cable is still connected to the light, when ordering an obstruction light in connection with a cable (mentioned in the following).

Please indicate the needed cable length by order!

**Table 3: Accessories – connection cable**

Photo	Component	Matchcode	Art.-no.
No picture available	Connection cable low-intensity light open ends	OZ-600-Y-CY 2x0,5mm <sup>2</sup>	991006
No picture available	Connection cable Infrared light Open ends	JZ-600-Y-CY 4G0,5mm <sup>2</sup>	100674

The following control cabinet-types can be used for connecting up to 5 obstruction lights. Furthermore, the following listed Module with integrated GPS and twilight sensor must be used for synchronisation and adjusting the flash sequence of infrared lights..

**Table 4: Accessories - control cabinet + sensors**





Photo	Component	Matchcode	Art.-no.
No picture available	Module with GPS-and twilight sensor	GPS Twilight Sensor	102101
	Power input: 230V AC Size: 380x380x210mm Protection grade: IP65 (indoor use) With integrated: - failure monitoring - overvoltage protection - adjustable flash sequence (only for IR lights and in combination with the GPS/twilight module)	proBox Low-5-230	102042
	Power input: 24V DC Size: 380x380x210mm IP65 With integrated: - failure monitoring (without IR) - overvoltage protection - adjustable flash sequence (only for IR lights and in combination with the GPS/twilight module)	proBox Low-5-24	102043

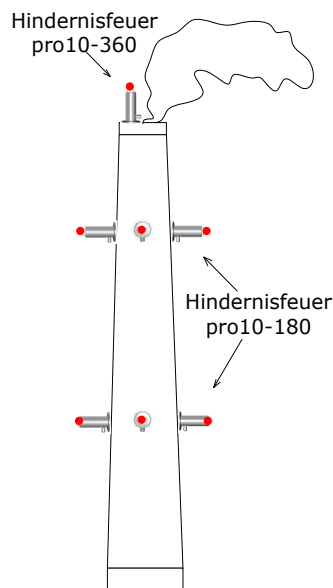
Photo	Component	Matchcode	Art.-no.
	Power input: 230V AC Size: 500x500x210mm Protection grade: IP54 (indoor use) With integrated: - UPS for 8h - failure monitoring - overvoltage protection - adjustable flash sequence (only for IR lights and in combination with the GPS/twilight module)	proBox Low-5-230-UPS	102044
	Power input: 24V DC Size: 500x500x210mm Protection grade: IP54 (indoor use) With integrated: - UPS for 8h - failure monitoring (without IR) - overvoltage protection - adjustable flash sequence (only for IR lights and in combination with the GPS/twilight module)	proBox Low-5-24-UPS	102045

## 5 Installation of the unit

### 5.1 System diagram

Obstruction lights of pro-serie, have to be installed in an appropriate position. According to German guidelines, there must be installed 4 beacons, per level, for a complete marking of the unit. An exemplary marking of a wind turbine is shown in Illustration 1. The fixing of the obstruction lights varies, depending of the version.

Our sales representatives will be pleased to help you finding suitable solutions.



**Illustration 1: Exemplary installation diagram**

## 5.2 Connection diagram

To install the connection cable, the bolts placed on the bottom of the light must be removed with a hex key size 3. Please notice that all components of the light are secure not to fall down while removing these bolts.

There are two connection cables with each one terminal on the underside of the mounting plate. The connection cable is to be installed in accordance with the instructions mentioned below. For connecting an infrared light, there is a third wire inside the connection box. It is intended for the connection of a central clock.

**Table 5: Connection of external components**

Terminal	Wire colour	Component	Wire number	Function
1	Red	Input 24VDC	1	+24 VDC
2	Blue		2	GND
3	-	Tact time (only infrared)	3	Sync



**The shield of the access line has to be connected by using the existing EMC-connection screw.**

## 6 Commissioning procedure

Preconditions:

- All components installed and connected.
- Cable routing of all components voltage-free and fixed.
- Power supply connected, but not activated.



***Installation and commissioning of the unit on which this documentation is based may only be performed by qualified electricians***



**The light must be operated with 24VDC power supply. Higher or alternating voltage may cause damage and destroy the light completely.**

1. Check all cable connections for secure contacts and adequate shielding.
2. Switch on the circuit breaker.
3. Check the operating behaviour of the obstruction light. When it is operating correctly, the light should start flashing red automatically after activating the power supply. Special safety glasses has to be used while checking a installed infrared light!



**Attention! LED an Infrared radiation.  
 A visual inspection of the installed obstruction lights may only be done by using special safety glasses.**





## 7 Maintenance plan

### During every on-site inspection:

- Visual check of the obstruction lights

### During every regular check (min. once a year):

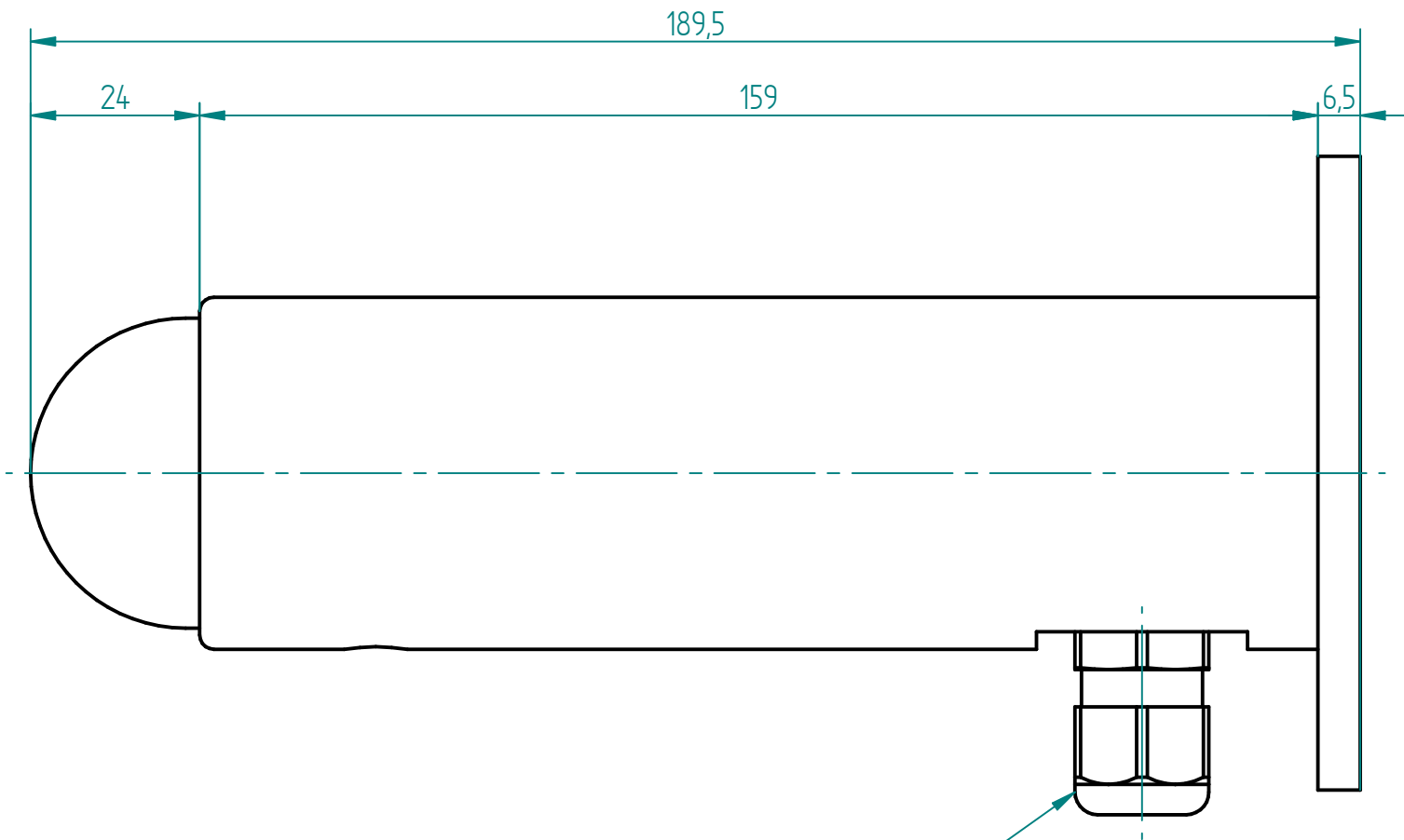
- Visual check of the obstruction lights
- Check that the fastenings are secure
- Remove industrial dirt from the lens aperture area, using a damp microfiber cloth and no cleaning agents.



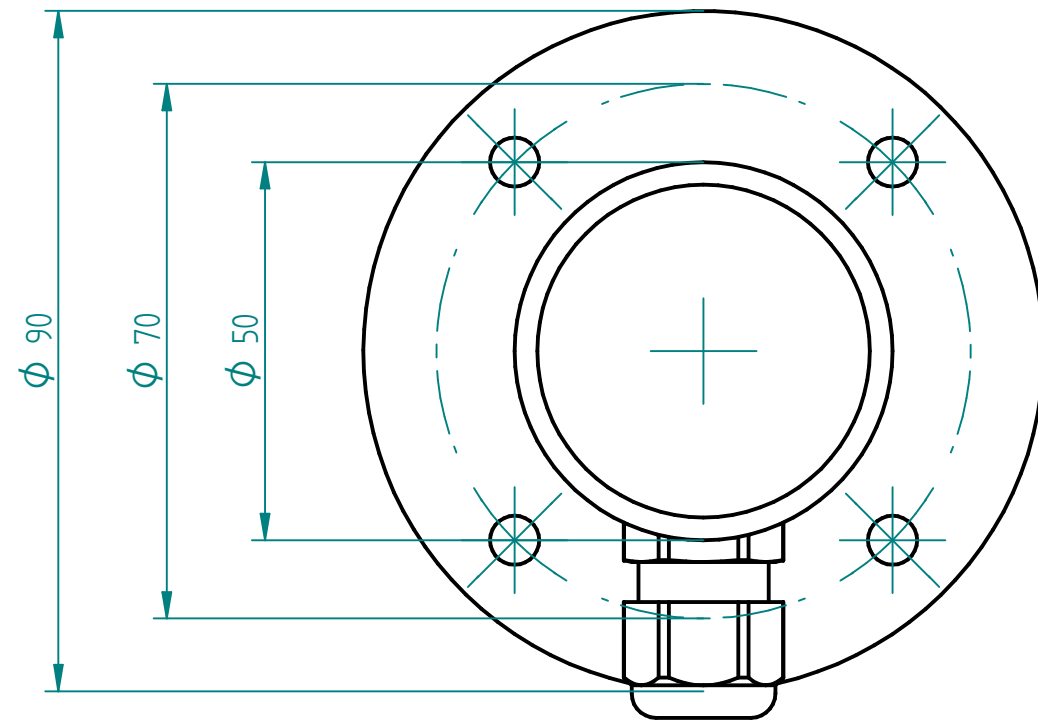
**Attention! LED an Infrared radiation.  
A visual inspection of the installed obstruction lights  
may only be done by using special safety glasses.**

## 8 Technical drawings

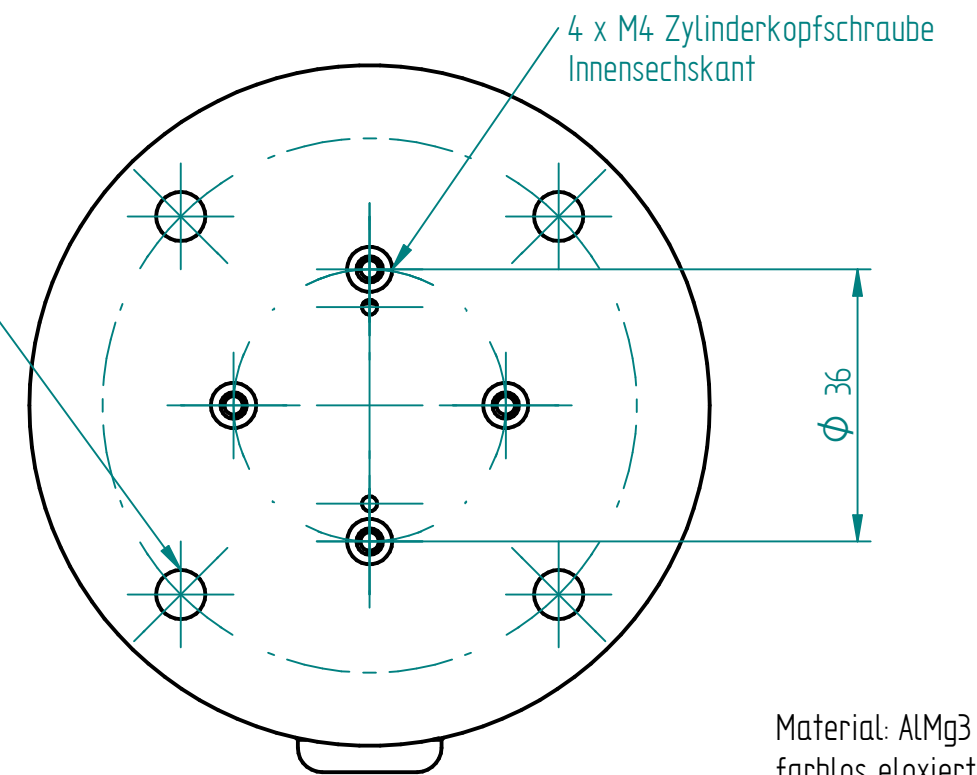
See next pages:



M16 EMV Kabelverschraubung



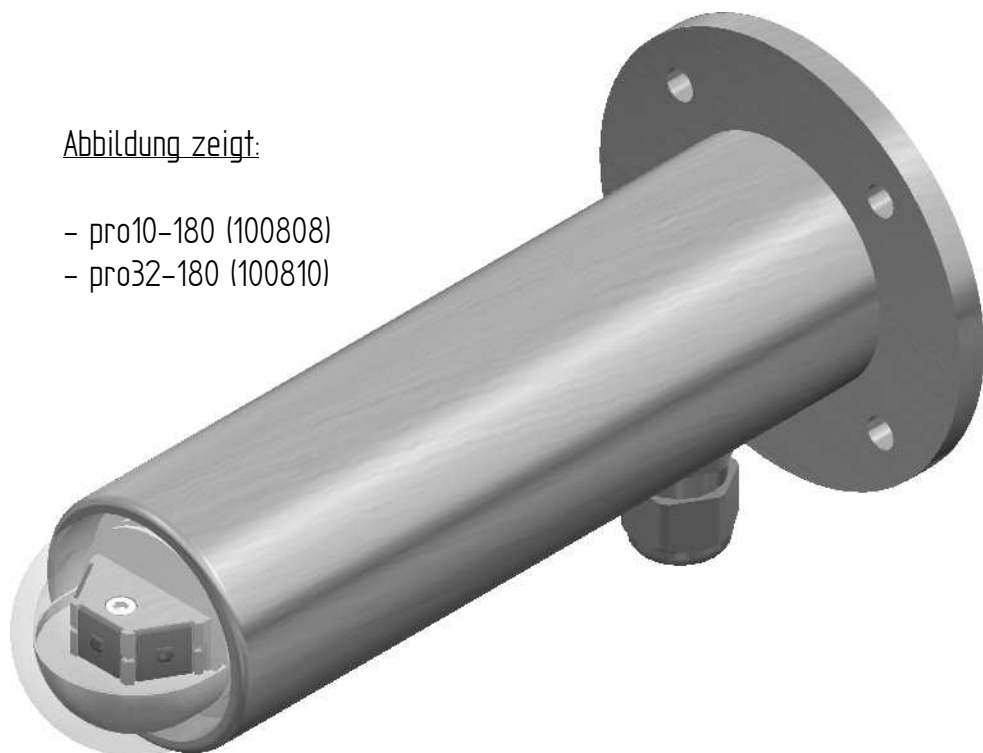
4 x Durchgangsbohrung  $\phi$  6,5mm für Befestigung mit M6 Bolzen



Material: AlMg3  
farblos eloxiert

Abbildung zeigt:


- pro10-180 (100808)
- pro32-180 (100810)



Dimensionen gelten für folgende Bauteile:

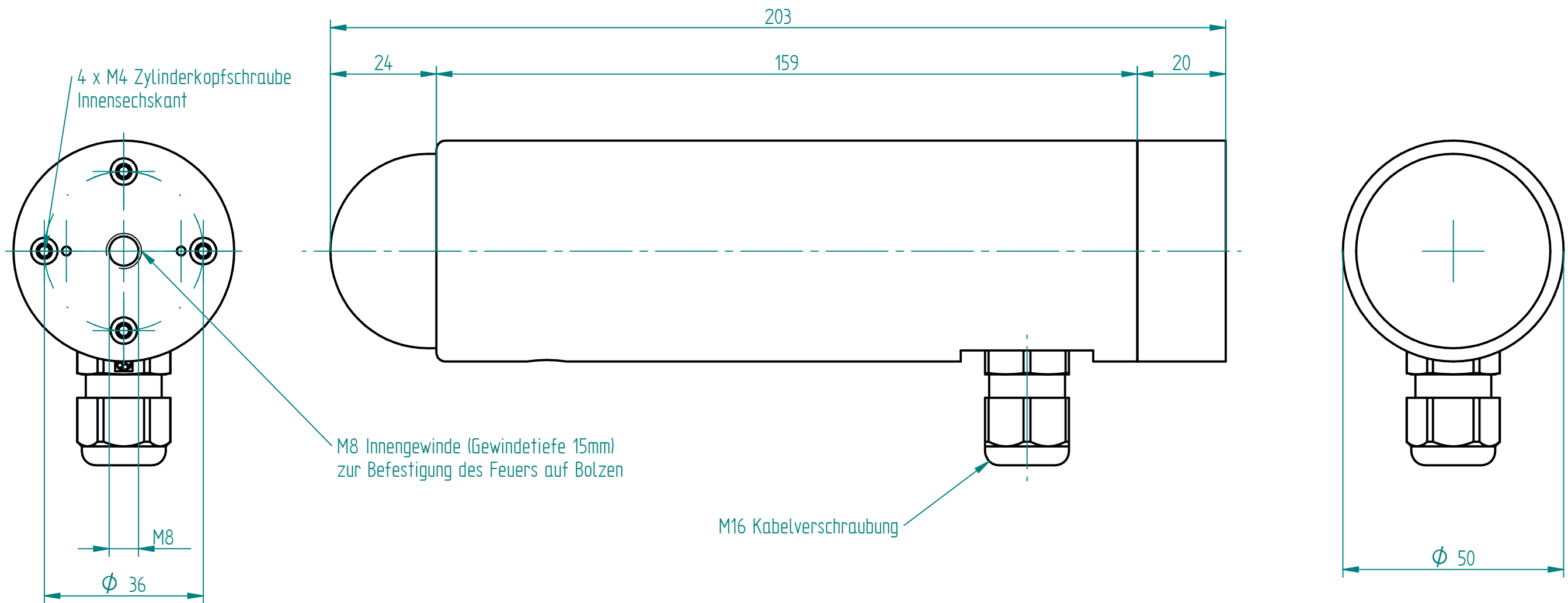
- pro10-180 (100808)
- pro10-360 (100809)
- pro32-180 (100810)
- pro32-360 (100811)
- pro32-360 IR (100833)

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED


	NAME	DATE	 <b>ENERTRAG</b> TITLE ENERTRAG Systemtechnik GmbH		
DRAWN	M. Wegner	06.02.2015			
CHECKED					
ENG APPR					
MGR APPR					
ENERTRAG Systemtechnik GmbH Gut Dauerthal, D 17291 Dauerthal Tel. +49 39854 6459 352			SIZE A3	EST Art.-Nr.: 100808	REV
Maße ohne Toleranzangabe DIN ISO 2768- m			pro10-180	SCALE: 1 : 1	WEIGHT:
			SHEET 1 OF 1		

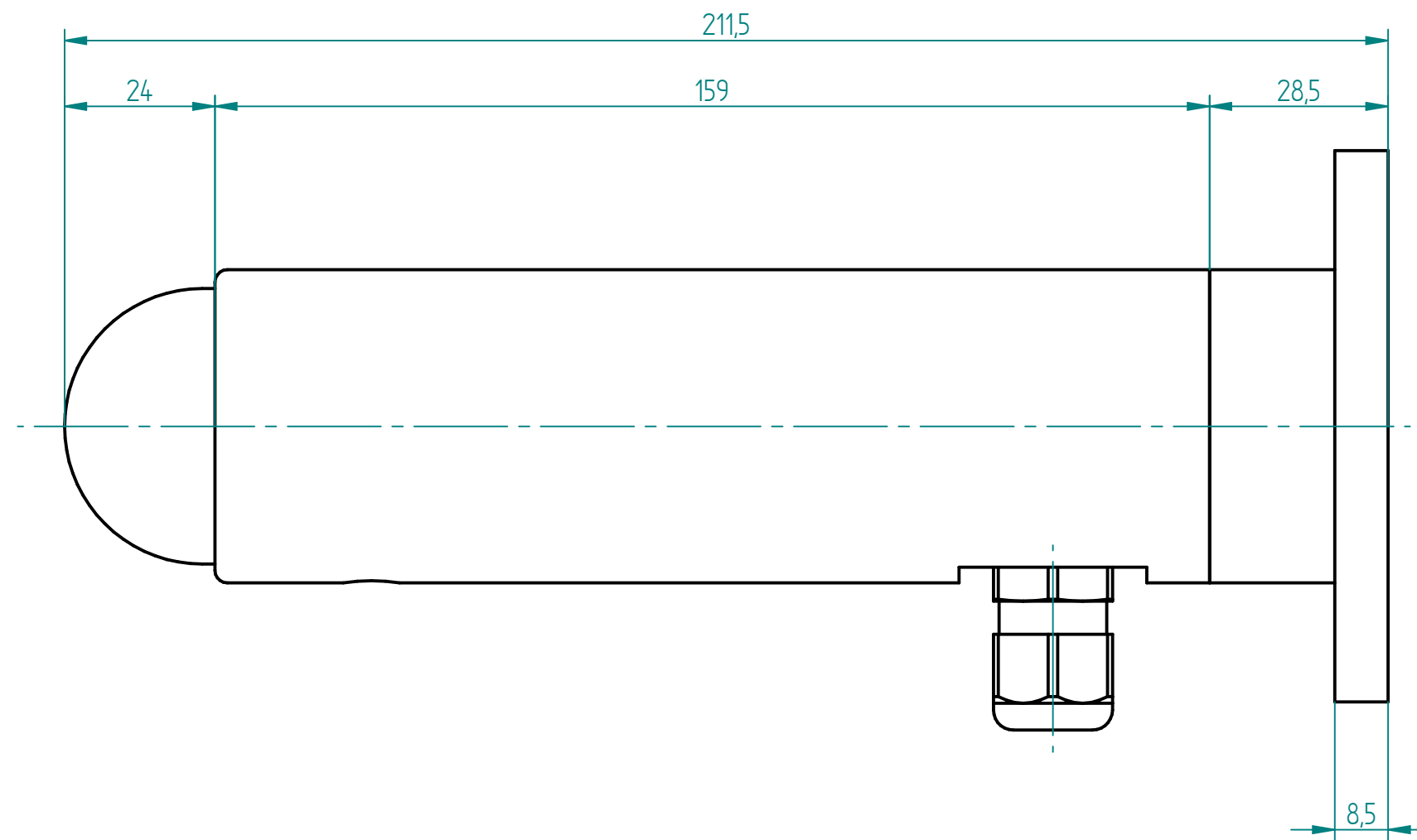
REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED

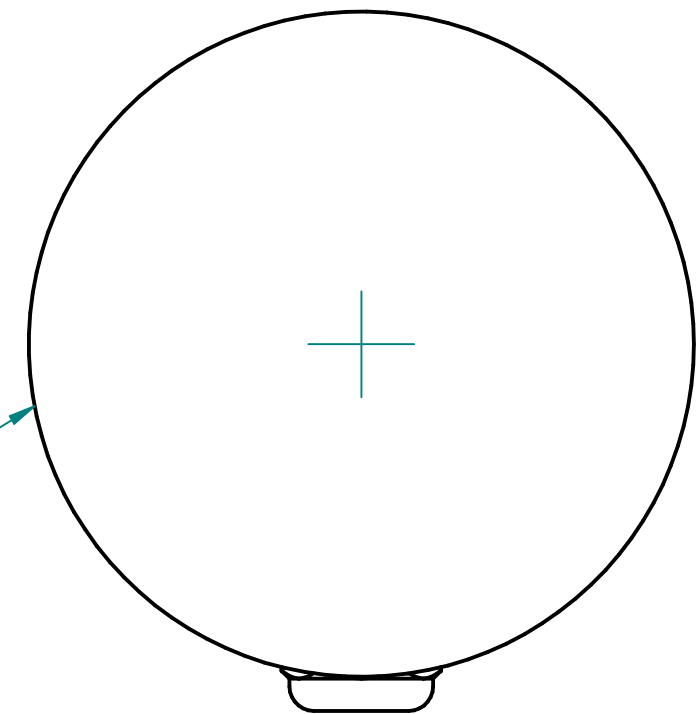
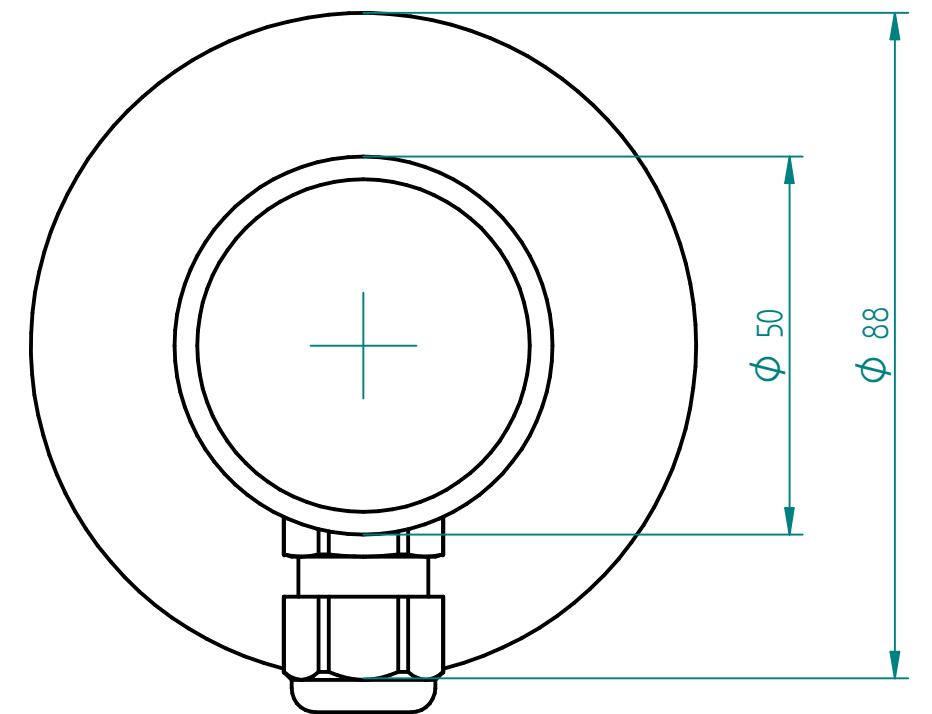


Material: AlMg3  
farblos eloxiert

	NAME	DATE	 TITLE ENERTRAG Systemtechnik GmbH	
DRAWN	M. Wegner	06.02.2015		
CHECKED				
ENG APPR				
MGR APPR			SIZE A3 EST Art.-Nr.: 100827 / 100828	REV
ENERTRAG Systemtechnik GmbH Gut Dauerthal, D 17291 Dauerthal Tel. +49 39854 6459 352			pro10-180 M8 und pro32-180 M8	
Maße ohne Toleranzangabe DIN ISO 2768- m			SCALE: 1 : 1	WEIGHT:
			SHEET 1 OF 1	




REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



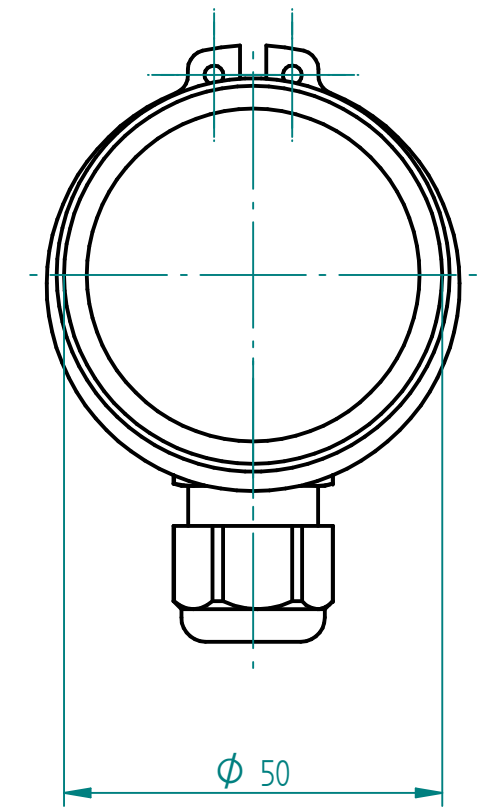
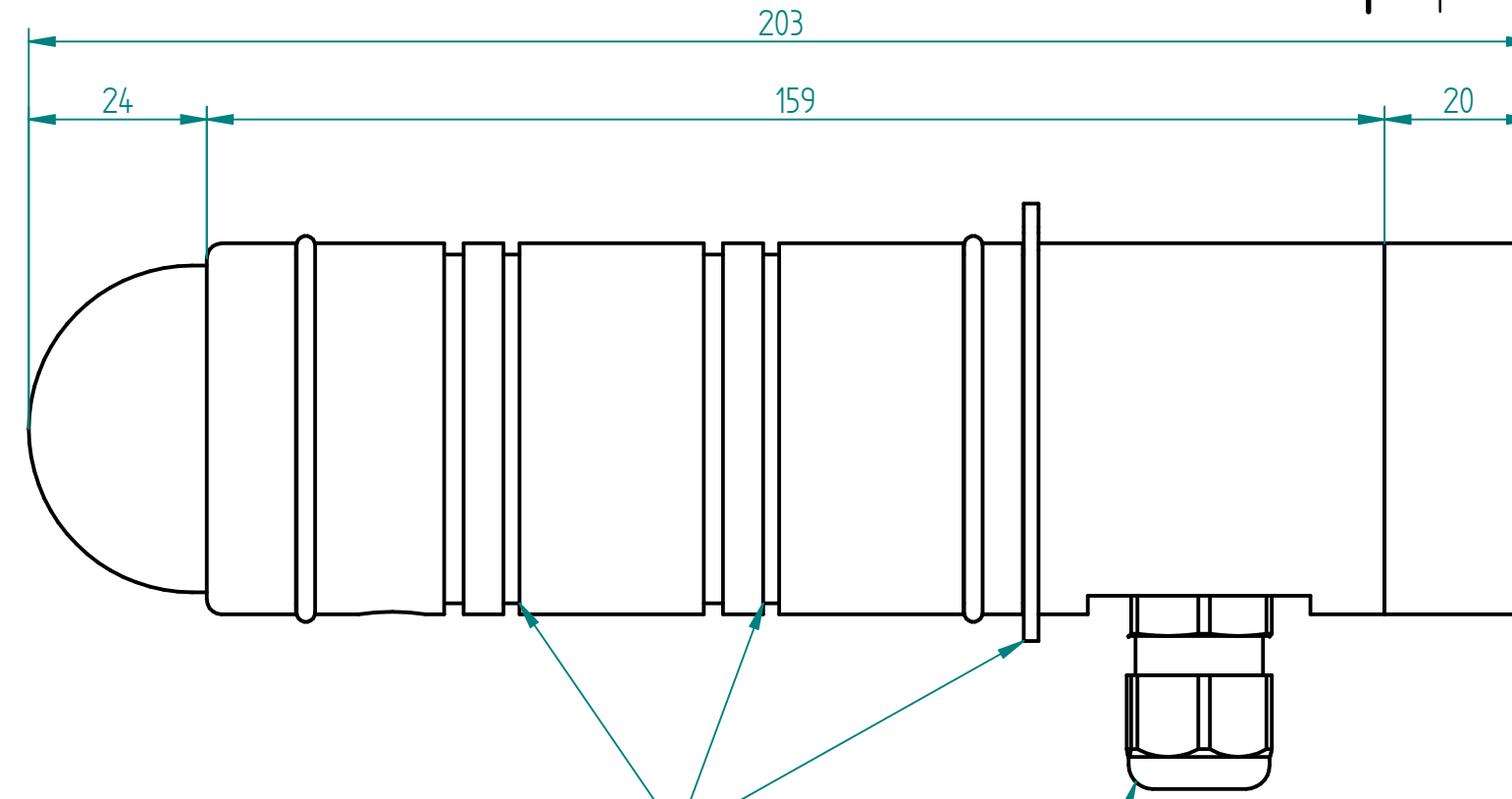
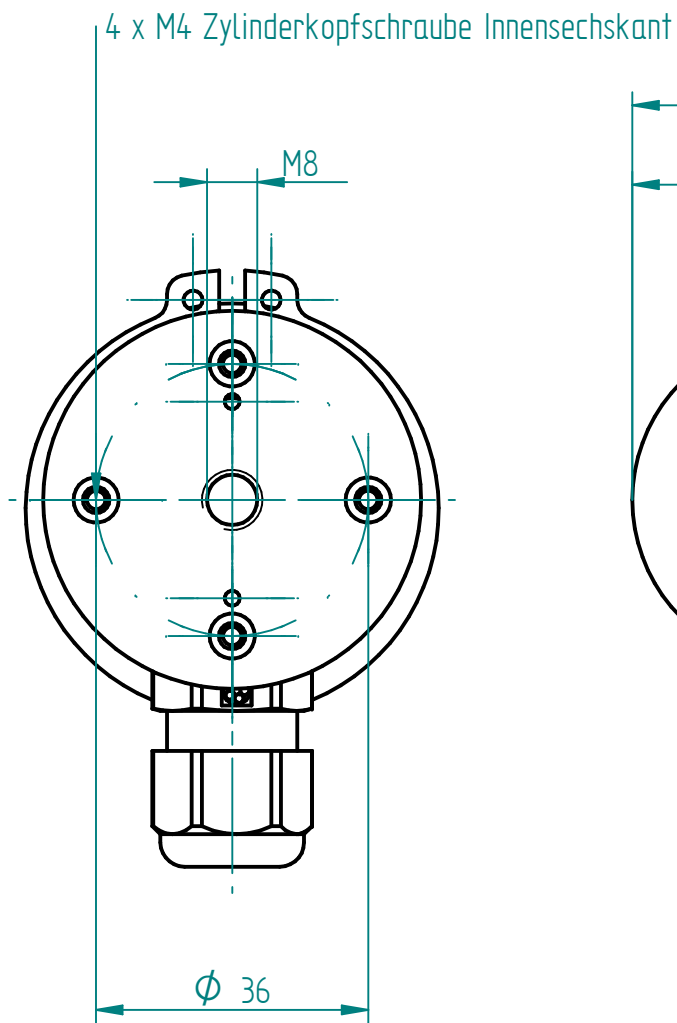
Magnet: (NdFeB)  
 - Haftkraft = 550N  
 - Scherkraft = 125 N

Material: AlMg3  
 farblos eloxiert

	NAME	DATE	 <b>ENERTRAG</b> TITLE ENERTRAG Systemtechnik GmbH		
DRAWN	M. Wegner	06.02.2015			
CHECKED					
ENG APPR					
MGR APPR			SIZE A3	EST Art.-Nr.: 100829 / 100830	REV
ENERTRAG Systemtechnik GmbH Gut Dauerthal, D 17291 Dauerthal Tel. +49 39854 6459 352			pro10-180 Magnet und pro32-180 Magnet		
Maße ohne Toleranzangabe DIN ISO 2768- m			SCALE: 1 : 1	WEIGHT:	SHEET 1 OF 1

REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED




3 Anschlagpunkte mit jeweils passender Nut für Dichtungen ermöglichen variable Stecktiefen von 30mm, 60mm und 90mm

M16 EMV Kabelverschraubung

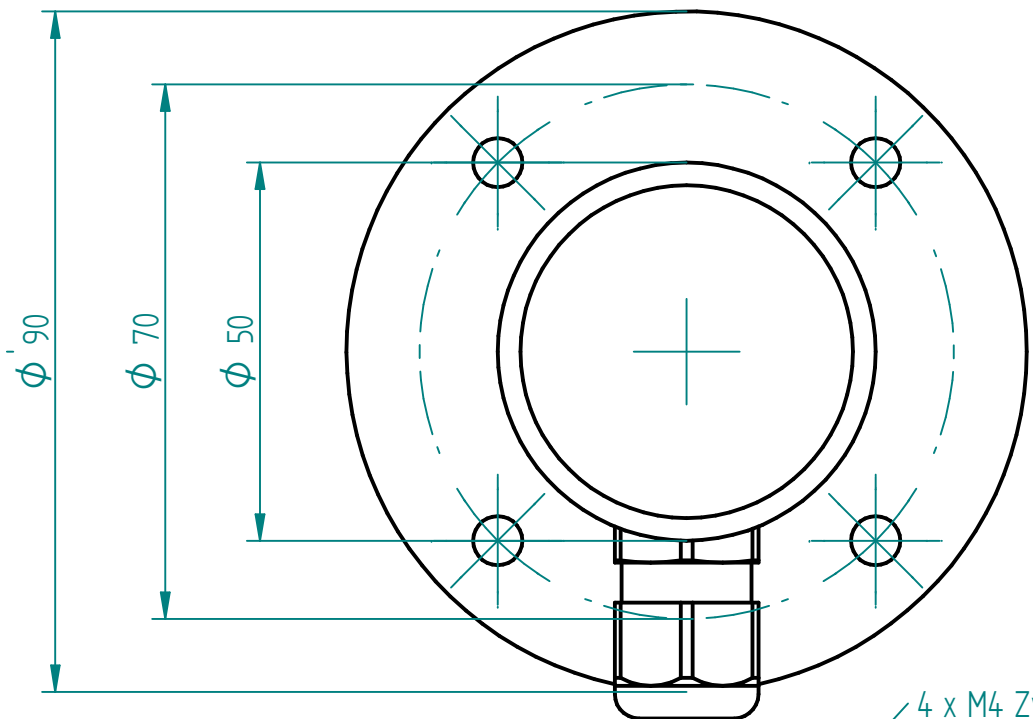
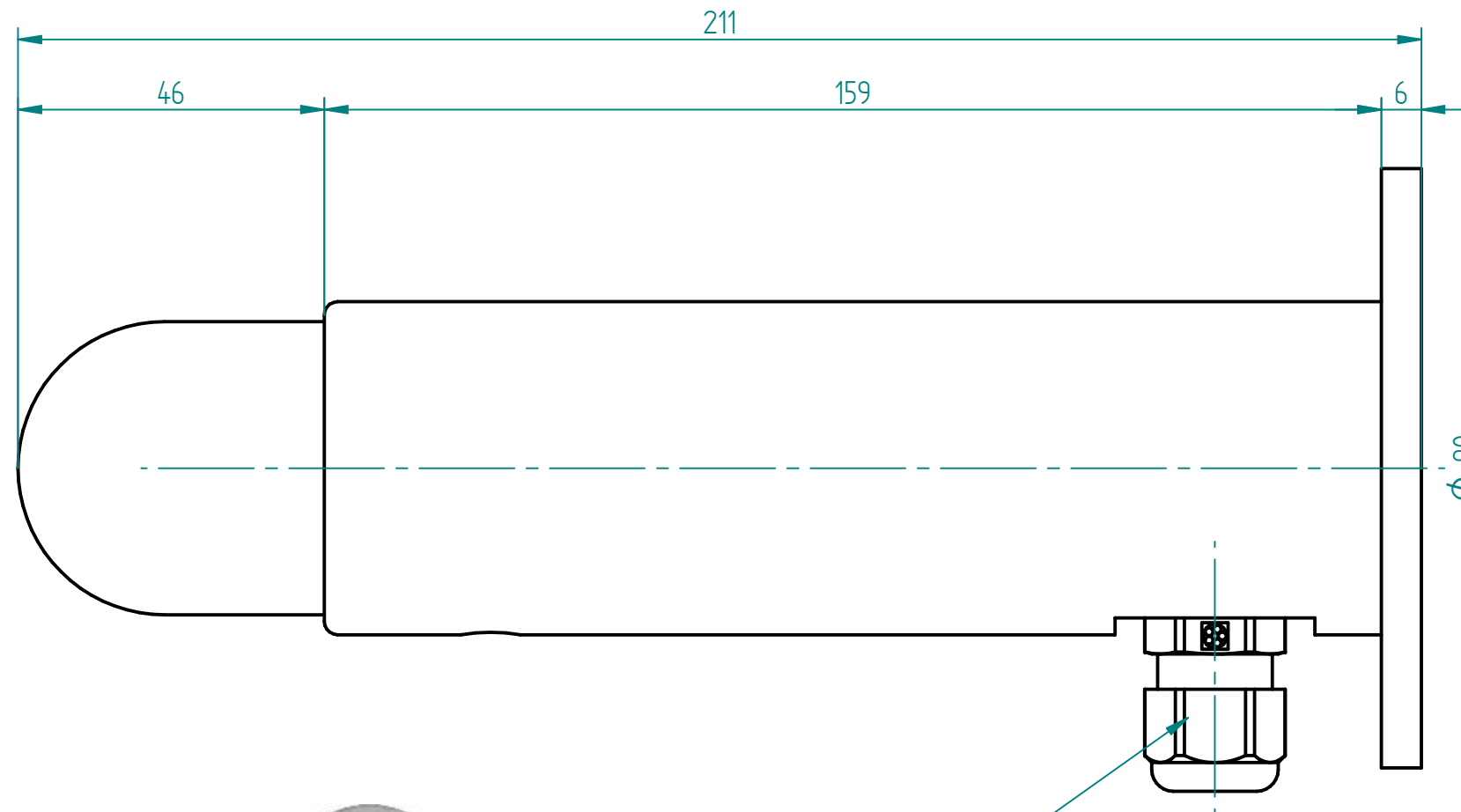


Material: AlMg 3  
farblos eloxiert

	NAME	DATE	 TITLE ENERTRAG Systemtechnik GmbH		
DRAWN	M. Wegner	06.02.2015			
CHECKED					
ENG APPR					
MGR APPR			SIZE A3	EST Art.-Nr.: 100831 / 100832	REV
ENERTRAG Systemtechnik GmbH Gut Dauerthal, D 17291 Dauerthal Tel. +49 39854 6459 352			pro10-180 St und pro32-180 St		
Maße ohne Toleranzangabe DIN ISO 2768- m			SCALE: 1 : 1	WEIGHT: ca. 0,7kg	SHEET 1 OF 1

REVISION HISTORY

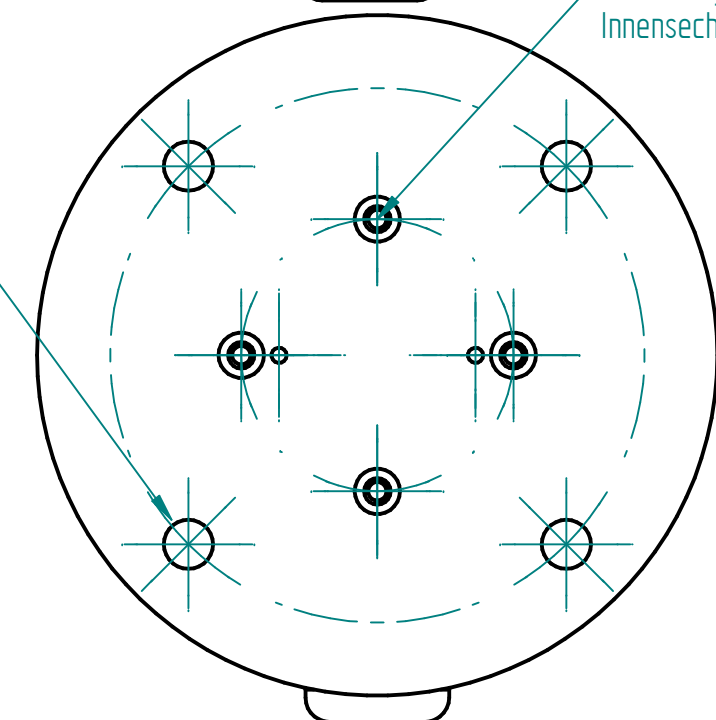
REV	DESCRIPTION	DATE	APPROVED



4 x M4 Zylinderkopfschraube  
Innensechskant


M16 EMV Kabelverschraubung

4 x Durchgangsbohrung  $\phi$  6,5mm  
für Befestigung mit M6 Bolzen



Material: AlMg3  
farblos eloxiert



	NAME	DATE	 TITLE ENERTRAG Systemtechnik GmbH	
DRAWN	M. Wegner	16.04.2015		
CHECKED				
ENG APPR				
MGR APPR			SIZE A3 EST Art.-Nr.: 100834 pro32-360 R-IR	REV 0
ENERTRAG Systemtechnik GmbH Gut Dauerthal, D 17291 Dauerthal Tel. +49 39854 6459 352			SCALE: 1 : 1	WEIGHT:
Maße ohne Toleranzangabe DIN ISO 2768- m			SHEET 1 OF 1	

## 8 Declaration of conformity



### EG-Konformitätserklärung EC Declaration of Conformity

**Name und Anschrift des Herstellers  
Name and address of the manufacturer:**

ENERTRAG Systemtechnik GmbH  
Gut Dauerthal  
17291 Dauerthal  
Germany

Diese Erklärung bezieht sich nur auf die Maschine/Anlage in dem Zustand, in dem sie in Verkehr gebracht wurde; vom Endnutzer nachträglich angebrachte Teile und/oder nachträglich vorgenommene Eingriffe bleiben unberücksichtigt. Die Erklärung verliert ihre Gültigkeit, wenn das Produkt ohne Zustimmung umgebaut oder verändert wird.

*This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user. The declaration is no more valid, if the product is modified without agreement.*

Hiermit erklären wir, dass die nachstehend beschriebene Anlage

*Herewith we declare, that the machinery described below*

<b>Produktbezeichnung product denomination</b>	<b>Hindernisfeuer</b>
<b>Serien-/Typenbezeichnung model/type</b>	<b>pro-Serie</b>

allen einschlägigen Bestimmungen der Niederspannungsrichtlinie 2006/95/EG sowie der Richtlinie 2004/108/EG über elektromagnetische Verträglichkeit entspricht.

*is complying with all essential requirements of the low voltage Directive 2006/95/EC and Directive 2004/108/EC relating to electromagnetic compatibility.*

**Bevollmächtigter für die Zusammenstellung der relevanten technischen Unterlagen  
The person authorised to be compile the relevant technical documentation:**

ENERTRAG Systemtechnik GmbH  
Engineering, Dipl.-Ing. Steffen Kunze  
Gut Dauerthal  
17291 Dauerthal

Dauerthal, 18.11.2014

Ort, Datum  
Place, Date

i.A. Kunze, Steffen, Engineering

Name, Vorname und Funktion des Unterschrifters  
surname, first name and function of signatory



i.A.



Unterschrift  
Signature