

Lely Calm View



Installation & Operator manual

EN - English Original

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List of Included Amendments

Issue Date (yy/mm)	Revision	Chapter(s)	Remarks
2021/07	-		New release



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Preface

Manual Contents

This manual contains the information for the correct installation, setup and maintenance of the Lely Calm View. The information in this manual is for operators and technicians:

- The operator uses the information to clean or replace the Lely Calm View.
- The technician uses the information to install and set up the Lely Calm View.



Study and understand this information thoroughly before you install or do maintenance the machine. Failure to do so could result in damage to equipment or personal injury. Please consult your local Lely service provider if you do not understand the information in this manual, or if you need additional information. Store this manual in a safe place for future reference.

All information in this manual has been compiled with care. Lely shall not be liable for errors or faults in this manual. The recommendations are meant to serve as guidelines. All instructions, pictures and specifications in this manual are based on the latest information that was available at the time of publication. Your machine may comprise improvements, features or options that are not covered in this manual.

Applicability

Model designation

The table below shows the type numbers of concentrate feeder for which this manual is applicable.

Model	Type number
Lely Calm View	5.1701.0101.0

Software version

The description, operation and procedures in this manual are based on the following software versions:

- XXXXXX Horizon or higher.
- E-Link version 1.08R or higher.
- ADS3830 PCB; 01.09.0 or higher.

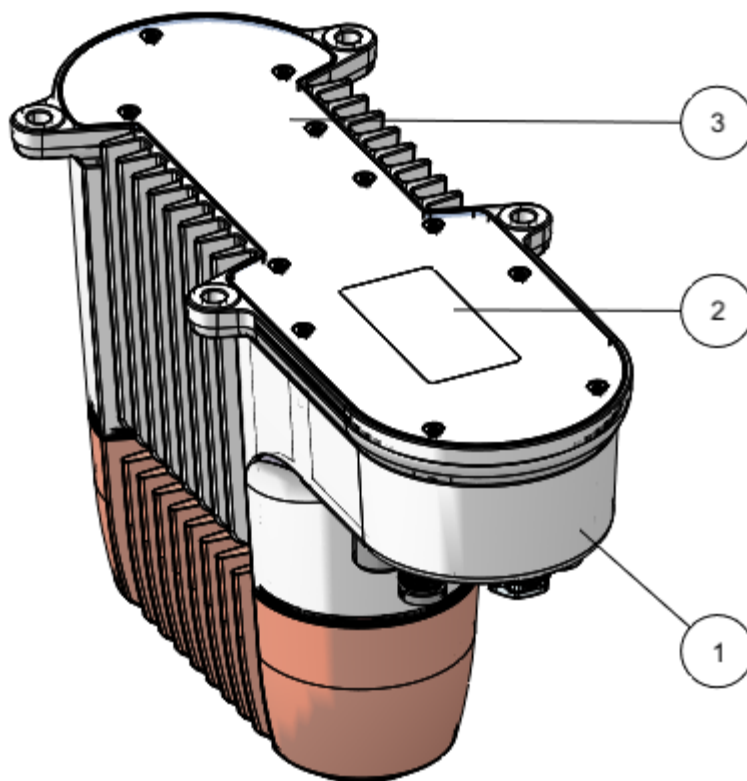
Standard Torque Loading of Parts

All the nuts, bolts and screws used on the machine are torque tightened to standard torque loadings applicable to the construction materials used.

If a part has a non-standard torque loading, it is specified in the applicable part of the manual.

Registration

The Type and Serial Number Plate is attached to the top lid of the camera(2).



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KEY: 1. Camera house - 2. Type and serial number plate - 3. Cover lid

Always include the type and serial number of your Lely Calm View when you contact your local Lely service provider or order spare parts.



Article Name : Lely View
 Part Number: : 5.1701.0101.0
 Serial No. : 006296037
 UD - ID : 110C680E828DCD98
 Week - Year : 27-21
 FCC ID : 2A3ROLELY-VIEW



Class1 Laser Product
 PWR: 24V == 4A Class III

ETH: 50 - 57V == 51W

IP65
 -10°C / 50°C



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

Manufacturer LELY Industries NV, Cornelis van der Lelylaan 1, 3147 PB Maassluis, The Netherlands.

Figure 1. Type and Serial Number Plate

We suggest you complete the table below with the type and serial numbers of your Lely Calm View. This makes sure you can easily find the information.

Type number	
Serial number	

Personnel Requirements



Risk of accident from insufficiently qualified personnel. Unqualified personnel working on or in the danger zone of the machine can be the cause of serious injuries and considerable damage to material.

- ***All activities must only be carried out by qualified personnel.***
- ***Keep unqualified personnel away from the danger zones.***
- ***Only persons who can be expected to carry out their job reliably are authorized as personnel.***
- ***Persons whose reactions are impaired, e.g. by drugs, alcohol medications are not authorized to work with the machine.***

Maintenance Authorization



Risk of accident from uncertified technicians. Uncertified technicians doing maintenance on the machine can be the cause of serious injuries and considerable damage to material. Only technicians certified by Lely Industries are authorized to do maintenance on the machine, except for the maintenance done by the operator as indicated in the operator manual. If people who are not certified by Lely Industries do maintenance on the machine, the warranty on the machine becomes invalid.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Technician Training

All the technicians certified by Lely Industries have completed an approved training program, and passed written and practical examinations during and at the end of the training program. The training is given by Lely International or a specialist from the LSO and includes troubleshooting and corrective maintenance of the machine.

During training, a trainee is permitted to work for up to a maximum of six months under close supervision of a certified technician. A trainee can do work on the machine only in the presence of a certified technician.

Contact Number Local Service Provider

We suggest you write the telephone number and email address of your local service provider contact in the table below. This makes sure you can easily find the information.

Telephone number	
email address	

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1 Introduction

The Young stock monitoring camera system is an automated in line vision and image creation, processing, management, viewing and data analysis.

The information in this manual is for the installation and operators. The operator uses the information to program and operate the Lely Calm View. The operator also uses the information to do maintenance.



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2 Intended Use

The Lely Calm View is intended as an aid to the farming industry in the display, detection, counting and classification of young stocks – young calves and heifers. The system is intended to operate in barn conditions at a height between 1.8 m (5.9 ft) to 3.5 m (11.48 ft) above ground.



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3 Safety

3.1 Signal Icons

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The signal word for each message uses the following guidelines:



Danger

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Warning

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Caution

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Notice

Is used to address practices not related to physical injury e.g. property damage.



Tip

Indicates information that may help the reader, but not hazard related.

3.2 General Safety

When developing the Lely Calm View the latest standards were implemented to make this product as safe as possible. However, there are a few additional rules that should be observed.

- Do not use the products in any way that might violate the integrity of others.
- Always follow the laws and legislations that apply in your country.
- Do not leave plastic packaging material near children or animals to avoid the risk of suffocation.
- Do not open the camera enclosure as it is a non-serviceable product.
- Lely resigns all responsibility that might occur from abuse or incorrect use of the products. Always follow the instructions in this manual.
- Read and understand this manual and all safety signs before you install parts of the Lely Calm View.
- Only trained persons are permitted to operate the Lely Calm View.
- Always have the telephone number of the nearest medical centre close at hand.
- Contact your nearest Lely service provider if you have any questions.

3.3 Statement for Class A digital device acc. to FCC 15.105

NOTICE

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.

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3.4 Electrical Safety

- The Lely Calm View shall only be used in combination with an external approved (for example EN 61558-2-16 or EN 62368-1) power supply which has the required insulation barrier.
- Only an authorized electrician must install the electrical power supply for the system components.
- Only an authorized electrician may work on the electrical installation.
- Make sure the electrical grounding of the electrical system and all parts of the machine meet the local rules and regulations.
- Keep all cables properly protected and out of reach of animals.
- Prevent damage by vermin.
- Replace any damaged electrical lines, conduits, switches and components immediately.

3.5 Installation Safety

- Always use a proper scaffold or a double sided ladder when you install the Lely Calm View or do maintenance on the Lely Calm View.
- Always block the cow traffic when you install the Lely Calm View or do maintenance on the Lely Calm View.
- Always follow local rules and regulations.
- Always use PPE (Personal Protective Equipment) according to the manufacturer specifications.

3.6 Operating Safety

- Do not look directly into the camera as it uses an IR laser (Class 1) during low light conditions.



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4 Specifications

4.1 Storage & Operational Environmental Specifications

Parameter / Description	Minimum	Nominal	Maximum
Ambient temperature	0°C / 32° F		35°C / 95° F
Humidity	5%		100%
Altitude	-		2000 mtr / 1.242 mi

4.2 Power Specifications

Parameter / Description	Value
Aux power supply	19.2 - 28.8 VDC (96 Wmax)
PoE++ (802.3bt type 3)	42.5 - 57.0 VDC (51 Wmax)
Source current CAN (Aux Power)	19.2 - 28.8 VDC (28.8 Wmax)
Source current CAN (PoE Power)	19.2 - 28.8 VDC (14.4 Wmax)
Source current (Aux Power)	19.2 - 28.8 VDC (16.8 Wmax)
Source current (PoE Power)	19.2 - 28.8 VDC (12 Wmax)

4.3 Camera Specifications

Parameter / Description	Minimum	Nominal	Maximum
Dimensions (H x L x W)		170(6.69) x 270(10.62) x 120(4.72) mm(in)	
Weight (kg)		2.6 kg	
Range	0.5m / 1.64ft		4m / 13.1ft
IP Rating	IP 65		



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5 Description and Operation

5.1 Component description

The Camera has the following components:

- Camera house
- Cover lid
- 24V external power
- Power over Ethernet
- Breather
- CAN device
- Digital Input/Output device
- Led indicator
- Camera

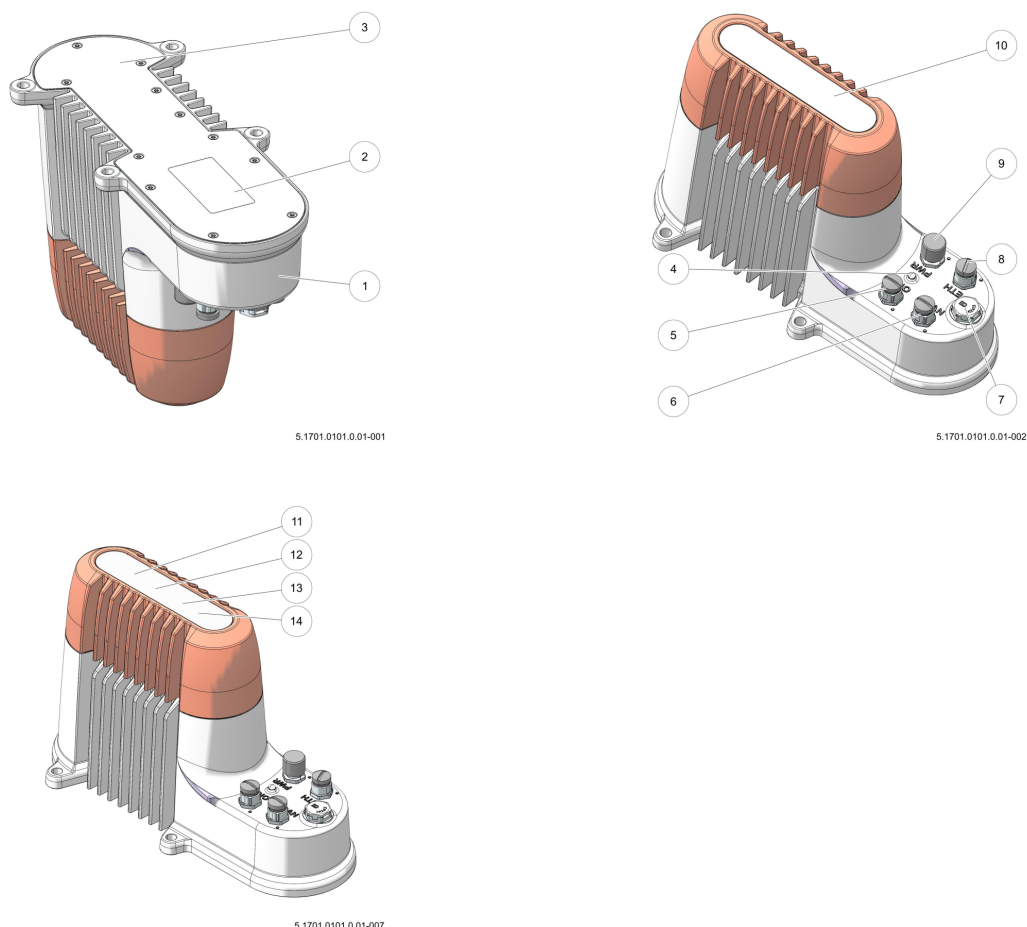


Figure 2. Lely Calm View components

KEY: 1. Camera house - 2. CE label - 3. Cover lid - 4. Led indicator - 5. Digital input/output connector - 6. Can connector - 7. Breather - 8. Ethernet connector - 9. Power connector - 10. Camera - 11. Left IR-camera - 12. Projector - 13. Right IR-camera - 14. RGB camera

5.2 Operation

The camera works together with CAN devices (e.g. RFID reader), GPIO equipment (e.g. flowmeter) and the farm infrastructure via Ethernet.

The camera's power can be supplied by an auxiliary +24V source or via Power-over-Ethernet. The two power sources are mutually exclusive, with the auxiliary +24V supply having the higher priority. The 24V adapter and the PoE supply are plugged into the Phoenix connectors on the camera. The CAN-device and the GPIO-devices are plugged into the Phoenix connectors (see figure 2 on page 5-2).

Refer to section 6.2.1 for the pinout of the connectors. When all the external devices are functional, the RED LED will blink in a 1Hz sequence (heartbeat). The dual colour LED reports an error-code if one of the peripherals is faulty.

6 Installation

6.1 Introduction

The installation process of the Lely Calm View has the following phases:

- Prepare the installation.
- Install the Lely Calm View.
- Set up the Lely Calm View.

The installation is done by a Lely certified technician.

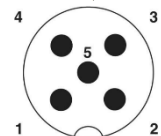
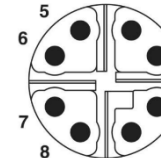
6.2 Preparation

6.2.1 Preparation by the Owner

Before the actual installation can start, a number of tasks should be done by the owner of the Lely Calm View with support from the Lely service provider. These tasks are most of the construction tasks for the farm and the purchase of equipment necessary to use the Lely Calm View:

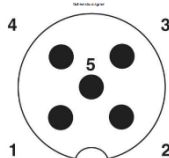
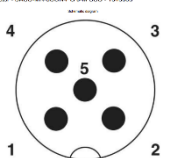
- A decent internet speed is required to run the applications on the Lely View.
- Additional power supply (optional).
- CAN tag reader (optional).
- 2x mounting brackets for camera.
- 4x M6 bolts and nuts.
- Gigabit Ethernet cable (CAT 6 or CAT 6A) with Phoenix counterpart "1417443".
- 5 core Power cable (AWG16) for +24V external adaptor with Phoenix counterpart "1543058".
- 5 core signal cable (AWG22) for the CAN apparatus with Phoenix counterpart "1543003".
- 5 core signal cable (AWG22) for the GPIO apparatus with Phoenix counterpart "1543003".
- 1 Sealing cap for M12 plugs (Phoenix part 1560251).
- 3 Screw plugs for M12 sockets (Phoenix part 1680539).

Table 1. Phoenix connectors, their counter connectors and the connection diagram

Description	Camera Marking	Phoenix connector	Phoenix Counterpart	Connection diagram
+24 supply	PWR	1457539	1543058	Fluorogel connector - SAC-C0483185-SC28-5m T01 37 - 1457539  • Pin 1 = +24V supply • Pin 2, 4, 5 = nc • Pin 3 = GND supply
Ethernet 1Gbps	ETH	1402457	1417443	Data connector - VS-08-M12N6-180-P-SCD - 1417443  • Pin 1 / 2 = Pair A Pos / Neg • Pin 3 / 4 = Pair B Pos / Neg • Pin 5 / 6 = Pair C Pos / Neg • Pin 7 / 8 = Pair D Neg / Pos

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Table 1 Phoenix connectors, their counter connectors and the connection diagram (cont'd.)

Description	Camera Marking	Phoenix connector	Phoenix Counterpart	Connection diagram
CAN interface	CAN	1457652	1543003	Connector: SACD-MR-SCON-PG 8-M SCOD - 1543003  • Pin 1 = GND • Pin 2 = +24V CAN • Pin 3 = GND • Pin 4 = CAN_H • Pin 5 = CAN_L
IO interface (2x)	DIO	1457652	1543003	Connector: SACD-MR-SCON-PG 8-M SCOD - 1543003  • Pin 1 = +24V_DIO • Pin 2 = DIO_2 • Pin 3 = GND • Pin 4 = DIO_1 • Pin 5 = GND

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6.2.2 Preparation by the Lely Service Provider

Determine placement of the camera

NOTICE

Be sure the camera is always parallel with the ground surface.

1. Distance from drink / eating point (x direction).

- When installing with Lely Calm.

Projector distance 200 mm (7,87 in) toward the teat of the Calm (measured from the entrance,) -> 800 mm (31,5 in) from the front broad (see figure 3 on page 6-4).

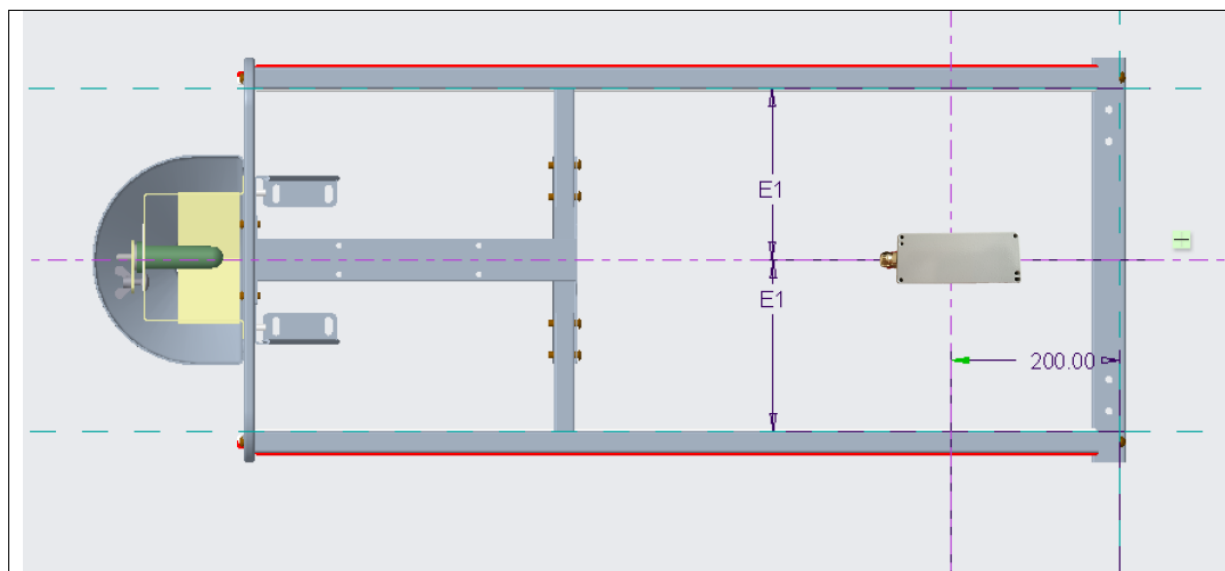


Figure 3. Position camera on Lely Calm

- When installing with Lely Cosmix.

Projector (see figure 2 on page 5-2) distance feed bowl / drinking bowl (center) -> 1.68 m (5.51 ft).

- When installing with a drinking trough or single drinker.

Projector distance for free range -> 1.68 m (5.51 ft).

2. Height of lens (bottom of the camera) (y direction).

- When measuring calves (0-4mnths).

Camera lens calf -> 1800 mm (70.8 in)

- When measuring heifers (10-24 mnths).

Dependant on situation:

- Limited freedom around drinking bowl / Cosmix / walk - through -> 1 heifer length is enough -> 2.7 m (8.85 ft) lens -ground.
- Free range -> 2 heifer length -> 3.1m (10.17 ft).

3. Alignment of camera

- Cable mounting is facing towards if mounted parallel towards head of heifer / calf.
- Calf: Aligned with teat from Lely Calm.
- Heifers: align with center of drinking/feeding trough.
 - Free range, orientation perpendicular to center.
 - Limited freedom, orientation in line with center.

Remove the camera from its packaging.

Check the camera on damage and/or scratches in particular on the lens.

NOTICE

Do not open the camera enclosure. Handle the camera with care.

WARNING

Faulty electronics, damaged optics or incorrect depth measurements

- ***Do not drop the camera.***
- ***Do not bump the camera and/or place hard on a solid surface.***
- ***Do not put objects on the camera in particular on the lens to prevent scratches or cracks.***

WARNING

***Unexpected cow movement.
Risk of being crushed or trampled.
Block the cow traffic before the start of the installation.***

- Always use a proper scaffold or a double sided ladder when you install the Lely Calm View or do maintenance on the Lely Calm View.
- Follow local regulations.
- Install the camera in an open area at a height between 1.9 m (6.2 ft) to 3.5 m (11.48 ft) from the floor.

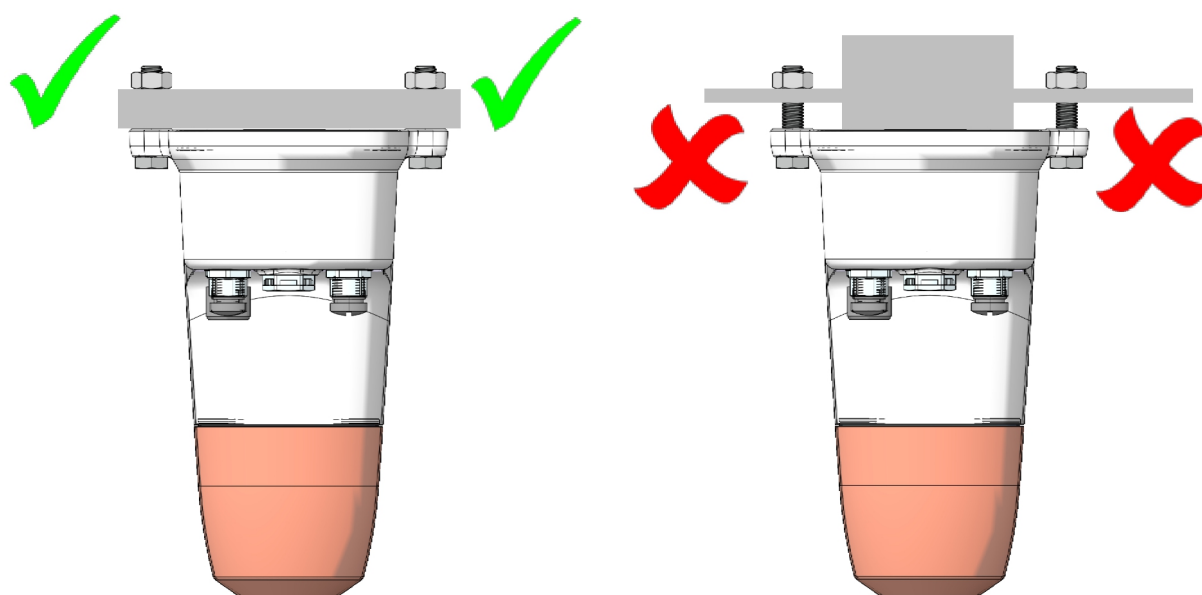
Use 4 x M6 bolts (ISO4762) with washers (ISO7089) or equivalent.

Bolt/thread diameter should not exceed 6.6 mm (0.26 in).

Outside diameter of washer should not exceed 12 mm (0.47 in). Other sizes may damage the coating.

NOTICE

Incorrect installation
Damage on the Camera.
Counterpart (e.g. bracket or steel beam) should be flat and only contact the raised surfaces surrounding the bolts (see figure 4 on page 6-6).



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Figure 4. Incorrect assembly

NOTICE

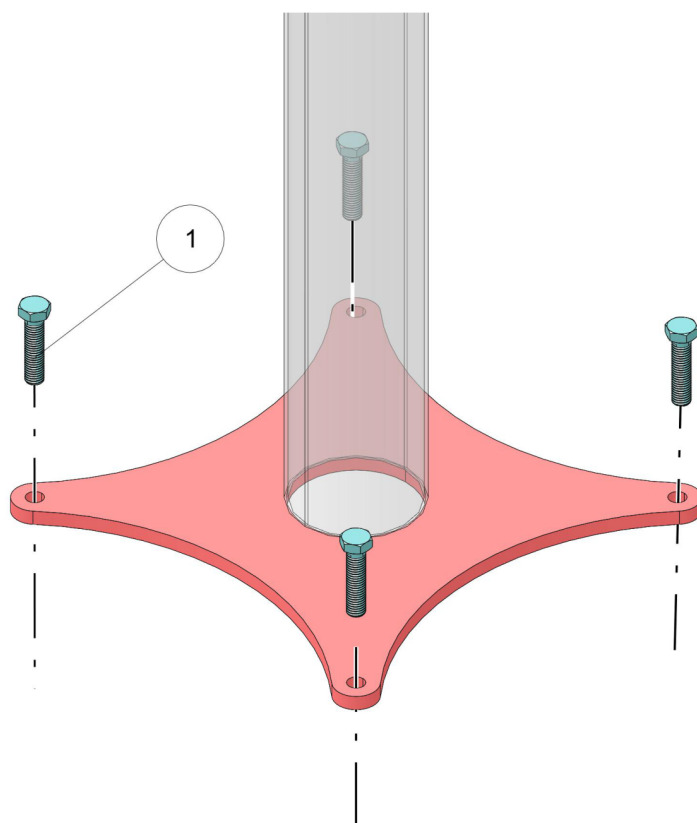
Malfunctioning
Do not place the camera inside an airtight box / bag or cover it with a blanket.

- Check if auxiliary power supply is used that the external power adaptor is rated at 24V ($\pm 10\%$) and has a minimum output current of 4A.
- Check that the Gigabit PoE switch is minimum PoE++ (802.3bt type3) capable or better.
- Check that the GPIO device has a maximum load of 0.7A at 24V. The frequency of the input signal should be less than 1kHz with a duty cycle between 20 – 80%.
- Check that the CAN device has a maximum load of 1.2A at 24V and a baud rate of 125kbps, 250kbps, 500kbps or 1Mbps.

6.3 Install the Lely View

Tools

- Double sided ladder
 - Power drill
 - Wrenches
 - M12 Torque tool
1. Determine right position of mounting pole (see Determine placement of the camera on page 6-3).
 2. Mark the four holes .
 3. Drill the holes and insert the plugs.
 4. Install the pole with the four bolts (1) to the floor (see figure 5 on page 6-7).



Calcam-001-0-001

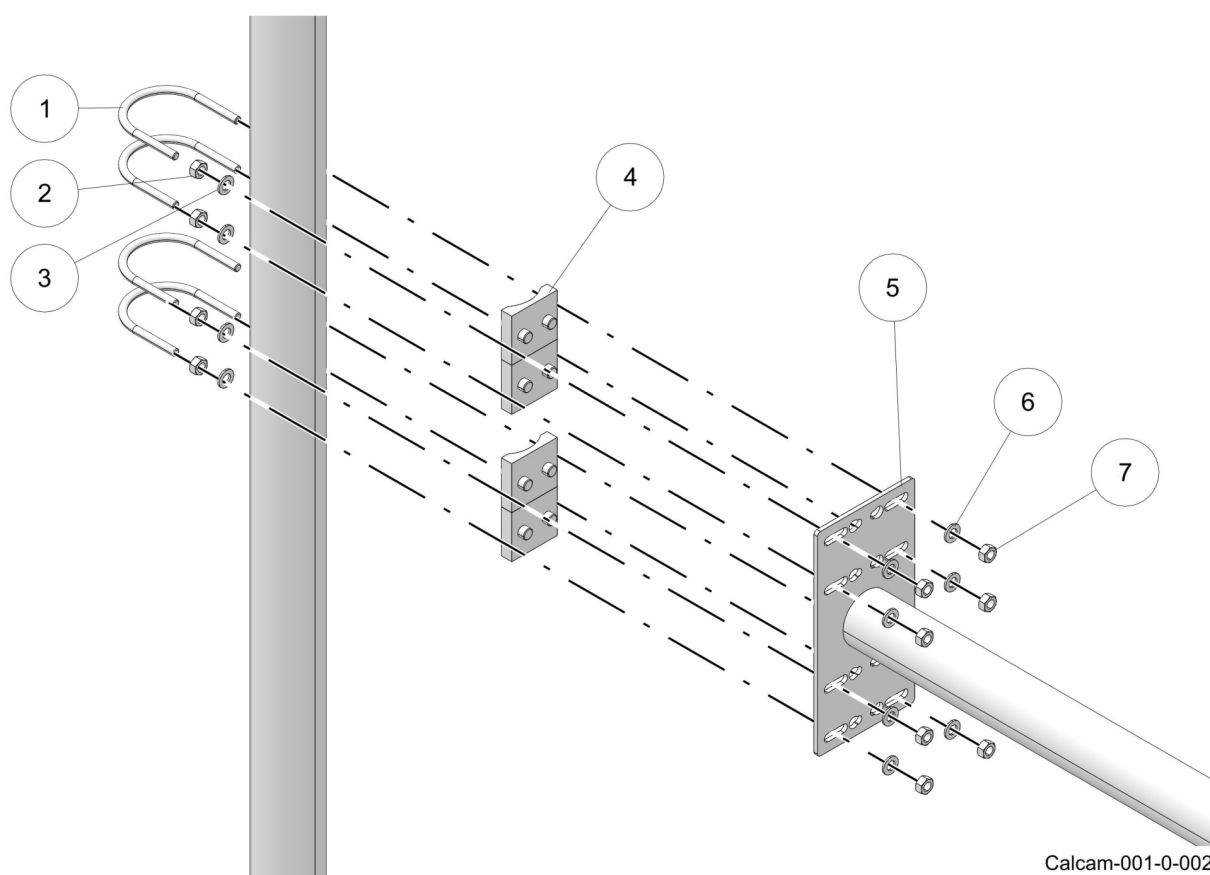
Figure 5. Install the pole

KEY: 1. Bolts

5. Install the horizontal bar on the correct height (see Determine placement of the camera on page 6-3) with the clamp (1), clamp plate (4) to the horizontal bar plate (5) with the nuts (2,7) and washers (3,6) (see figure 6 on page 6-8)

NOTICE

Use a double sided ladder when installing the horizontal bar for heifers.

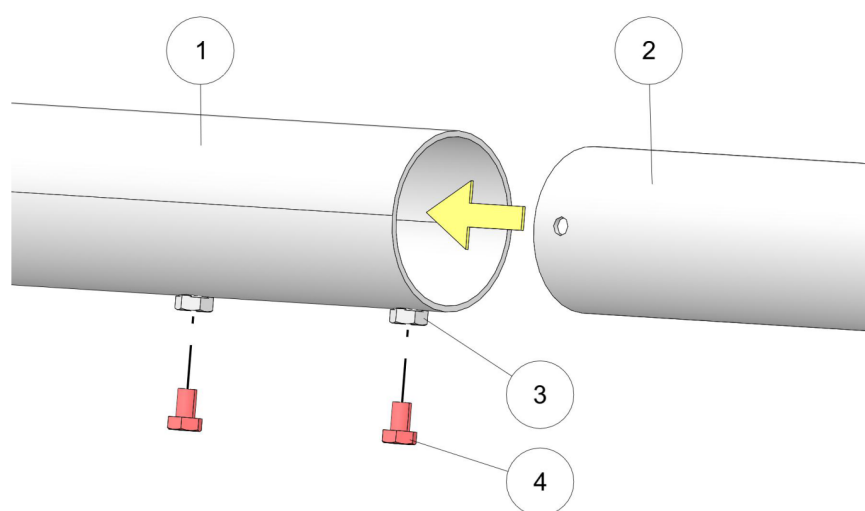


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Figure 6. Install the horizontal bar

KEY: 1. Clamp - 2. Nut - 3. Washer - 4. Clamp plate - 5. Horizontal bar plate - 6. Washer - 7. Nut

6. Set the length of the horizontal bar on the correct distance by sliding the inner tube (2) in to the outer tube (1) and lock the tubes with the two adjustment bolts (4) and nuts (3 (see figure 7 on page 6-9)).

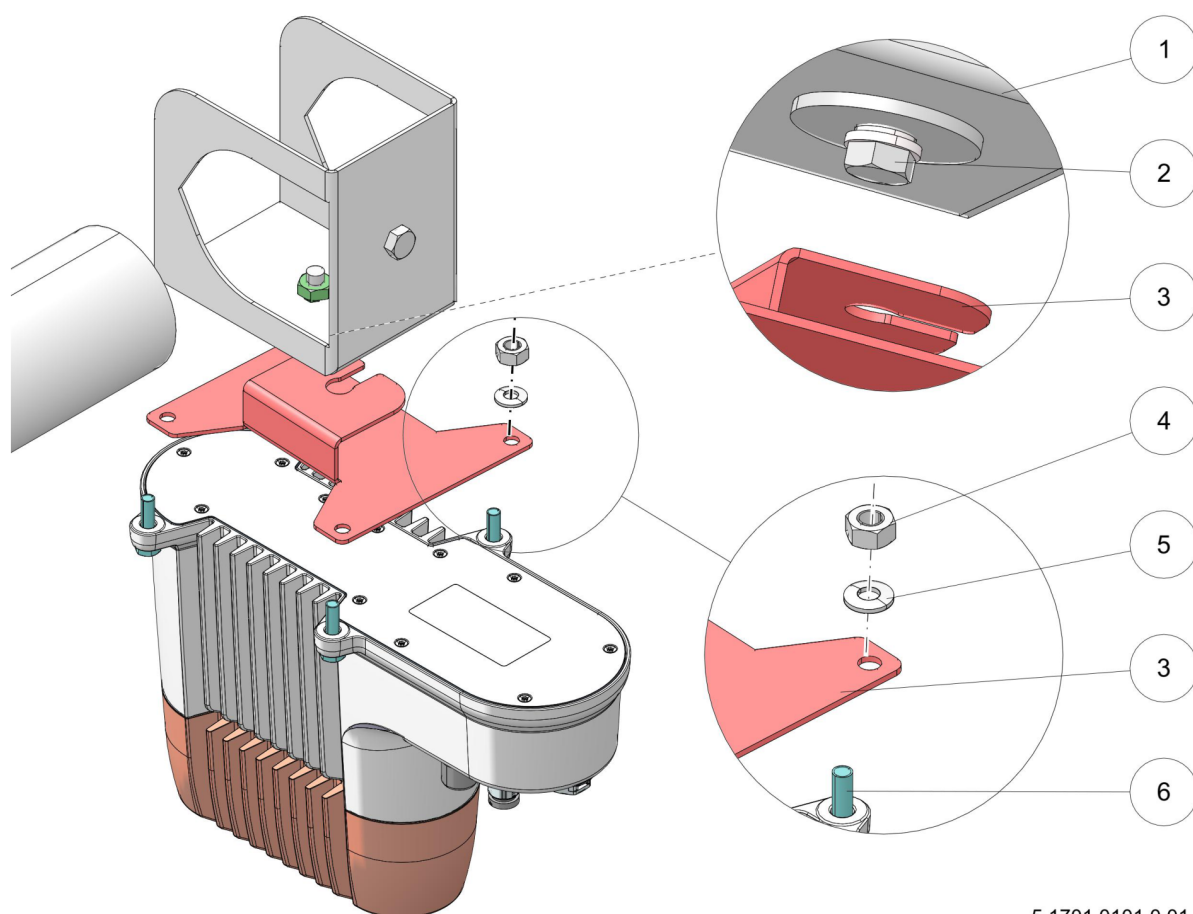


Calcam-001-0-003

Figure 7. Adjust the horizontal bar

KEY: 1. Outer tube - 2. Inner tube - 3. Nut - 4. Adjustment bolt

7. Install the adapter plate (3) to the Lely Calm View with the four bolts (6), washers (5) and nuts (4) (see figure 8 on page 6-10).



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Figure 8. Install the adapter plate to the camera

KEY: 1. Bracket - 2. Bolt - 3. Adapter plate - 4. Nut - 5. Washer - 6. Bolt

8. Install the adapter (3) with the camera to the bracket (1) by sliding the unit on the bolt (2) and tighten the bolt (see figure 8 on page 6-10).

9. Connect the cables to the camera with the M12 torque tool.

- Ethernet (required) marked as ETH.
- Power supply marked as PWR.
 1. Required in case of (and / or).
 - No use of PoE switch / injector.
 - CAN port in use.
 - DIO as output.
- CAN port (optional).
 1. In case of heifer monitoring, a tag reader is required.
- GPIO peripherals (optional).



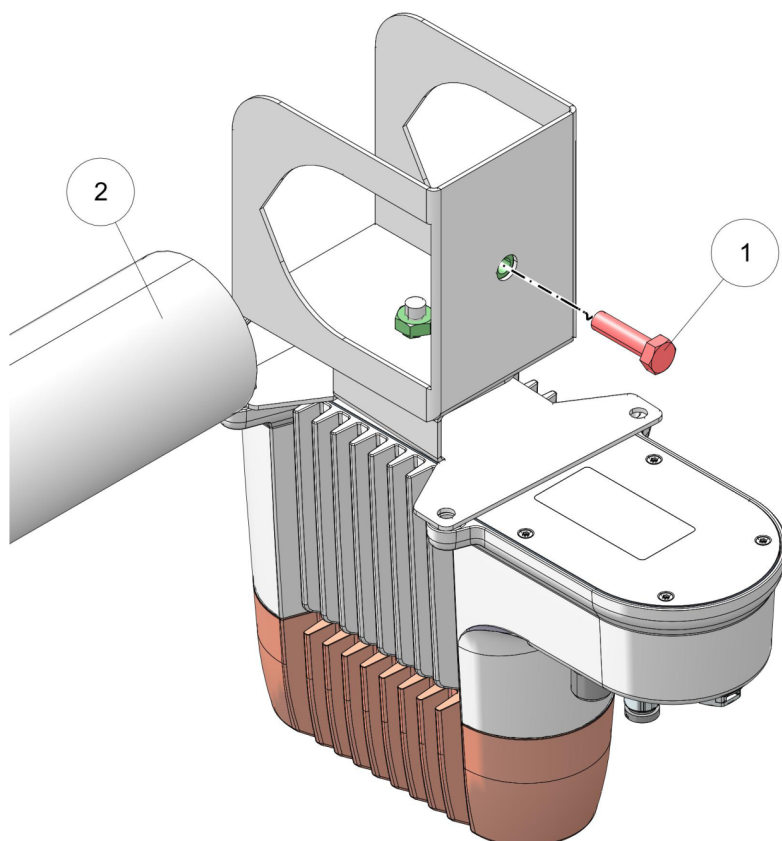
*IP 65 compliance
 Los of IP 65 rating/compliance.
 Place sealing caps on the connectors which are not in use.*

10. Check the functionality of the Lely Calm View and peripherals before installation.
11. Unplug the power of the Lely Calm View on the not-device side. When PoE is used unplug the Ethernet on the not-device side.
12. Align adapter plate in such a way that the Lely Calm View is aligned as described per situation (see Determine placement of the camera on page 6-3).
13. Slide the bracket with the Lely Calm View over the horizontal bar, up to the required position.

NOTICE

Use a double sided ladder when installing the horizontal bar for heifers.

14. Tighten the bolt (1) on the side of the bracket to lock the position (see figure 9 on page 6-12).



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Figure 9. Position and lock the bracket

KEY: 1. Bolt - 2. Horizontal bar

15. Guide the cables via the horizontal bar to a safe position.

6.4 Set the Settings in the App

1. Measure the height from the camera lens to the Solid (concrete / slatted floor).
2. Launch the technician App.
3. Enter height and determine Region of Interest.
 - Calves: end of Lely Calm.
 - Heifers:
 - Cosmix: End of Lely cosmix.
 - Free range: x= 1 m (3.2 ft).

7 Disposal

7.1 Disposal

Disposing this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Decommissioning and disassembly of the product can be dangerous and must be done only by qualified recycling organizations. All components must be disposed in compliance with the local rules and regulations.

Lubricants and fluids must be disposed correctly to prevent pollution of the environment. Read the safety data sheets of the used lubricants and fluids for correct disposal. All lubricants and fluids must be disposed in compliance with the local rules and regulations.

Contact your local authority or local Lely service provider for further details.

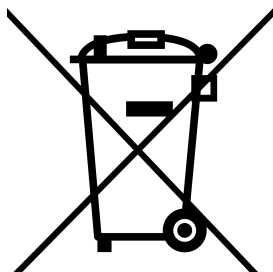


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8 WEEE

8.1 WEEE



This symbol [crossed-out wheel bin WEEE Annex IV] indicates separate collection of electrical waste and electronic equipment in the European countries. We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation

In accordance with the European Union WEEE (Waste Electrical and Electronic Equipment) Directive 2012/19/EC, we would like to notify you that this product might contain regulated materials, which upon disposal, according to the WEEE directive, require special reuse and recycling processing.

For this reason, Lely Industries N.V. has arranged that this product can be recycled at the local recycling/disposal companies to collect and recycle this product at no cost to you.

Additional local legislation may apply.

NOTICE

Please note, only this product itself falls under the WEEE Directive. When disposing of packaging and other related shipping materials we encourage you to recycle these items through the normal channels.



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9 EC Declaration of Conformity

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