

\*quick release plate, adapter, camera and lens show in this manual are not included

## USER MANUAL

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*Please read this manual carefully before using the Cambo ETP unit!*



## Thank you for purchasing a Cambo® product

Developed for the lightweight range of video-booms, the EPT is ideal for the Cambo ARTES and V15 models. The motor-driven controls allows for over 360 degrees rotation of unobstructed pan and tilt. Durable motors assure for a long and reliable life. The EPT electronics are optimized for a fluent start and stop of the pan/tilt movement. The head unit is connected with a standard UTP cable up to 10 meter to the control unit.

### The EPT unit includes:

- PT-head unit with camera platform
- Remote control joystick including handle and clamp unit
- Control frame including clamp unit
- AC/DC power adapter 110-240 V
- Signal/power cable 5meter length CAT-6 UTP cable

## ⚠ WARNING



**WARNING: rotating gears** - finger or hand entanglement

Please keep hands and fingers clear from the operational gear units.



**WARNING: moving parts** - finger or hand crush

Please keep hands and fingers clear from the moving parts of the operational EPT unit.



**WARNING: twisting of the cables**

Never rotate the pan or tilt movement more than two times around the axis. Before use check if the cables are twisted. Always untwist the cables before using the EPT unit. Untwist the cables at the pan and tilt axis by rotating the head in the opposite direction of the twisted cable.

**WARNING: keep clear of obstacles** when operating the EPT head.

**WARNING: don't connect or disconnect the power and/or signal cable** to the remote control and/or motor control unit unless the power is switched off (switch 26 figure 2).

**CAUTION: the pan or tilt motors are self-locking** and can only be rotated electronically driven or when the gears are coupled. If you force the pan or tilt movement manually you could irreversibly damage the gears.

**CAUTION: don't over-tighten knobs (5) and (6)** shown in figure 1.

# Nomenclature

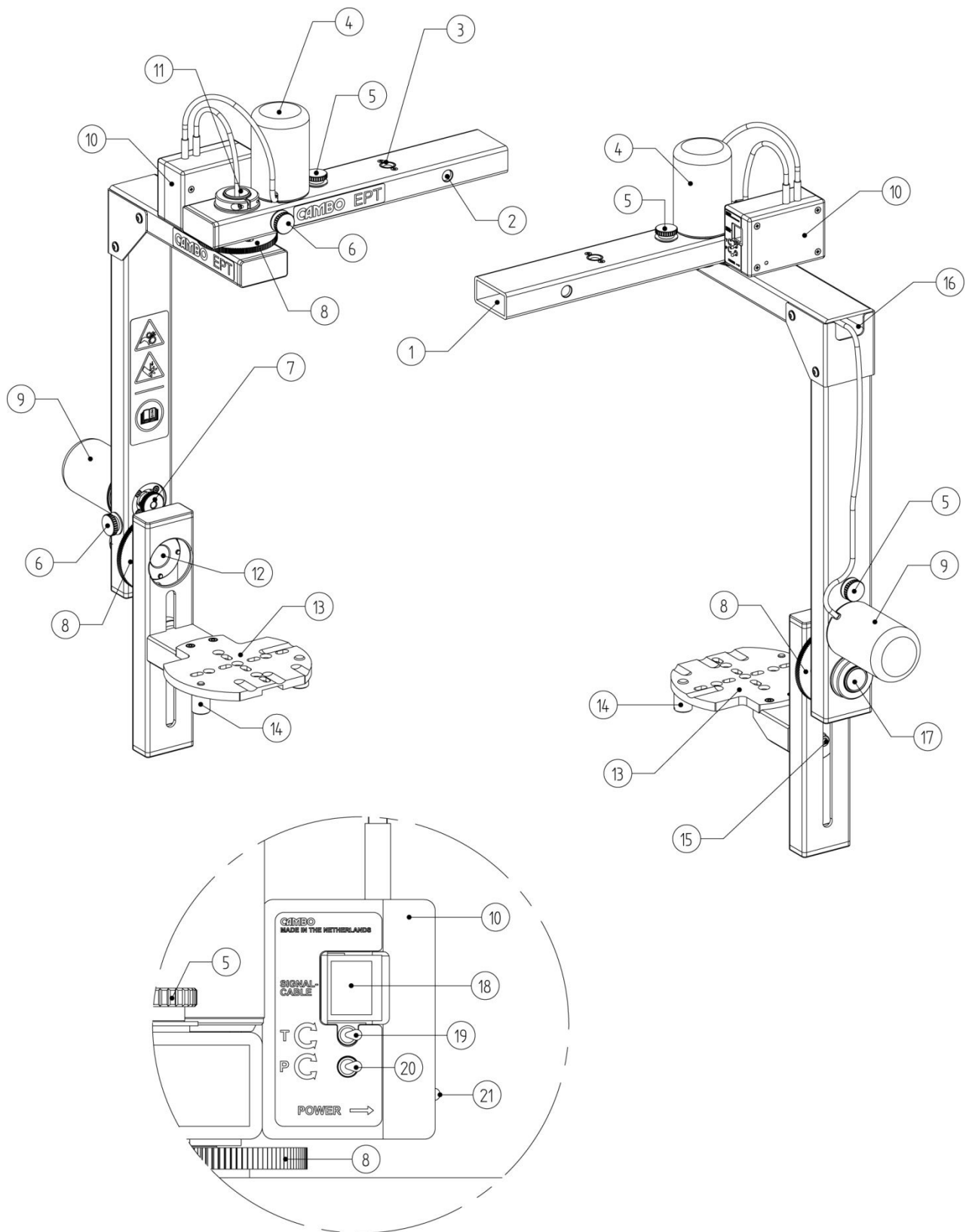


figure 1: EPT head

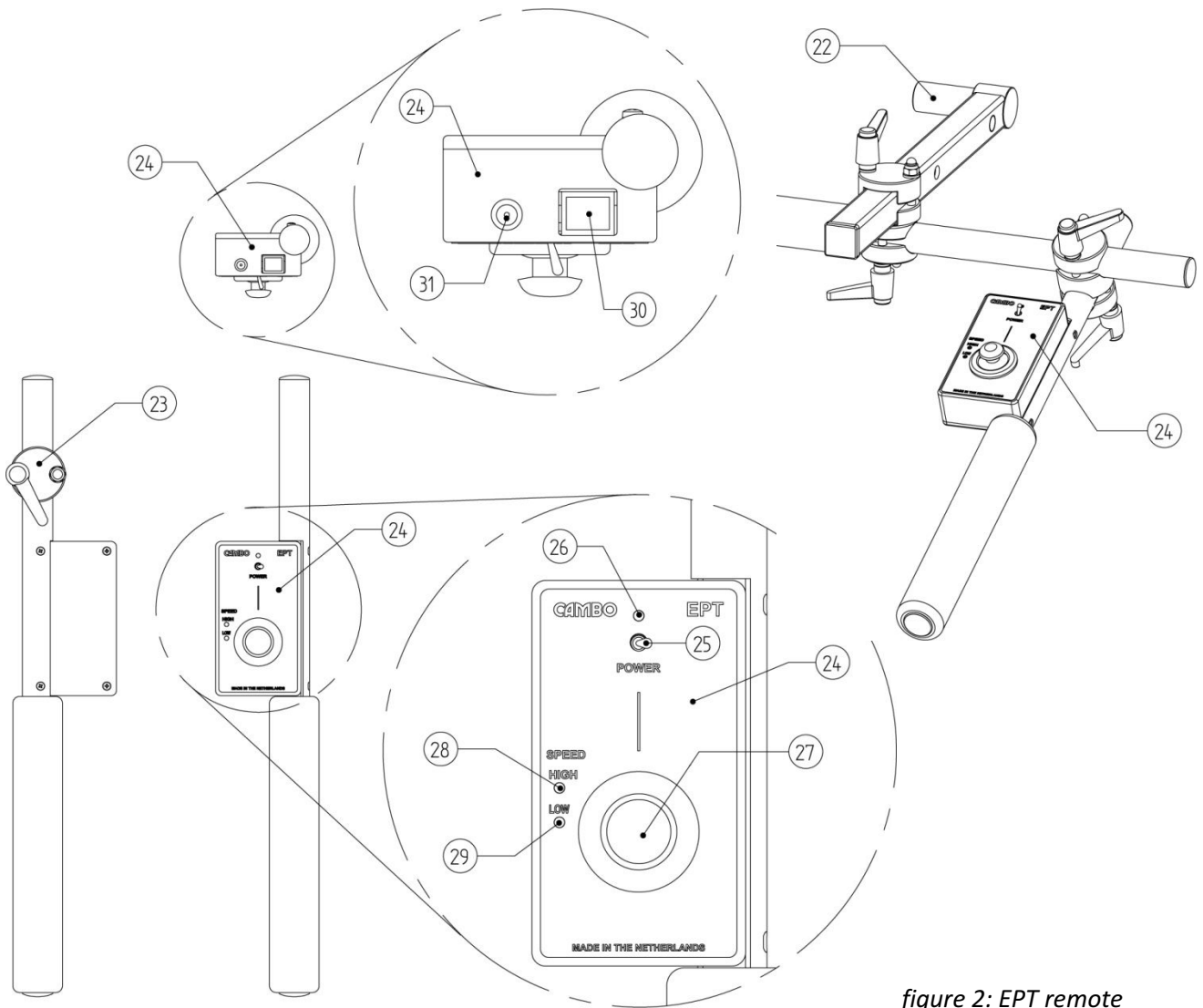


figure 2: EPT remote

- |    |  |    |  |
|----|--|----|--|
| 1  | Cambo video-boom mount                       | 16 | Cable output EPT topside                 |
| 2  | Mount hole attachment handle                 | 17 | Cable feed-through to the camera         |
| 3  | Tripod mount (3/8")                          | 18 | Cable connector for the joystick unit    |
| 4  | Motor unit pan-movement                      | 19 | Direction switch tilt movement           |
| 5  | Locking knob motor slider (top)              | 20 | Direction switch pan movement            |
| 6  | Locking knob motor slider (side)             | 21 | Power-on led motor control unit          |
| 7  | Brass motor gear (M0.5 z=42)                 | 22 | Cambo control frame mount                |
| 8  | Delrin gear (M0.5 z=140)                     | 23 | Clamp joystick handle                    |
| 9  | Motor unit tilt-movement                     | 24 | Joystick unit                            |
| 10 | Motor control unit                           | 25 | Power switch EPT                         |
| 11 | Cable feed-through EPT topside               | 26 | Power-on led joystick unit               |
| 12 | Cable output camera side                     | 27 | Joystick pan/tilt movement, speed switch |
| 13 | Camera plate                                 | 28 | Led indicator high speed setting         |
| 14 | Camera screw (3/8" and 1/4")                 | 29 | Led indicator low speed setting          |
| 15 | Camera height adjustment screw (Hex key 5mm) |    |  |

## Mounting the EPT unit to video-boom

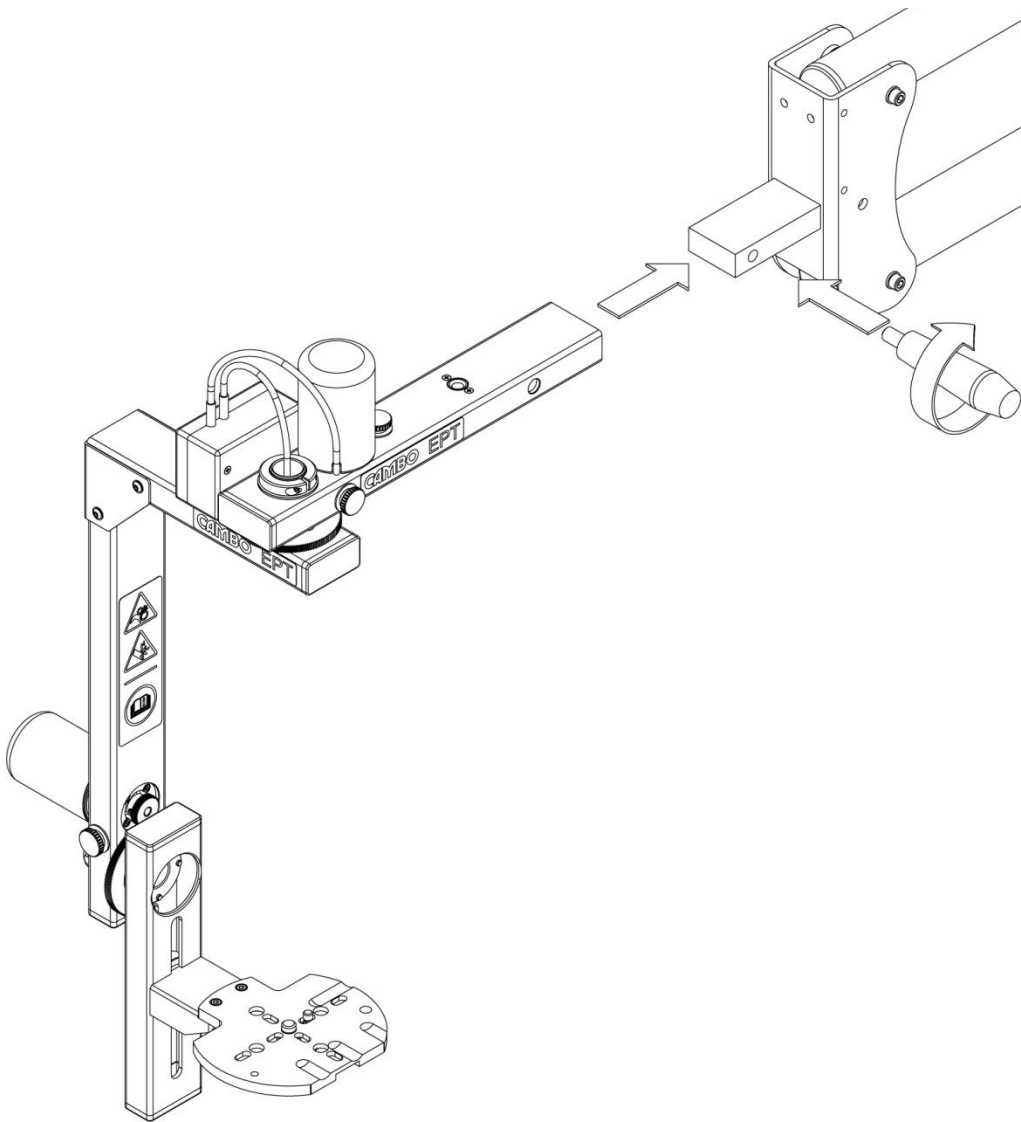


figure 3: EPT mount

The image above shows the EPT unit mounted to the Cambo ARTES video boom (using the MPT-12 adapter block).

The Cambo EPT unit can currently be mounted to either the following video-booms;

VIDEO-BOOM	ADAPTER NEEDED
Cambo V-15	No adapter needed
Cambo ARTES	MPT-12 adapter - 99134851
Cambo V-40	MPT-10 adapter - 99134850

*Note: the adapter to mount the Cambo MPT (manual pan tilt) is the same as for the Cambo EPT unit.*

## Mounting the EPT unit to a tripod

The EPT can also be mounted upside-down to a tripod using the tripod mount (20). When the EPT is used upside down the directions are mirrored, you can use the switches (19) and (20) to change the direction as desired.

## Mounting and balancing the camera

Camera's up to 5 kg (11 lbs) can be used with the EPT head. It is advised to use a sliding quick release plate for mounting the camera to the EPT head.

It is important that the camera is balanced correctly for an optimal pan and tilt movement.

The camera is balanced correctly when the **centre of mass** of the camera, lens, adapter and camera plate (13 fig.1) is in the axis of the tilt movement.

To **balance** the camera:

1. decouple the gears by loosening the two knobs (5) and (6)
2. slide the motor unit (9) upwards
3. when the gears are decoupled please lock either knob (5) or (6)
4. now the tilt movement can swivel freely around its axis, move the camera to the front or back until the camera is stationary (when doesn't tilt forward or backwards)
5. to align the centre of mass in the vertical direction please unlock hex bolt (15 fig.1), using a metric hex key 5mm
6. when the camera is balanced correctly please slide back the motor unit to couple the gears, **then slightly tighten knob (5) and (6)**

*Note: the pan and tilt motor unit is separated from the frame using a silicone rubber seal to reduce the vibration.*

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**IT IS IMPORTANT NOT TO OVERTIGHTEN THE KNOB (5) AND (6)** THIS WILL INCREASE THE VIBRATION LEVEL OF THE MOTOR UNIT.

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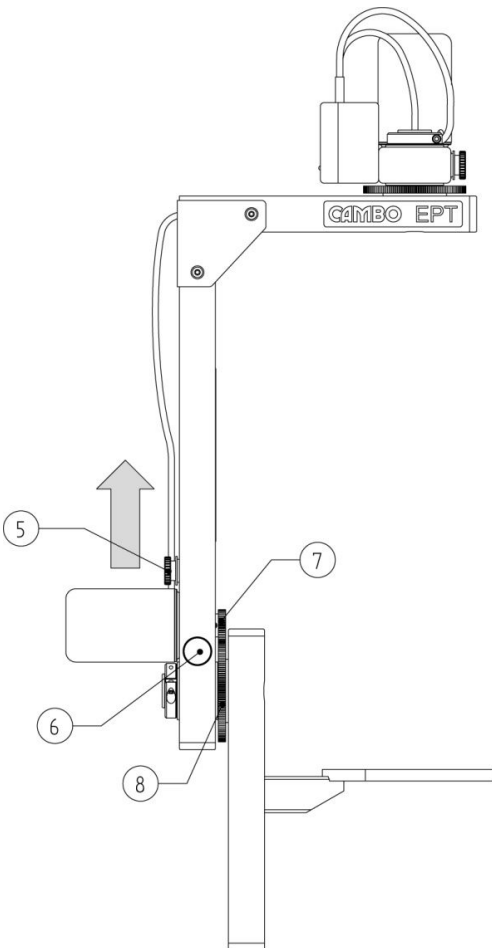


figure 4: decouple the gears

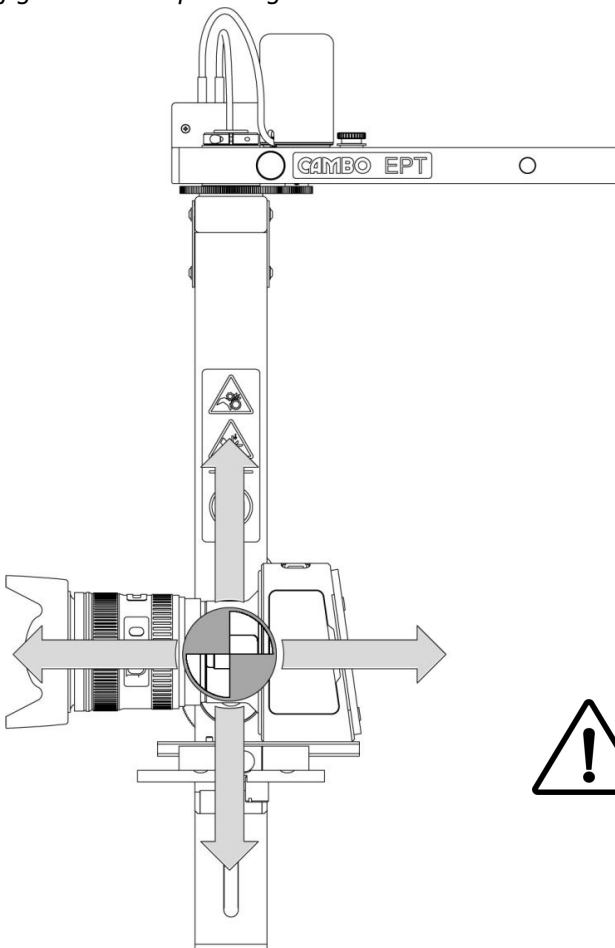


figure 5: balance the camera

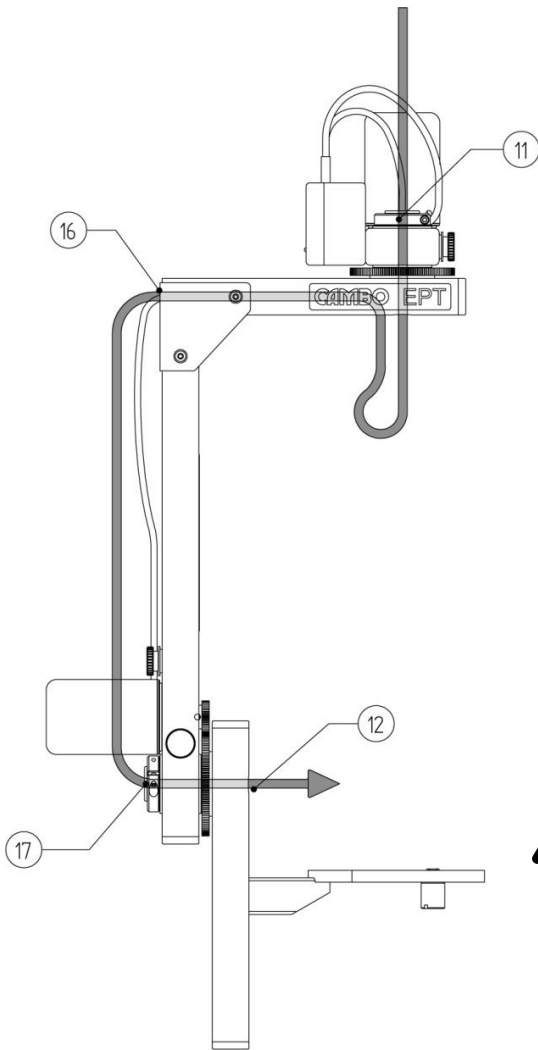


figure 6: feed-trough camera cables

## Feed-trough camera cables

To feed-through the signal or power cables to the camera please use the path shown in figure 6.

By feeding the cables through the axis of the pan and tilt movement the EPT head is capable of rotating freely up to 720 degrees around its axis without damaging the cables.

*Note: safe use without damaging the cables is guaranteed up to 720 degrees of continuous rotation in one direction.*

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Cambo is not responsible for damage done to the cables or camera that is caused by rotating (twisting) the head and cables more than 720 degrees.



**ALWAYS RETURN THE PAN AND TILT HEAD TO THE NEUTRAL POSITION (THE UNTWISTED CABLE POSITION) BEFORE USING EPT UNIT.**

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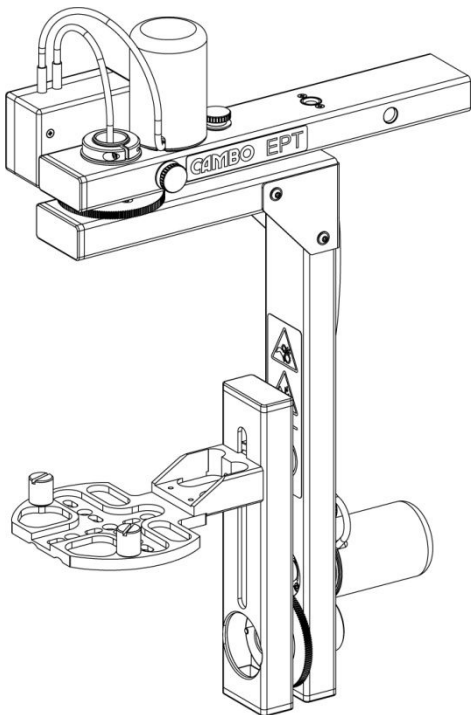


figure 7: compact transport configuration

## Transport configuration

There are two ways to prepare the EPT for transport;

### Option 1

- use the motor drive to rotate the pan and tilt unit to the position shown in figure 7

### Option 2

- unlock knob (5) and (6)
- slide back the motor unit to decouple the gears
- rotate the pan and tilt unit to the position shown in figure 7
- slightly lock knobs (5) and (6)

The remote control unit (24) is connected to the EPT head using a



## EPT signal and power cable

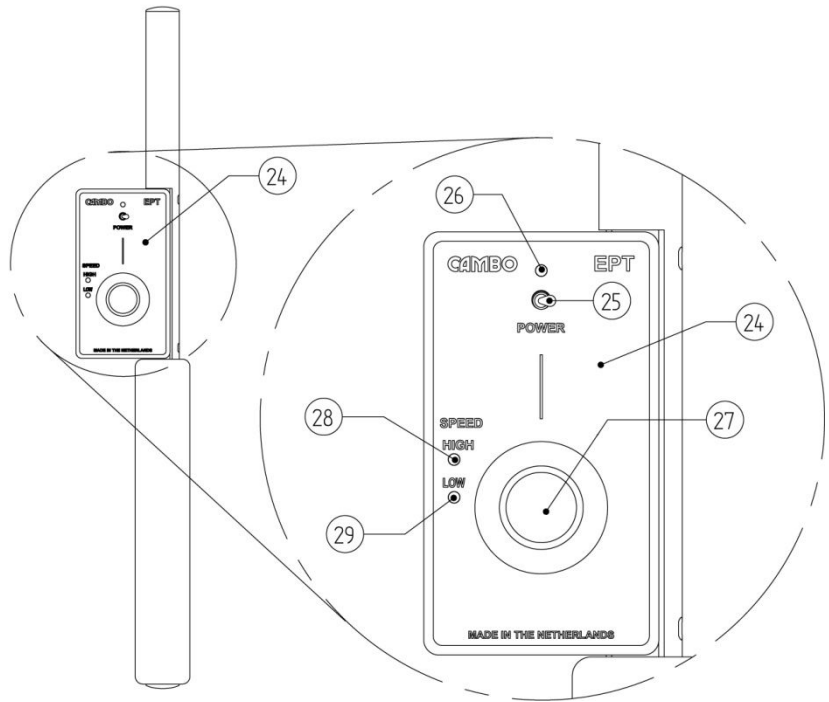


**Warning:** only connected the power/ signal cable to the *remote control (24)* or *motor control unit (10)* when the power is switched off (switch 25).

The remote control unit (24) is connected to the EPT head using a standard UPT cable (up to 10m). The cable is attached to the remote unit at connector (30 – fig 2.) and at the motor control box at connector (18 – fig 1.).

The EPT can be power by an 12V adapter or a 12-14.8V battery'

*Note: correct operation of the EPT is only guaranteed when using the supplied power adapter (12V/2A/24W).*



*figure 8: EPT remote control unit*

## Remote control unit

To turn on or off the EPT head please use switch (25).

To switch between the two speed setting please press the thumb-stick (27). The LED indicators (28) and (29) indicate the different speed setting.

## Changing the remote control unit from right to left handed

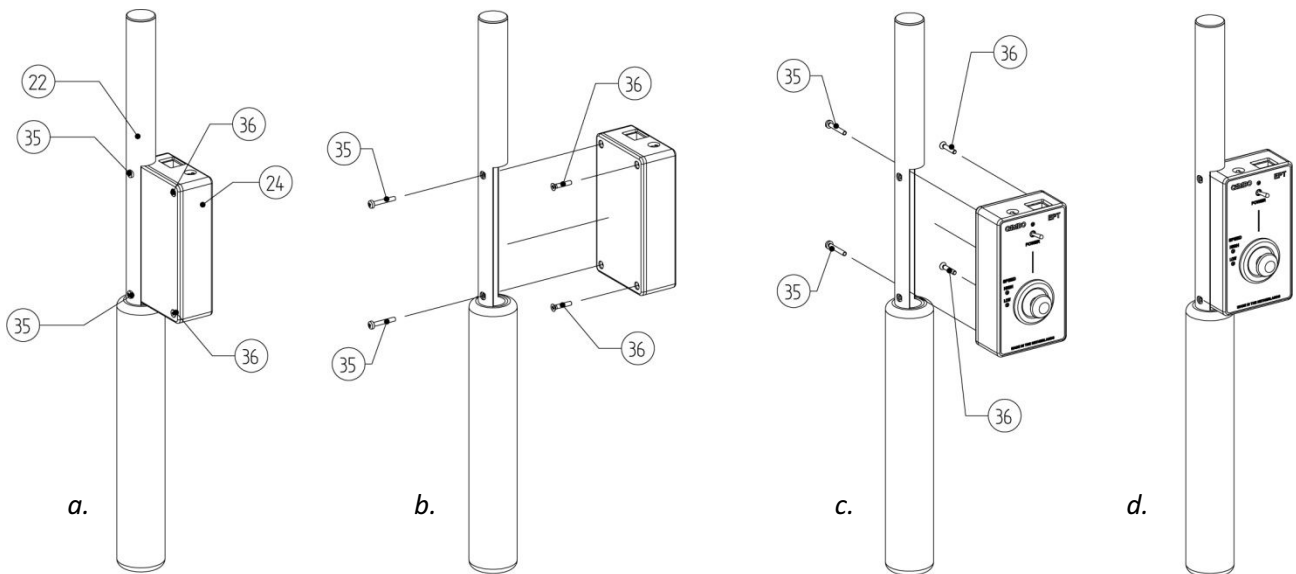


figure 9: Change orientation of the EPT remote control unit

22 Cambo control frame mount

24 Joystick unit

25 Power switch EPT

26 Power-on led joystick unit

27 Joystick pan/tilt movement, speed switch

28 Led indicator high speed setting

29 Led indicator low speed setting

35 Screw cross raised head M3x20

36 Screw cross countersunk M3x16

The control unit (24) can be assembled for right and left handed use. The default (factory) configuration is set for right handed use. To change between these configurations please note figure 9;

1. To disassemble the remote control unit from the handle bar, please unscrew the two screws indicated by number (35) using a PH1 (Phillips) screwdriver (figure 9b.).
2. The two screws indicated by number (36) must be changed to the two holes where the screws (35) used to be. Before unscrewing (36) please hold down the back-cover of the control unit, so it can't fall off. Now unscrew (36) and place them in the holes where (35) used to be and tighten both (36) screws.
3. Now you can place the control unit onto the handle bar, as indicated in figure 9c., and place and tighten screws (35).

To change back the configuration please reverse the procedure described above.

## Specifications Cambo EPT unit

- Load Capacity: 5 kg (11 lbs)
- Head Unit weight: 3 kg (6,5 lbs)
- Head Dimensions: 44x31x13cm (17x12x5")
- Durable brushless motors
- Two speed settings
- Electronics are optimized for fluid start and stop of the pan/tilt movement
- Black anodised aluminium
- Standard UTP for communication and power cable
- Power requirement 12 -14,8 V DC
- Supplied power adapter VAC 12V, 2A, 24W, input voltage VAC 80-264V
- Mount options for ARTES, V15 and V40 cranes
- Tripod (3/8") mount option