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TDrive

BY TRIPLE E



A SIMPLE & STRAIGHTFORWARD SOLUTION FOR BIG STAGES



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TRIPLE E TDrive SYSTEM

1 TDrive – Overview

The TDrive motor is designed to fit the UniTrack, UniBeam and Erail tracks for both straight and curved system layouts and is intended as a quick plug and play installation. The motor and the control system are incorporated into one compact unit that can attach directly beneath the different tracks.

The TDrive is intended for curtains with a:

- Maximum curtain weight: 300kg on straight track, 200kg on curved track
- Maximum linear speed: 0.70m/s

Installation is very simple; there is one Neutrik type power connector, a motor reverse switch and XLR connections for the following functions:

- 1 x 6 pin XLR for variable speed pendant (standard pendant)
- 1 x 4 pin XLR for additional pendant (either wired or wireless)
- 2 x 3 pin XLR for track mounted limits

The motor reverse switch corrects the curtain direction in relation to the control buttons. A standard control pendant has open, close and stop functions and includes an XLR connector for adding an optional second pendant for use either on stage or in a control room. The remote pendant also incorporates speed control as standard. A wireless remote controller can be purchased as an additional option. This can simply be added to the unit by using one of the XLR sockets.

The TDrive uses a 0.4KW, 50 Hz motor and requires a 230V, 13Amp, 50Hz single phase supply.



2 TDrive – in Detail

The TDrive is intended for large curtains in all environments. There are numerous curtain effects possible with both the UniTrack and UniBeam tracks which includes rearfold and side cording systems. The image below shows the overall dimensions and weight of the TDrive unit.

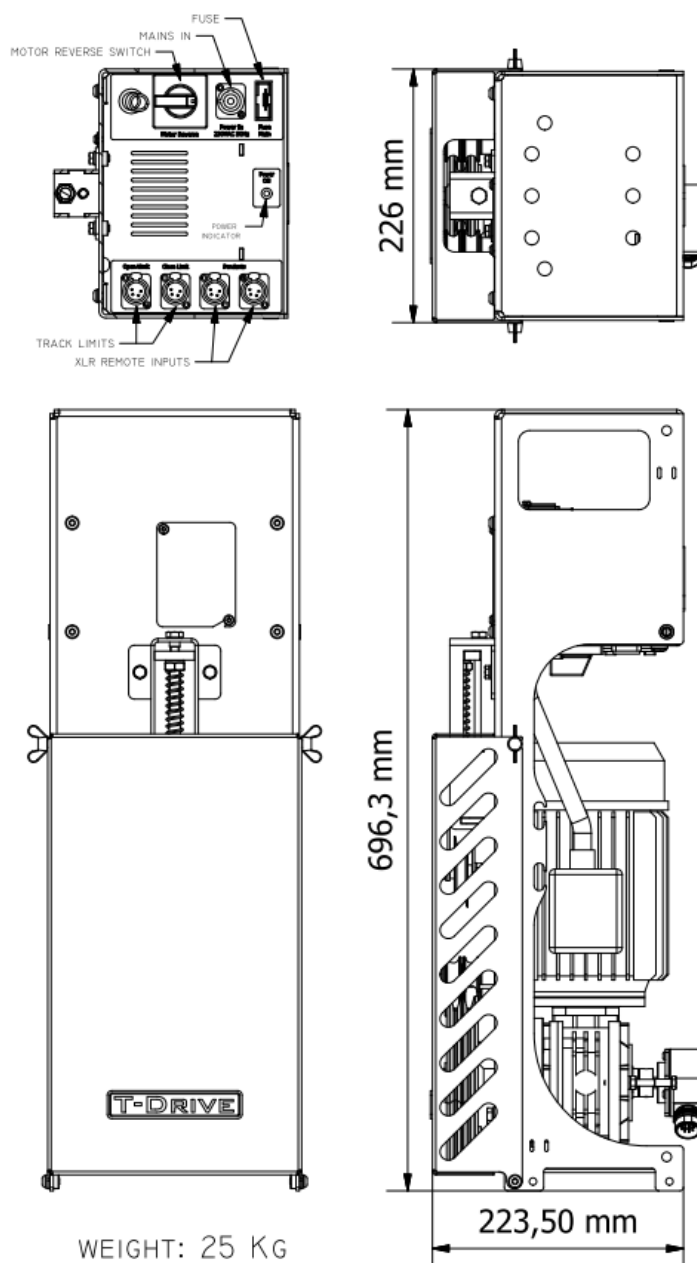


Figure 1: TDrive Overall Dimensions



2.1 Installation of the TDrive Unit

The TDrive is designed as a bolt-on extra and provides a simple solution to the problem of where a track motor drive unit can be located. It can be either easily mounted directly beneath a track system or to a wall using additional brackets.

2.1.1 Track Mounting on Erail

Figure 2 shows the TDrive attached to an Erail track system of which the Erail head pulley can be used for both straight and curved track layouts. It is important to support the motor unit with an M12 stud (as shown in figure 2) as the motor unit weight of 25kg cannot be solely suspended by the Erail track.

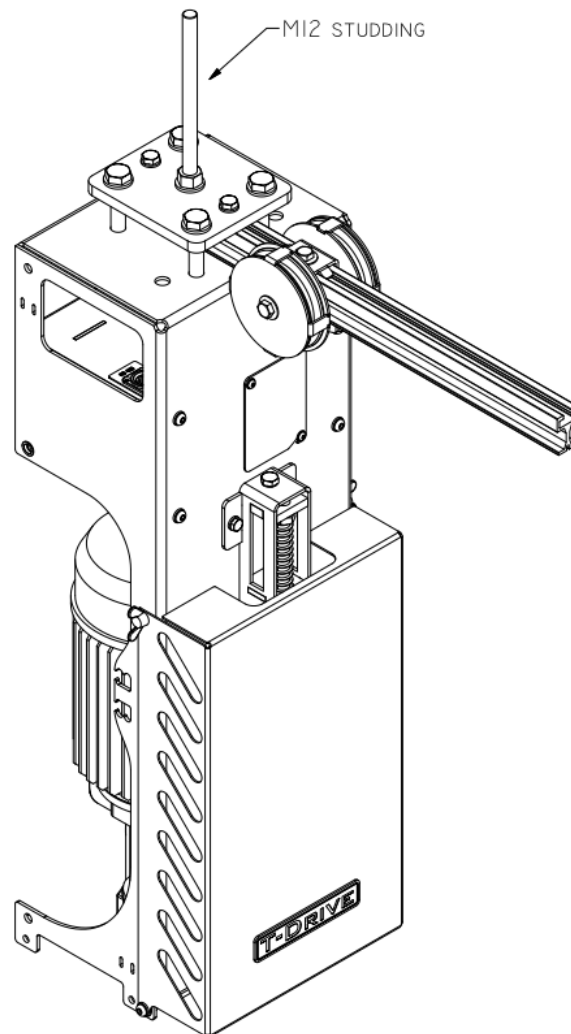


Figure 2: Triple E Erail track system mounted directly to a TDrive motor unit utilising the supplied adapter bracket.



2.1.2 Track Mounting on UniTrack and UniBeam

All available cording options, i.e. straight (single and overlap), curved and side cording options can be motorised using the TDrive. Details for which are shown in the figure below.

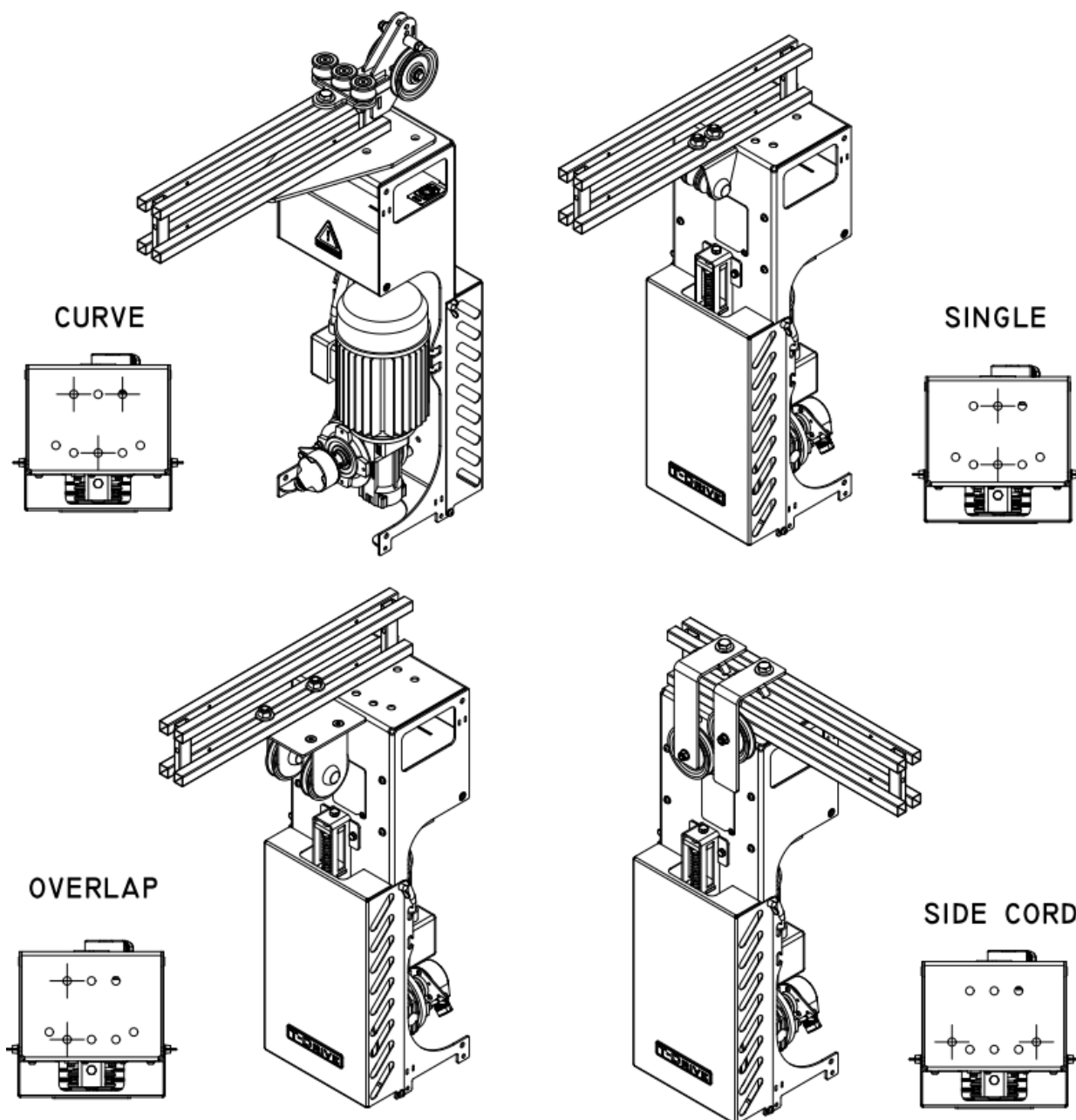


Figure 3: Different UniBeam/UniTrack mounting options depending on desired track configuration.



2.1.3 Wall Mounting

The TDrive unit can be supplied with a set of brackets and Unistrut sections allowing the motor housing to be directly attached to a wall as shown in figure 4. Two 1.2m long Unistrut channels in conjunction with the supplied wall brackets allow for vertical adjustment and simplifies the cord tensioning process by simply sliding the whole motor unit vertically up or down the Unistrut.

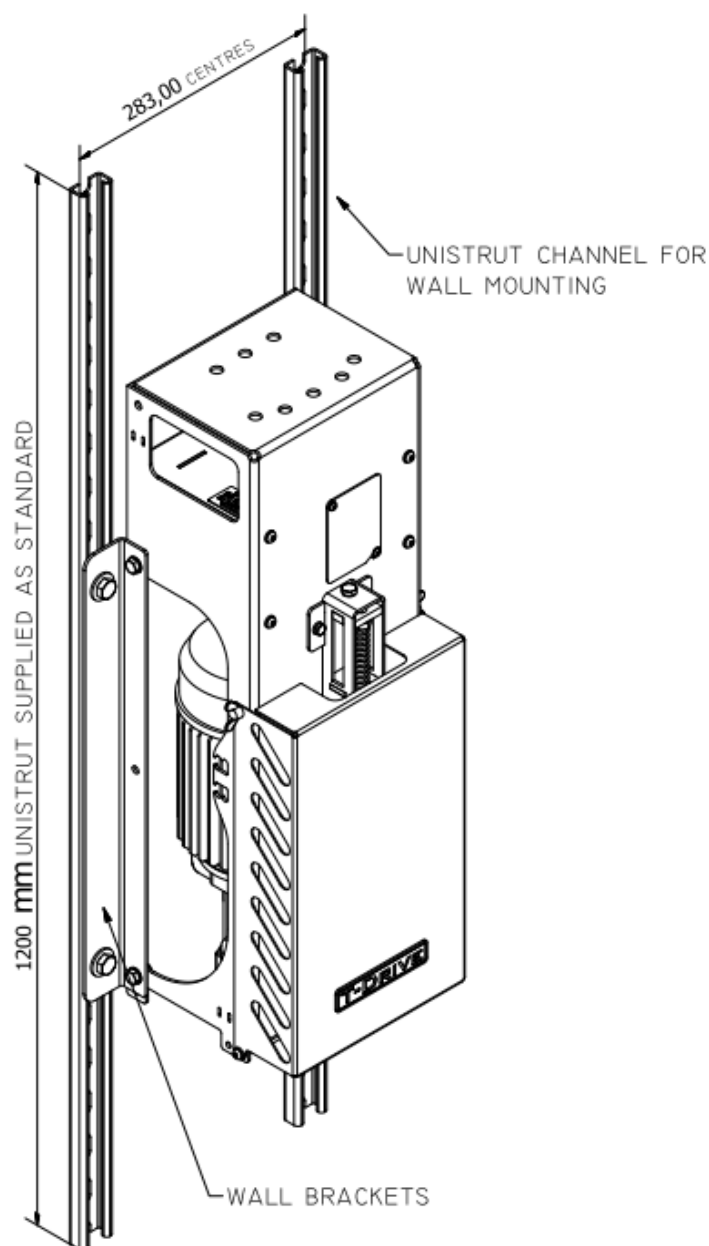


Figure 4: TDrive Wall Mount



2.2 Installation & Maintenance

The TDrive unit is a maintenance free system but periodic checks should be made to ensure all components are still working safely. It may also be necessary to re-tension the drive cord as it could stretch when being exposed to continuous high tensile loads. The TDrive is fitted with a spring tensioning system to compensate for the elasticity of the cord. The drive cord may also need replacing depending on how often the system is used and what loads are applied. Periodic checks of the drive cord is also advised.

2.2.1 Mechanical Installation

Figure 5 shows the cording method for the TDrive unit. The rope tensioner spring must be compressed during the cording process but remain only partially compressed afterwards. This helps to compensate for any rope stretch. The TDrive is also equipped with a free spinning pulley which aids in the cording process. The pulley can be "released" from the motor by removing the 3 shoulder bolts shown in figure 5. This allows the pulley to freely rotate but still remain part of the motor assembly during the cording process.

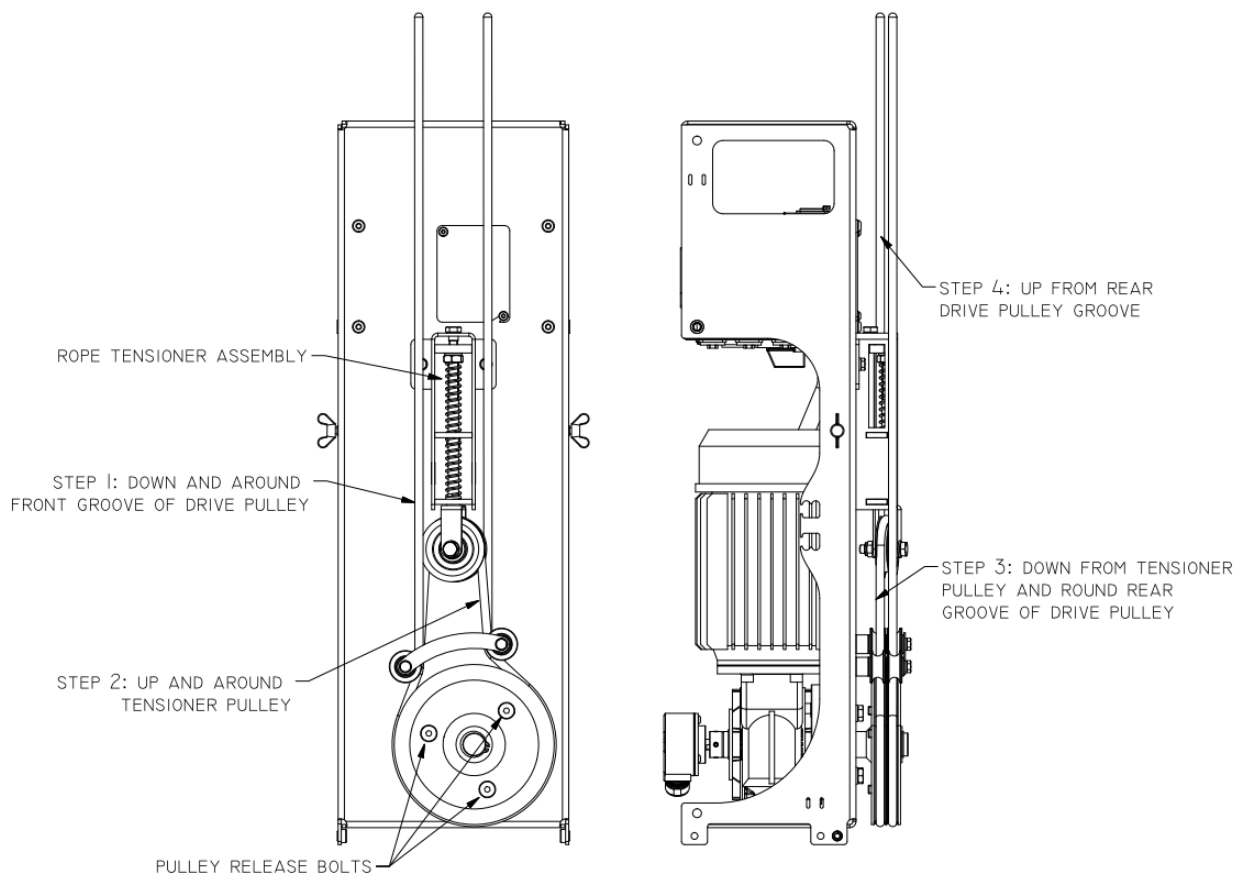


Figure 5: Cording Method TDrive



The following instructions act a simplified cording guide:

- Undo wing bolts of pulley cover and fold it down so you can access the drive mechanism
- Compress the tensioner spring. This can be done by turning the top tensioner bolt using a 13mm ratchet/spanner.
- Loosen off the rope clamp on master runner
- Now you can pull the slack rope through the master runner rope clamp¹
- Repeat this step until sufficient tension in the rope is achieved.
- Ensure to lock off the rope clamp and loosen the tensioner bolt before fitting the pulley covers again

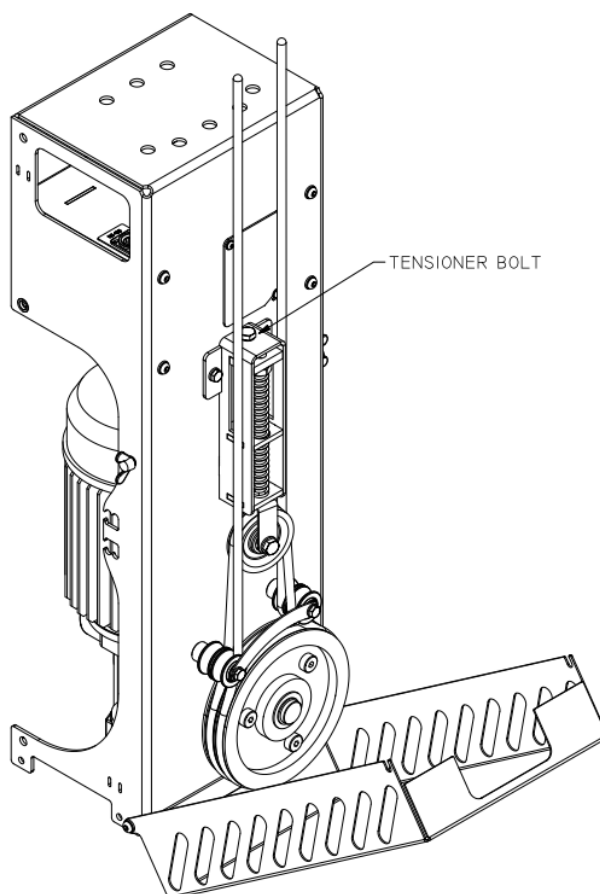


Figure 6: Re-Tensioning of Cord

¹ This operation might need a second person to assist



2.2.2 TDrive Unit Orientation

The TDrive motor unit is designed to be mounted in a vertical orientation only. Please ensure to contact Triple E should it be required to mount the motor assembly in a horizontal position.

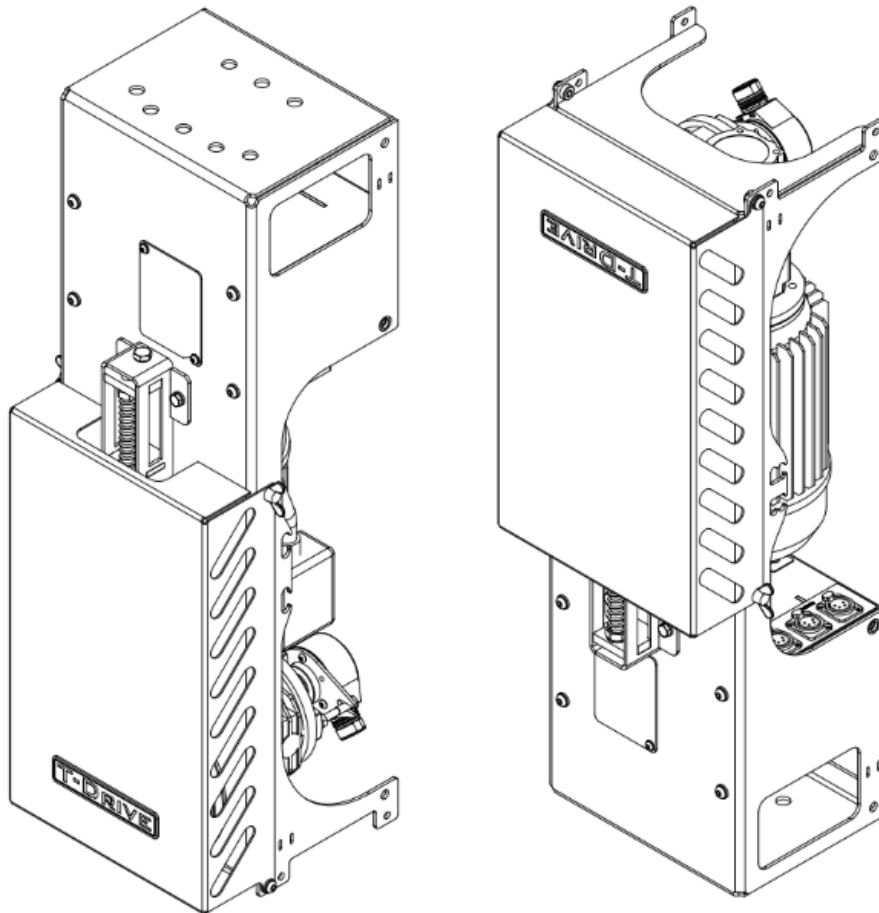


Figure 7: Vertical orientation of the TDrive motor assembly. The unit can be mounted in either vertical direction i.e. control box facing up or down.



2.2.3 Track Mounted Limits: Set Up

The TDrive unit can be used to motorise curtains as well as scenery. This results in a variety of mounting options for the direct struck limits. A motorised track system has to be fitted with two limit switches, one for the open and one for the close direction. **Correct installation of the limit switches is very important as they ensure that the stopping points for the curtains/scenery are set and that the motor stops accordingly.** Correct placement on the track will ensure the curtain will stop in a fully open or closed position. The operating speed of the curtain/scenery and the ramp down speed of the motor must also be taken in consideration when placing the limits. The following example shows a typical installation scenario:

Example: The ramp down speed is set at 0.5 seconds using the drive inverter. This means that after the limit is struck by the master carrier the motor will take 0.5 seconds to achieve a complete stop. The operating speed of the motor (set by the user) will therefore also determine the distance covered by the master carrier after it reaches/strikes the limit. In practice a faster operating speed usually means the master carrier will cover a greater distance before coming to a complete stop. Other factors including curtain weight, type of master carrier ordered and correct tensioning of the system can also influence the stopping distance. It is highly advised that this distance be carefully established by the installer and/or user.

NOTE: It is important that this final stop position is reached without hitting any obstructions such as the track endstops as it could damage the motor or gearbox.

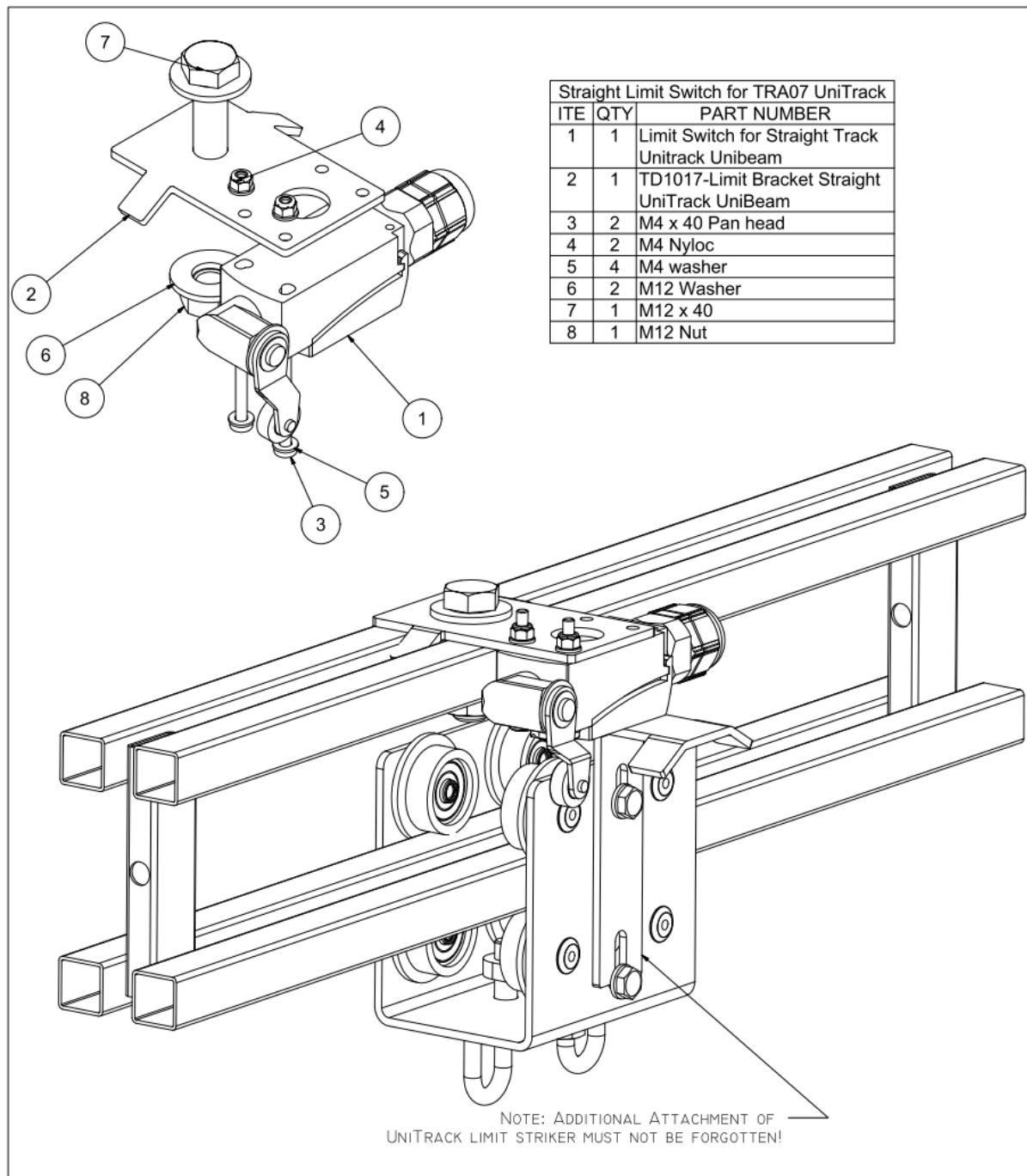


Figure 8: Straight Track Limit set up for UniTrack and UniBeam

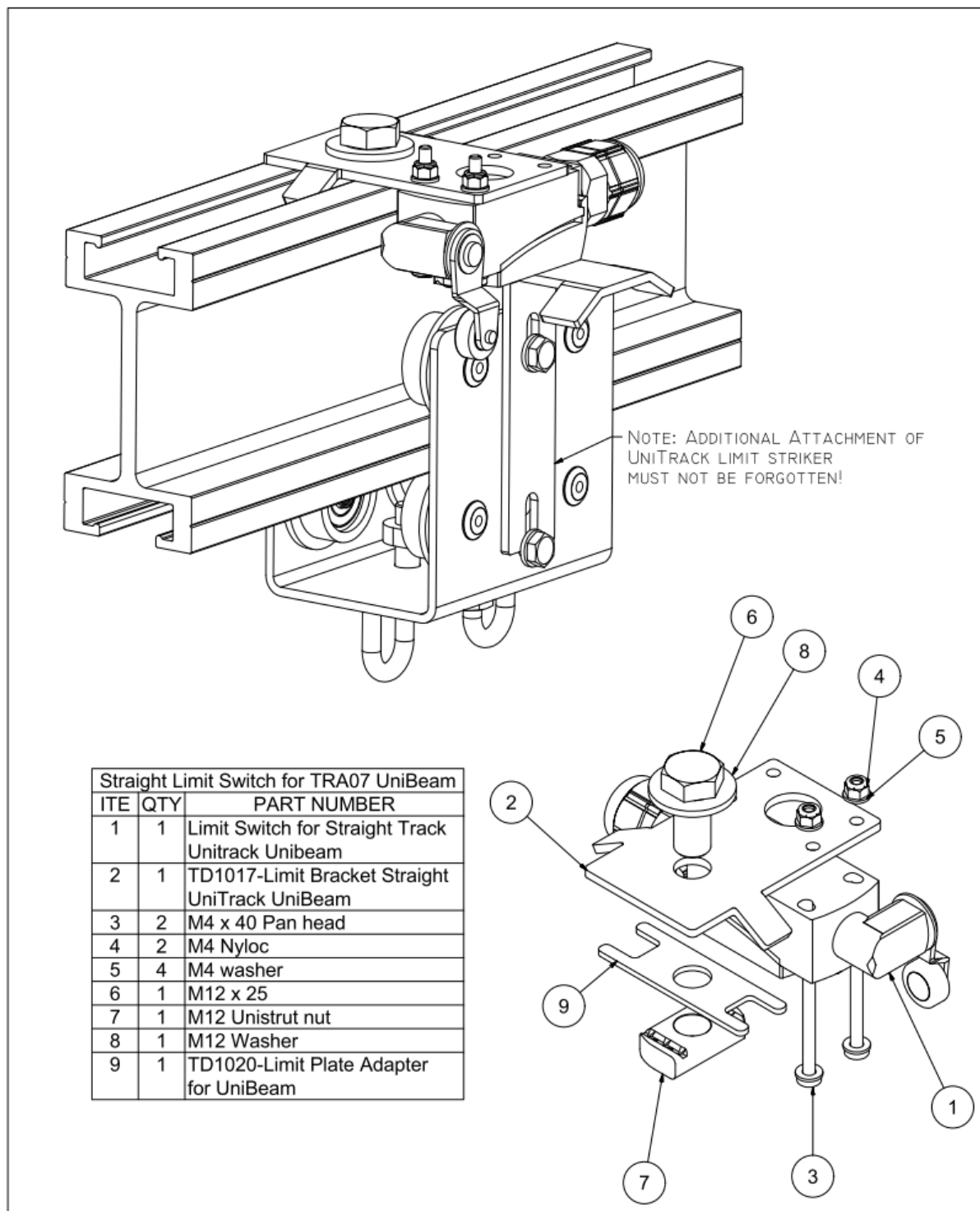


Figure 9: Straight Track Limit set up for TRA07 on UniBeam

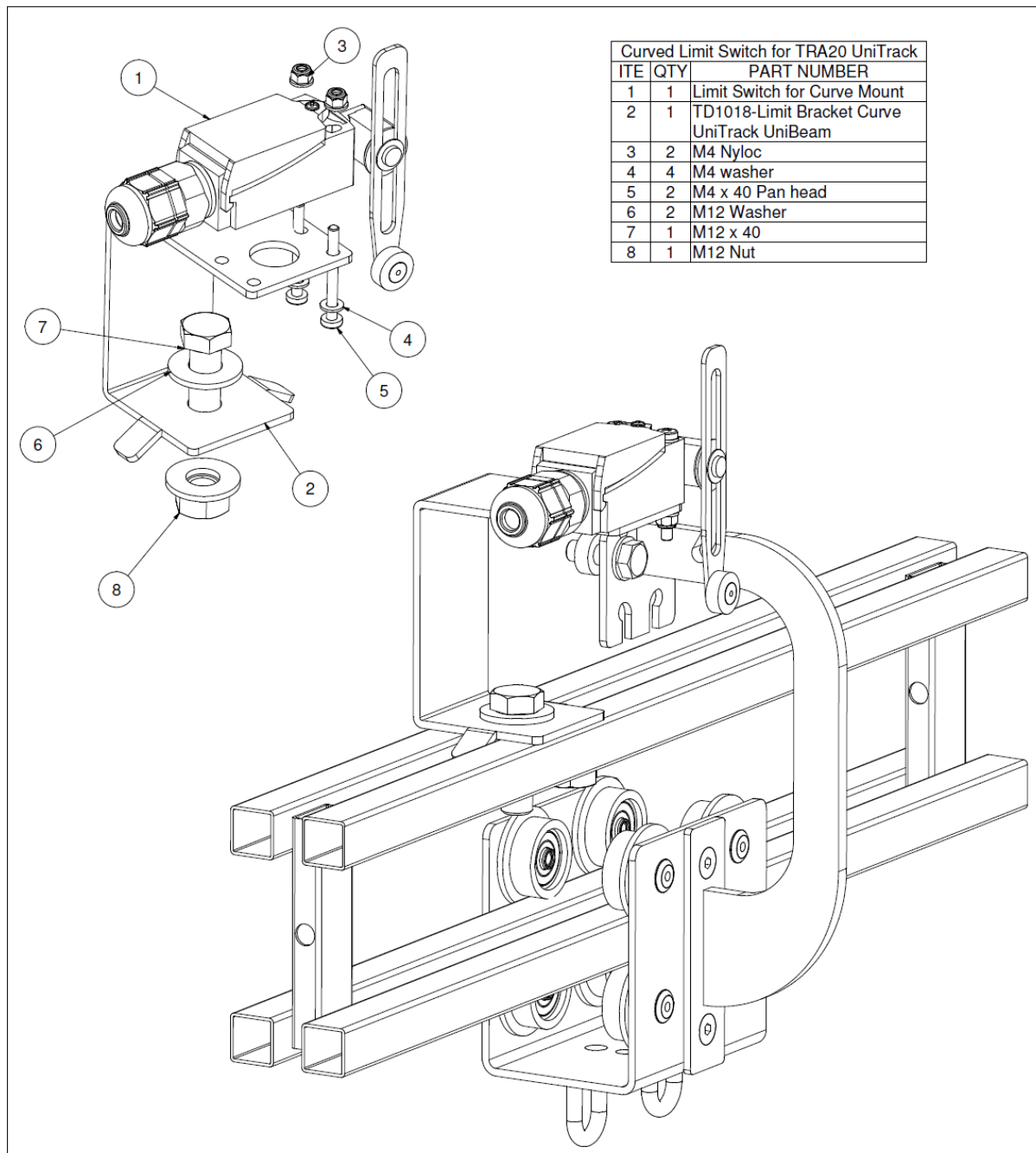


Figure 10: Curved Track Limit set up for TRA20 on UniTrack with adjustable limit switch arm

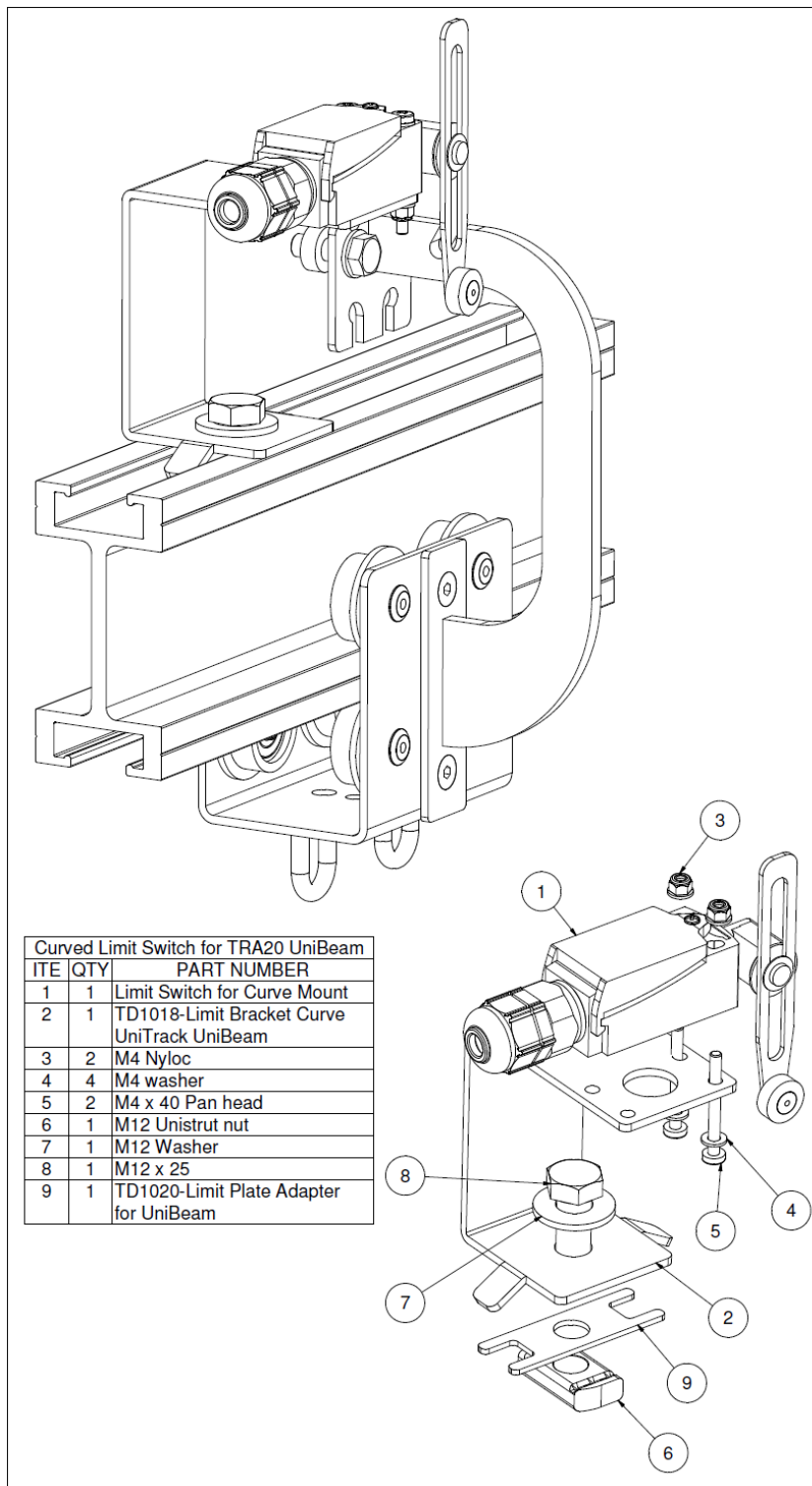


Figure 71: Curved Track Limit set up for TRA20 on UniBeam with adjustable limit switch arm

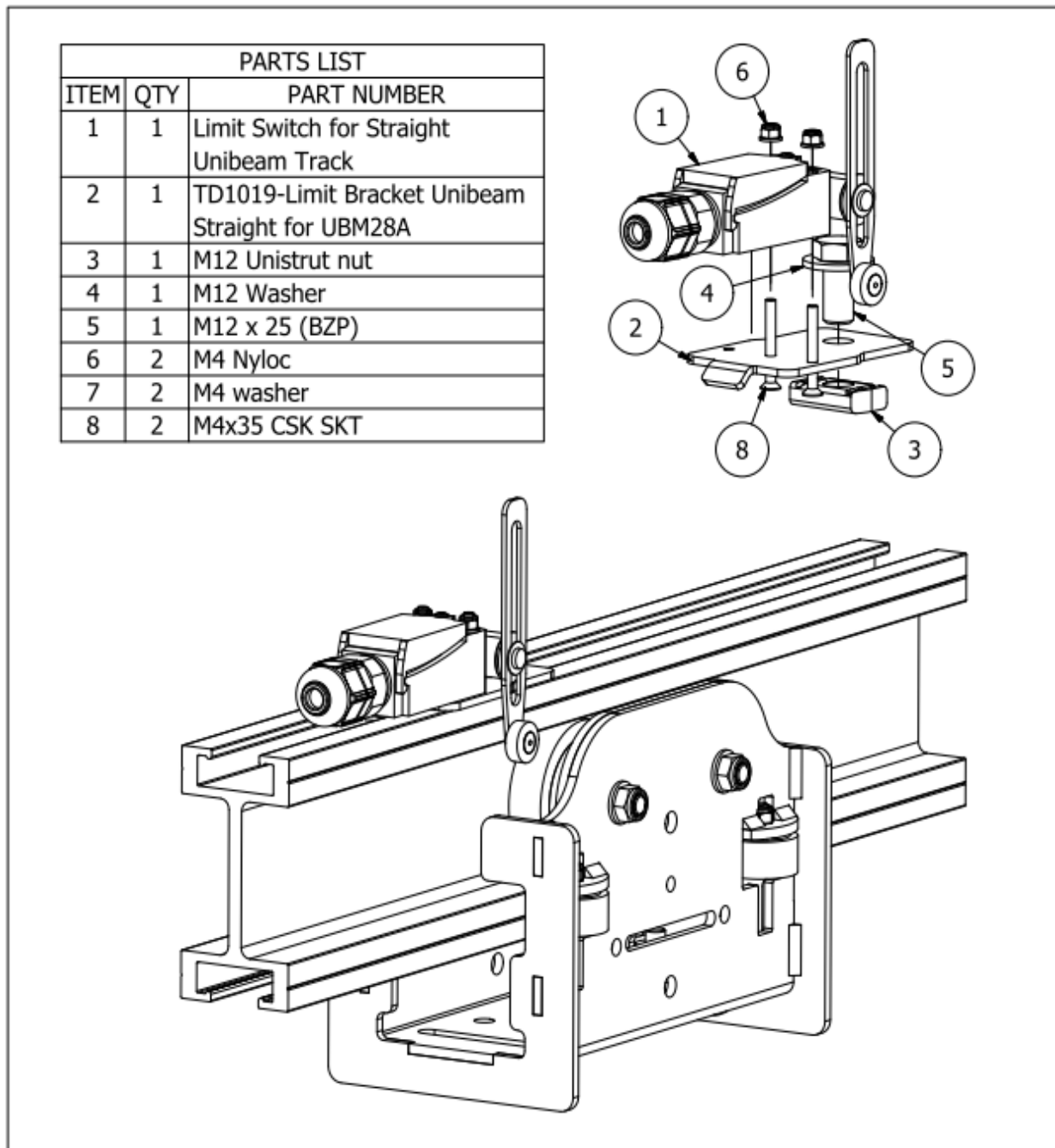


Figure 12: Track Limit set up for UBM28A HD on UniBeam with adjustable limit switch arm

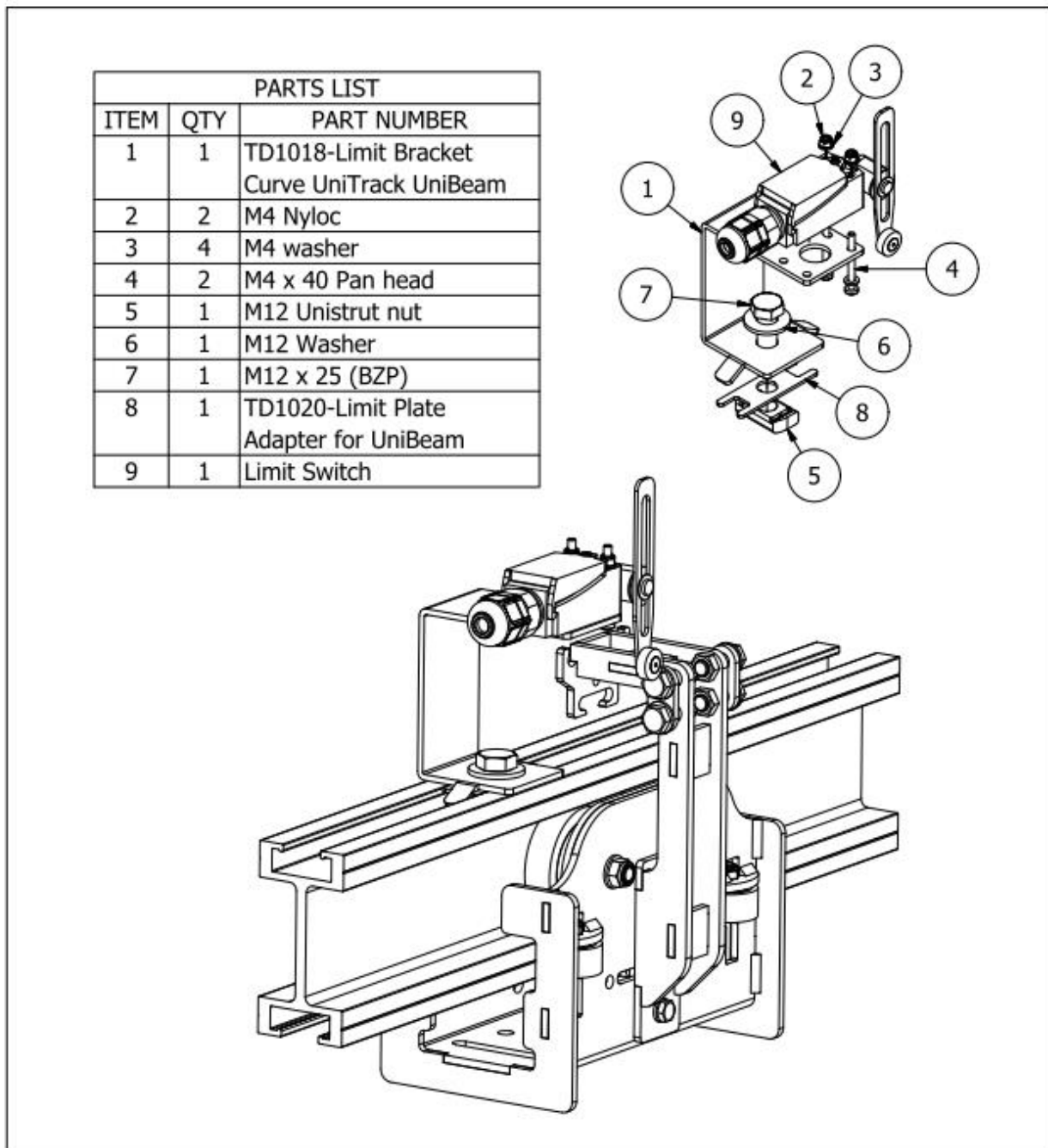


Figure 13: Curved track Limit set up for UBM28A HD on UniBeam with adjustable limit switch arm

2.2.4 Electrical Installation

The supply circuit for the TDrive control requires a motor rated circuit breaker and/or RCBO. The supplied power lead simply needs to be connected to mains (230 VAC, 50Hz) and the track mounted limits need to be plugged into the correct XLR sockets. The pendant can then be connected to one of the pendant sockets.

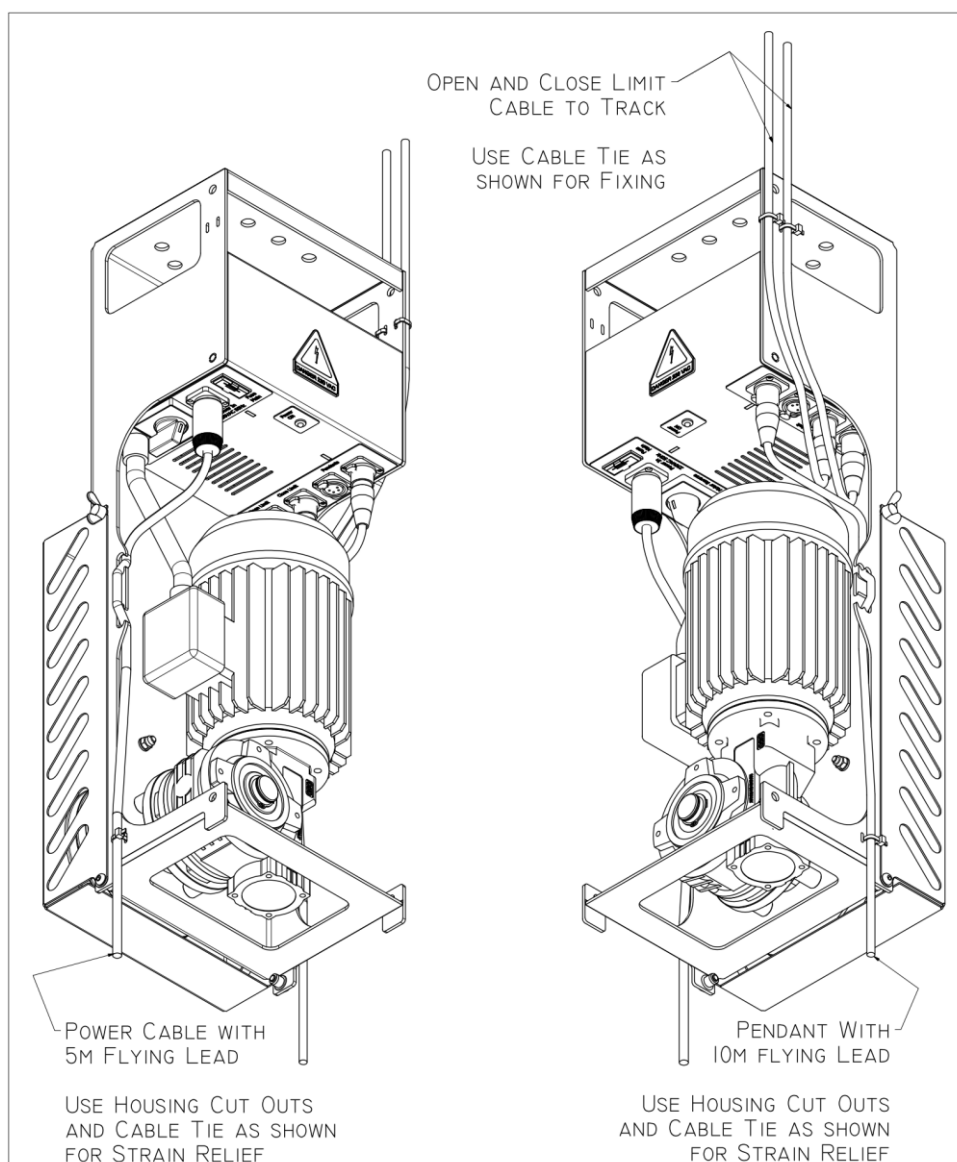


Figure 14: Electrical Installation of a TDrive. Make sure that the strain relief precautions are met to avoid cables pulling out of the connectors.



2.2.5 Pendant Control Options

The TDrive is supplied as standard with a three push button pendant including a speed control switch. The operation options can be extended by choosing either one of the optional wired pendants (see below) plus an optional wireless remote control which can be added to any wired pendant. All wired pendants are supplied with a 10m lead.

Please note: The standard pendant must always remain connected to the motor unit!

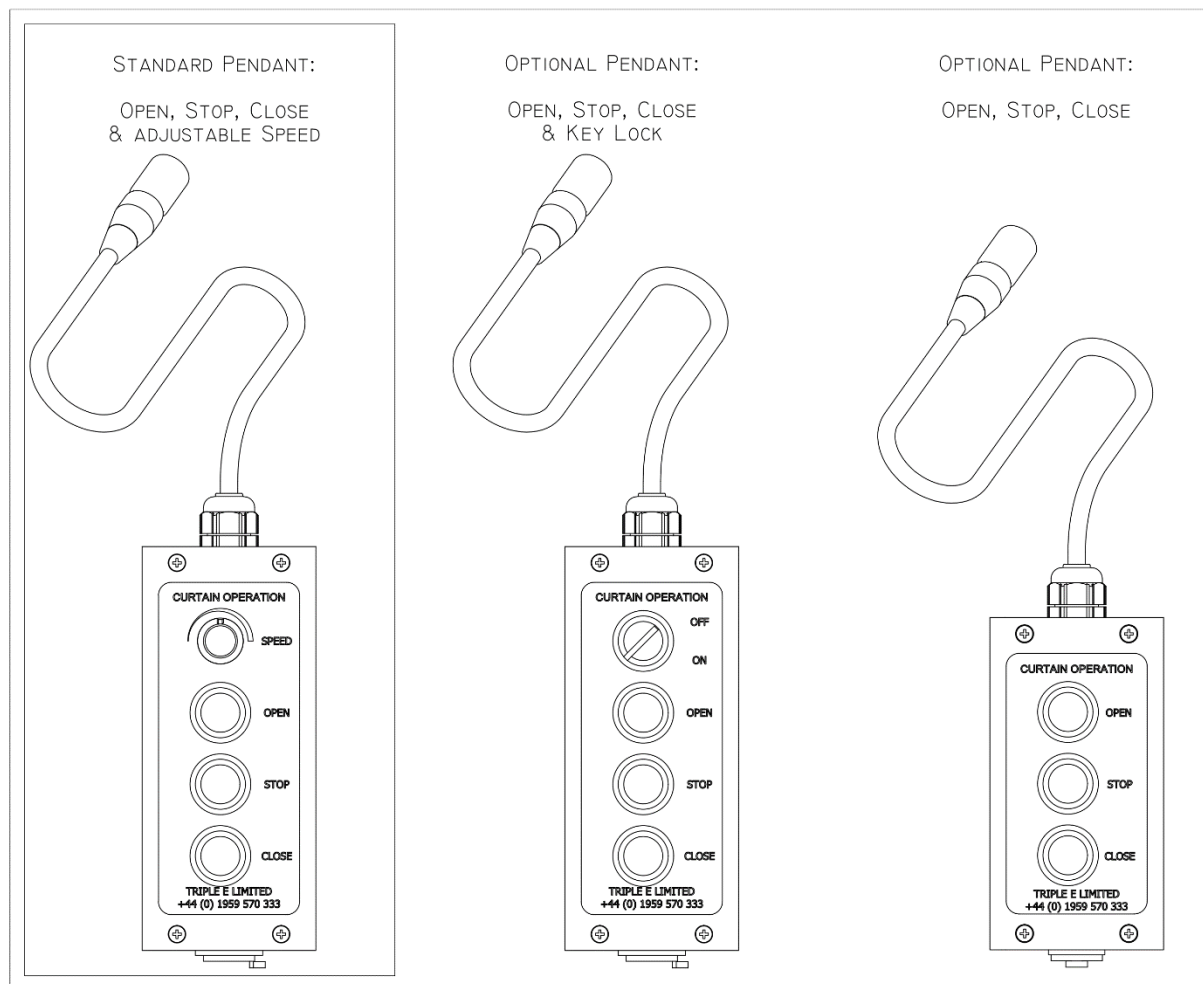


Figure 85: Available Control Options. Three push button plus speed control as standard, optional with key lock or as open-stop-close version only. All pendants come with a 10m lead.



2.2.6 Multiple Motor Control

Our touchscreen 'MARVIN' unit is the ideal solution if you aim to control multiple motors from one user interface. It allows you to connect multiple curtain drives in series via the RS 485 socket. The MARVIN interface allows the user to use typical pendant functions such as open, stop, close and speed adjustment. For specific details and pricing for your application please don't hesitate to contact us.

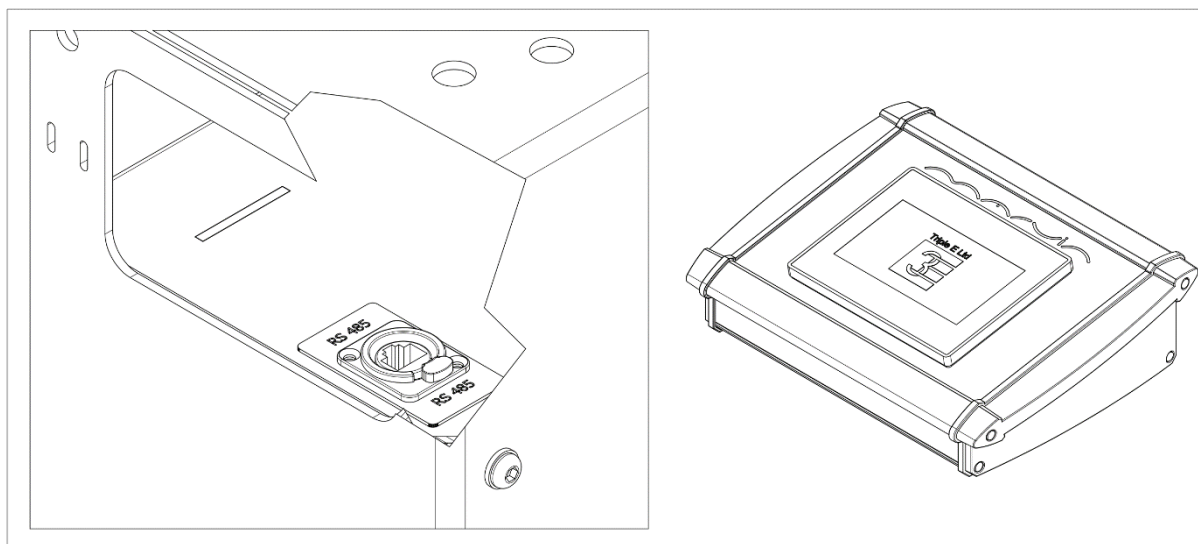


Figure 96: Multiple Motor Control via 'MARVIN' user interface. Control a RS485 network of multiple curtain drives via one simple touchscreen.