T-Drive from Triple E

Simple & Straightforward Solution for Big Stages

Updated 2024

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TRIPLE E
T-DRIVE SYSTEM

1. T-Drive – Overview

The T-DRIVE motor is designed to fit the Unitrack and Unibeam systems for straight and curved track layouts. It is intended as a quick plug in and play system. The motor and the control system are incorporated into one compact unit that can attach directly beneath the track.

The T-DRIVE is intended for curtains with a:

- Maximum curtain weight: 660 lbs on straight track, 440 lbs on curved track
- Maximum linear speed: 3.3 ft/sec

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

- 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.

The standard control pendant has open, close and stop functions and includes a standard XLR connector for adding an optional second pendant for use either on stage or in a control room. The remote pendant incorporates speed control as standard. There is also the option of attaching our wireless remote controller to the XLR socket.

The T-DRIVE uses a 0.5 hp, 60 Hz motor and requires a 120V, 13Amp, 60 Hz single phase supply.

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2. T-Drive – in Detail

The T-DRIVE is intended for large curtains in all environments. There are numerous curtain effects possible with Unitrack and Unibeam including rearfold and side cording. Please see image below for its overall dimensions and weight.

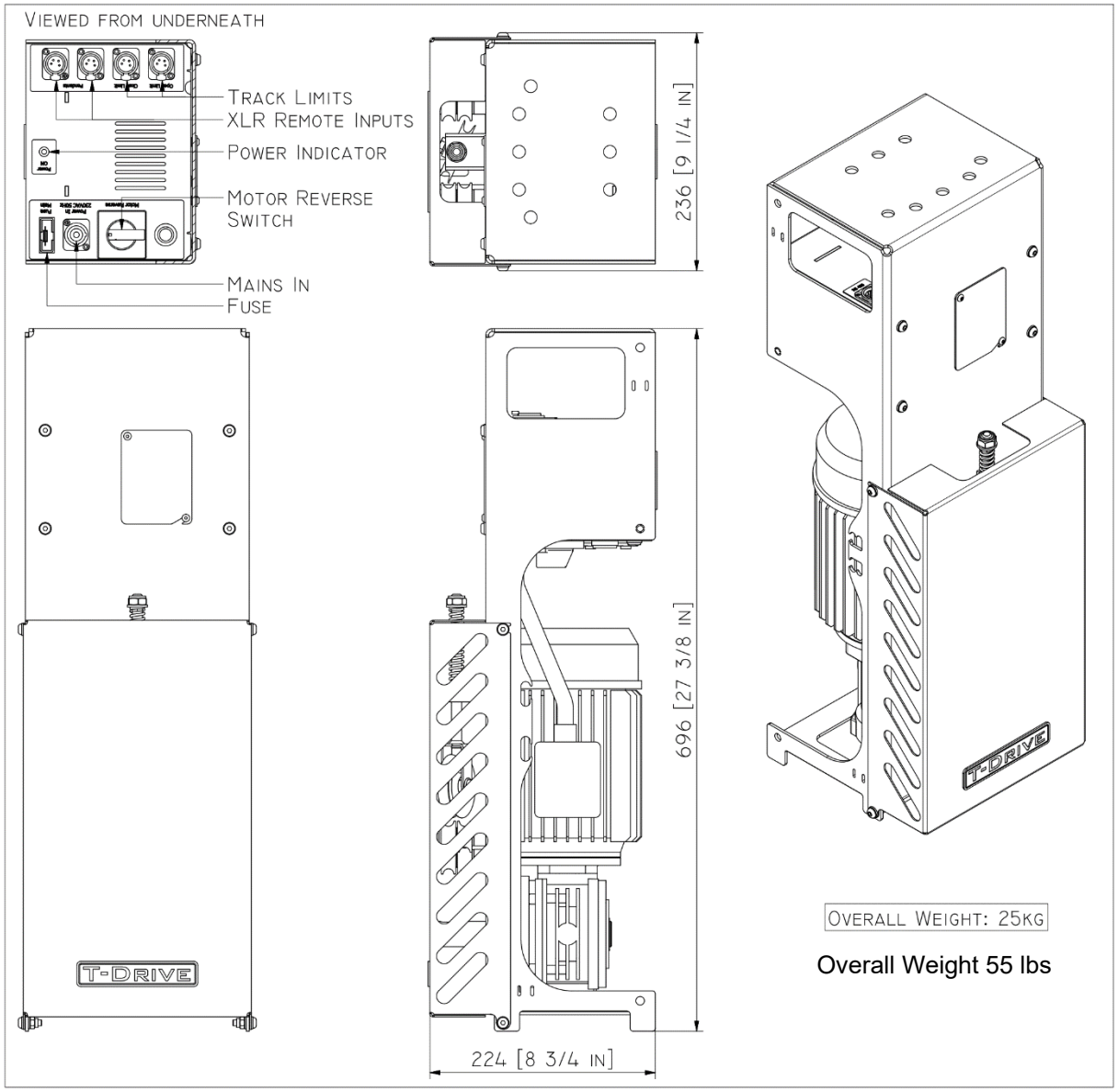

Figure 1: T-Drive Overall Dimensions

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2.1. Installation of T-Drive Unit

The T-DRIVE motor system has been designed to be a bolt-on extra and provides a simple solution to the problem of where to locate the track motor drive unit. The T-Drive can mount directly beneath a track system or can be wall mounted with additional brackets.

2.1.1. Track Mounting on E-Rail

The following picture (Figure 2) shows how the T-Drive sits on an E-Rail system. The E-Rail head pulley works for straight and curved track layouts. It is important to support the motor unit with a M12 stud as shown right above the motor as it weight of 55 lbs cannot be suspended by the track on its own.

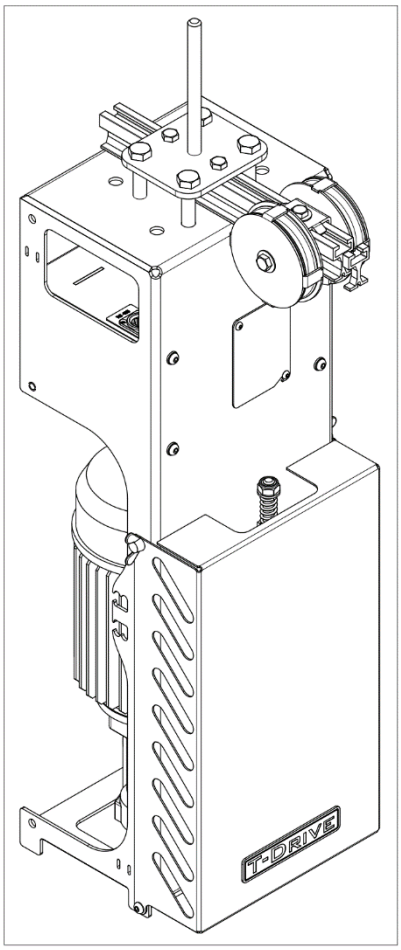

Figure 2: T-Drive Track Mount on E-Rail

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2.1.2. Track Mounting on UniTrack and UniBeam

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

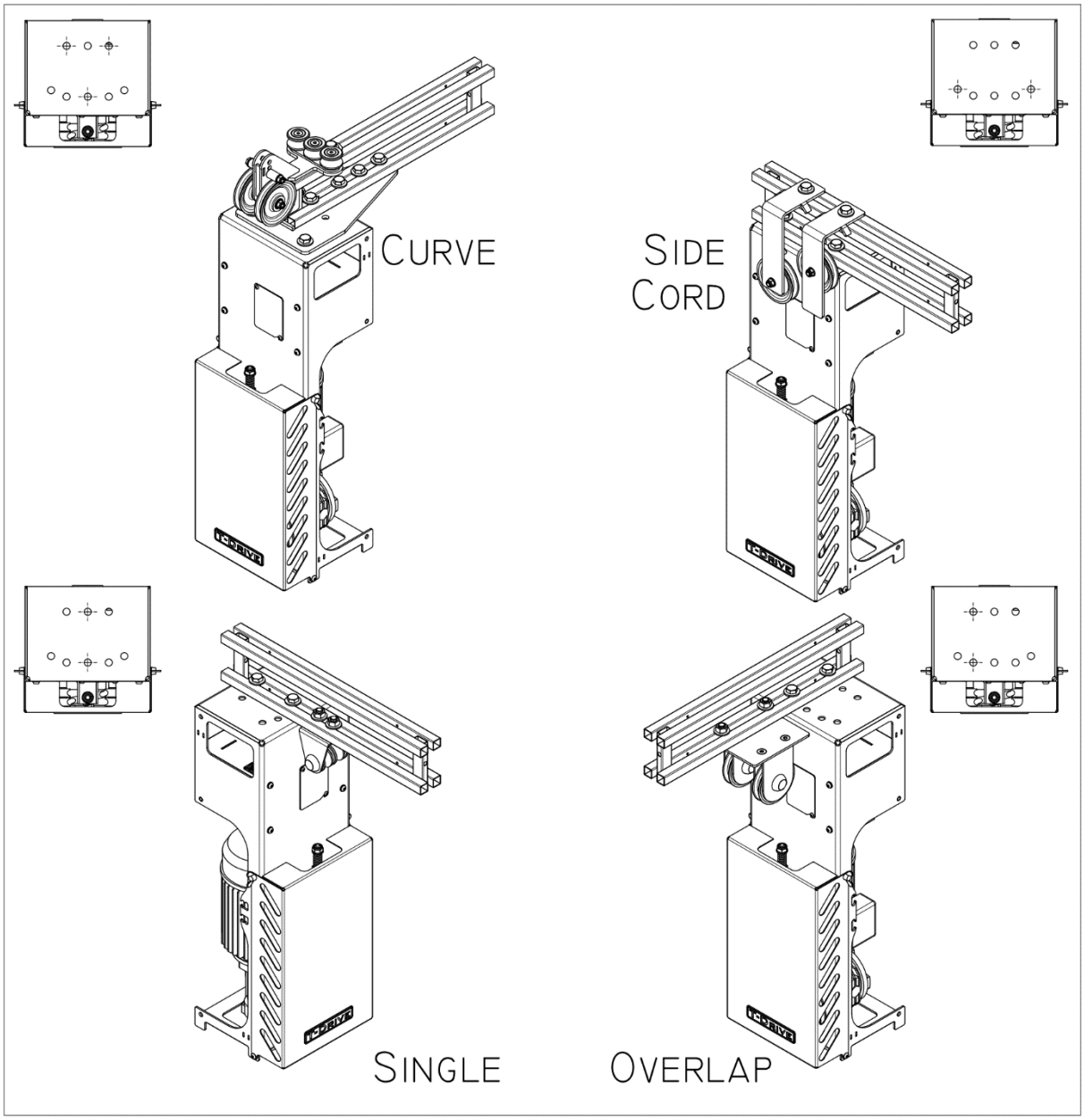

Figure 3: T-Drive Motor on UniTrack / UniBeam. Straight, Curved and Side Cording can be realised with this motor unit.

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2.1.3. Wall Mounting

In the case of a wall mounting, our T-Drive unit will be equipped with a set of wall mount brackets that fit to the side of the motor housing (see Figure 4: T-Drive Wall Mount).

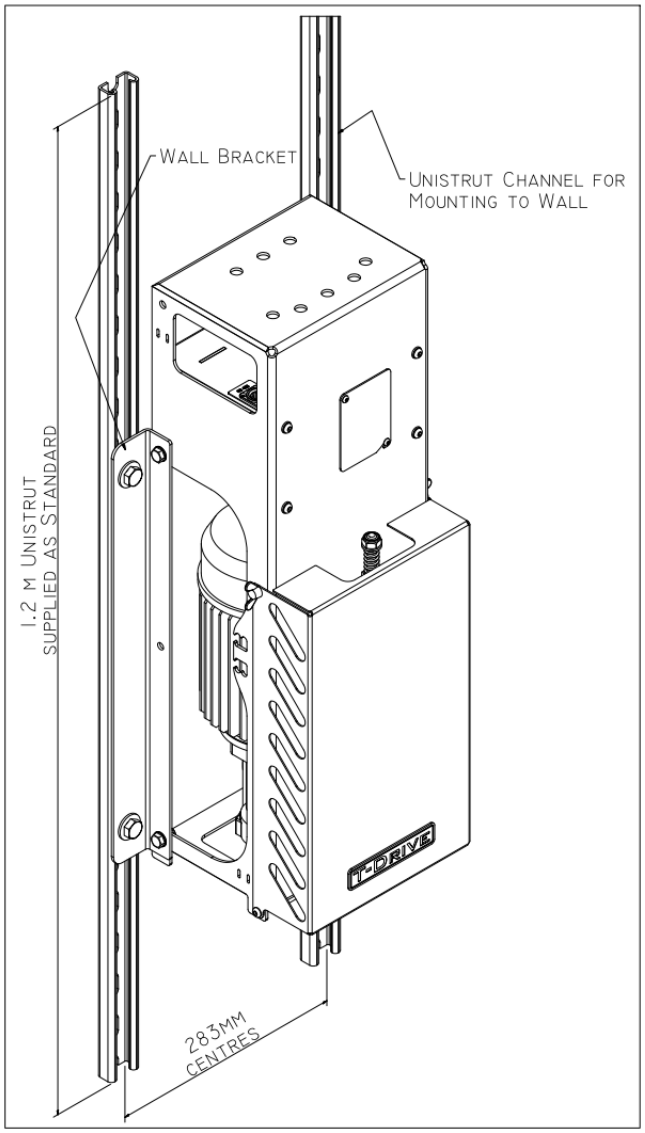

Figure 4: T-Drive Wall Mount

We supply 2 x 1.2m long Unistrut channels with our wall brackets, these are attached to the wall first. This gives vertical adjustment and simplifies the cord tensioning by simply sliding the whole motor unit vertically up or down the Unistrut.

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2.2. Installation & Maintenance

The T-Drive unit is a maintenance free system; periodic checks should be made for loose components. As we use cord for the power transmission it may be necessary from time to time to re-tension the cord, as the cord is likely to stretch when being exposed to tensile load. To compensate the elasticity of the cord our T-Drive is fitted with a spring tensioning system. The cord may need replacing depending on how often the system is used and the loads applied.

2.2.1. Mechanical Installation

Figure 5 Shows the method of how to cord up an T-Drive unit. It is important to mention, that the rope tensioner spring must be compressed during and remain partially compressed after cording up, to compensate for rope stretch.

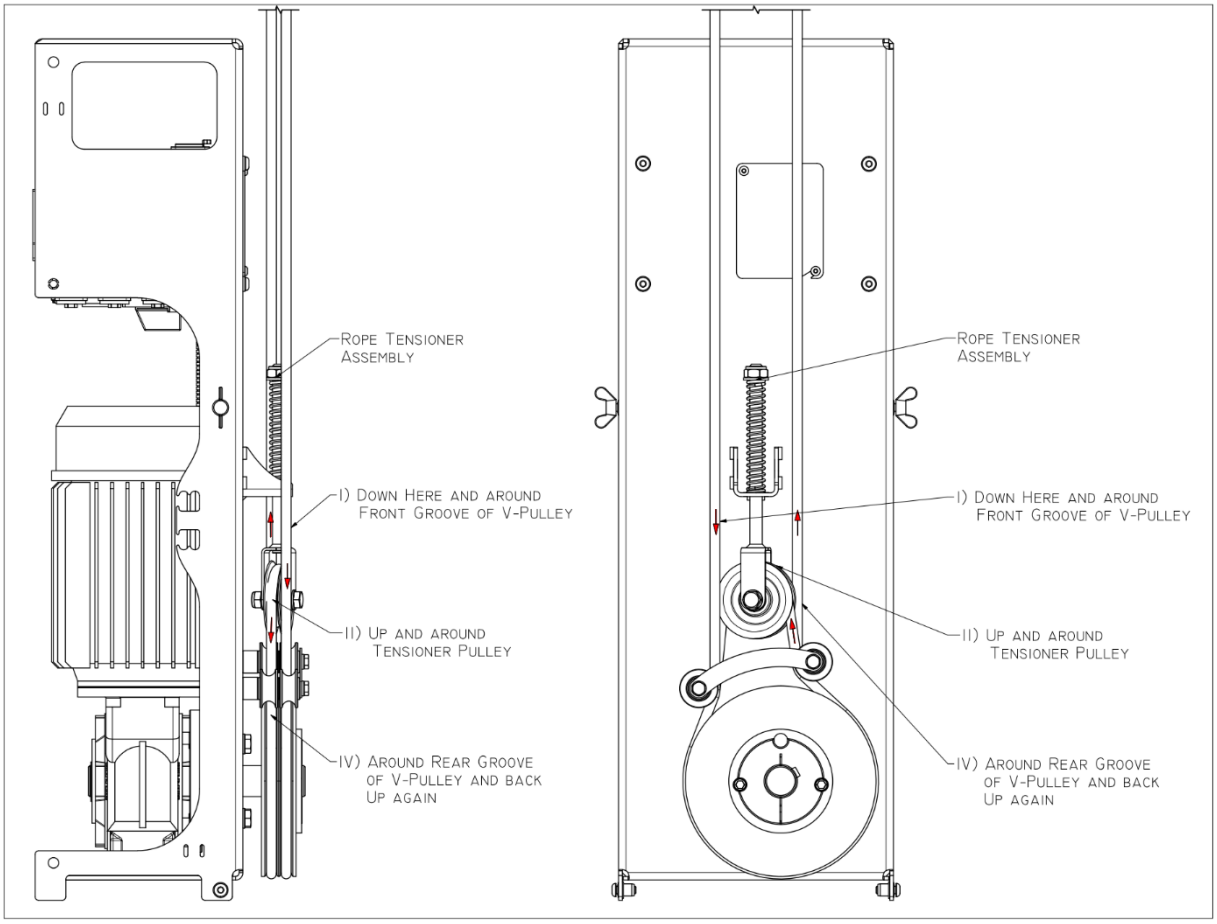

Figure 5: Cording Method T-Drive

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In the case of a free spinning motor, which means the motor turns without moving the curtain, the cord needs re-tensioning. The following instructions will give you advice of how to proceed (Figure 6: Re-Tensioning of Cord):

- Undo top bolts of front cover and fold it down so you can access the drive mechanism
- Compress the tensioner spring. This can be done by looping a ratchet strap around the top end of the tensioner and the bottom of the drive pulley.
- Loosen off rope clamp on master runner
- Now you can pull the slacking rope through the master runner rope clamp[1]
- Repeat this step until sufficient tension in the rope is achieved.
- Lock off rope clamp and fit all covers again

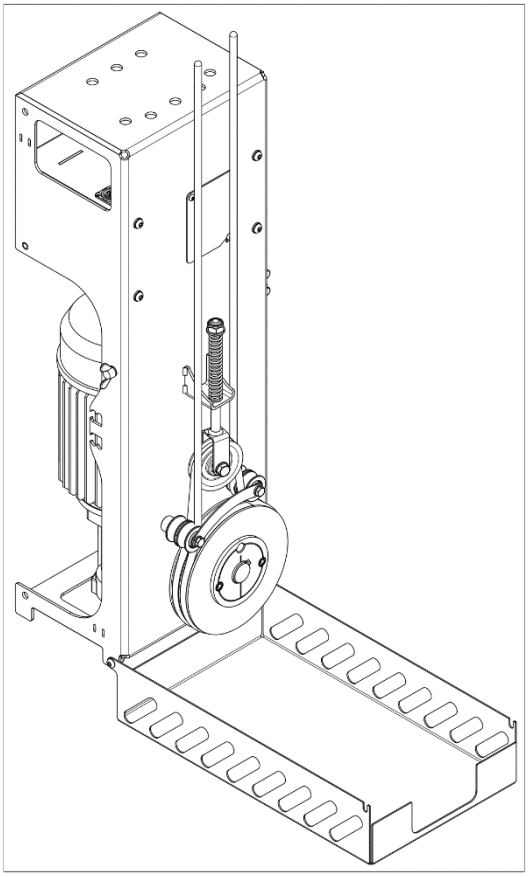

Figure 6: Re-Tensioning of Cord

[1] This operation might need a second person to assist

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2.2.2. Setting up of Track mounted Limits

The T-Drive unit can be used to motorise curtains as well as scenery. This results in a variety of mounting options for the direct struck limits shown in the following figures. A motorised track system has to be fitted with two limit switches one for the open and one for the close direction. The **limit switches serve a very important function, they ensure the correct stopping points for curtains or scenery and also stop the motor running.**. By placing them correctly on the track they will stop the curtain in the fully open or fully closed positions. The position of the limit switches on the track must therefore take into account the operating speed and the ramp down speed of the motor.

Example: The ramp down speed is set at 0.5sec on the inverter (drive); this means that after the limit is struck the motor will take 0.5sec to stop. Therefore the distance covered after the limit is struck will be determined by the operating speed, the faster the operating speed the greater the distance covered.

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.

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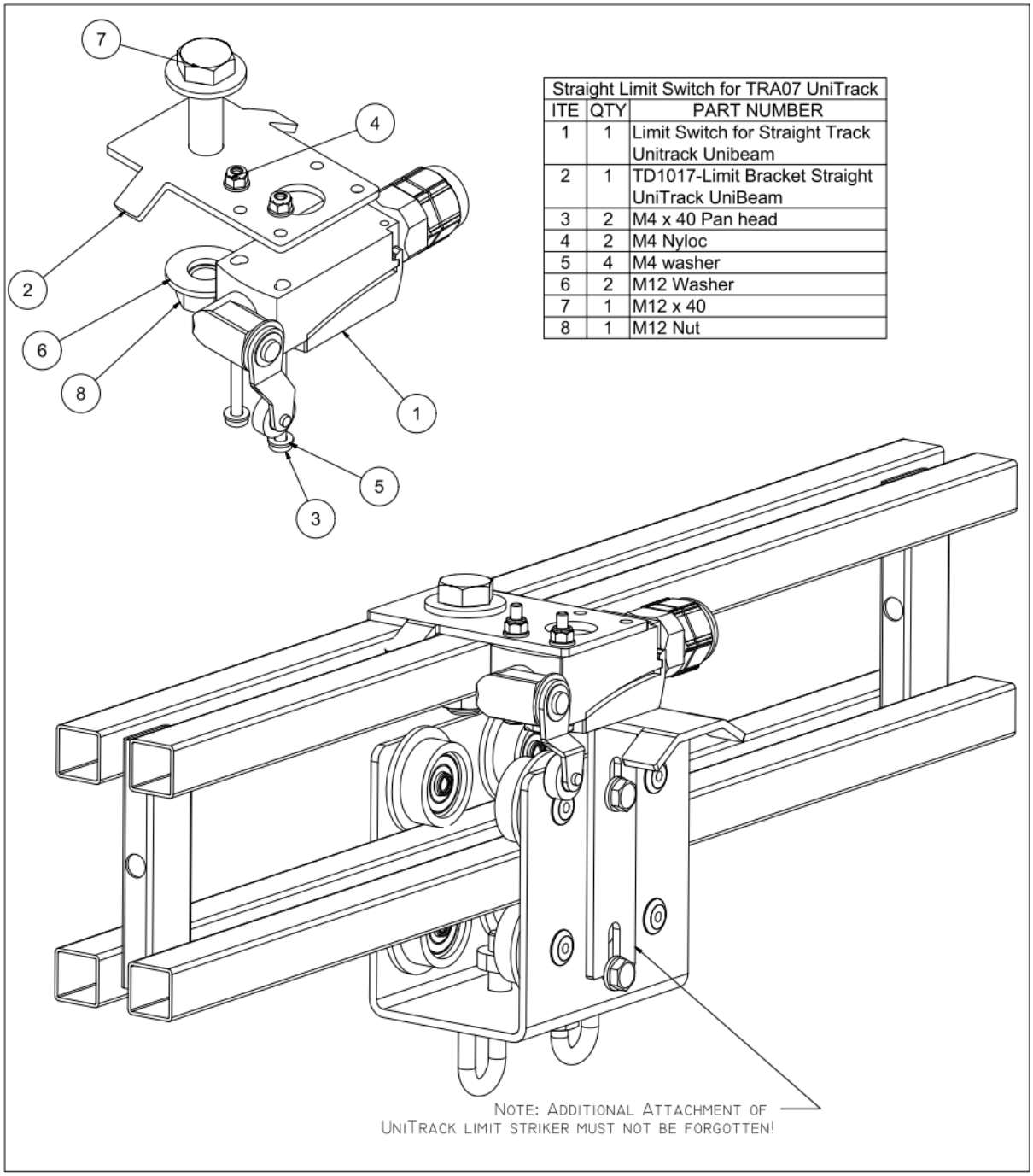

Straight Limit Switch for TRA07 UniTrack		
ITE	QTY	PART NUMBER
1	1	Limit Switch for Straight Track Unitrack Unibeam
2	1	TD1017-Limit Bracket Straight UniTrack UniBeam
3	2	M4 x 40 Pan head
4	2	M4 Nyloc
5	4	M4 washer
6	2	M12 Washer
7	1	M12 x 40
8	1	M12 Nut

Figure 7: Straight Track Limit set up for UniTrack and UniBeam

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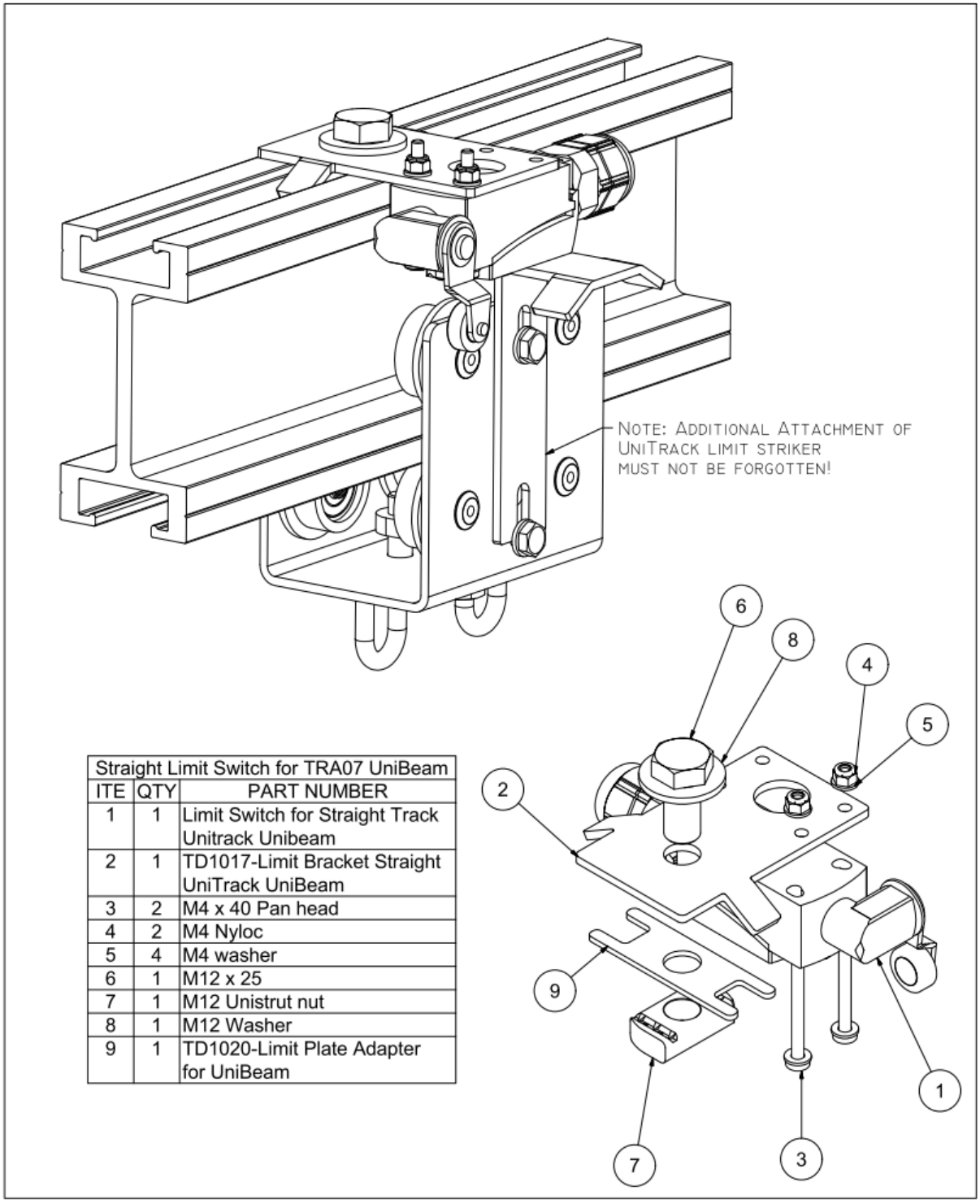

Straight Limit Switch for TRA07 UniBeam		
ITE	QTY	PART NUMBER
1	1	Limit Switch for Straight Track Unitrack Unibeam
2	1	TD1017-Limit Bracket Straight UniTrack UniBeam
3	2	M4 x 40 Pan head
4	2	M4 Nyloc
5	4	M4 washer
6	1	M12 x 25
7	1	M12 Unistrut nut
8	1	M12 Washer
9	1	TD1020-Limit Plate Adapter for UniBeam

Figure 8: Straight Track Limit set up for TRA07 on UniBeam

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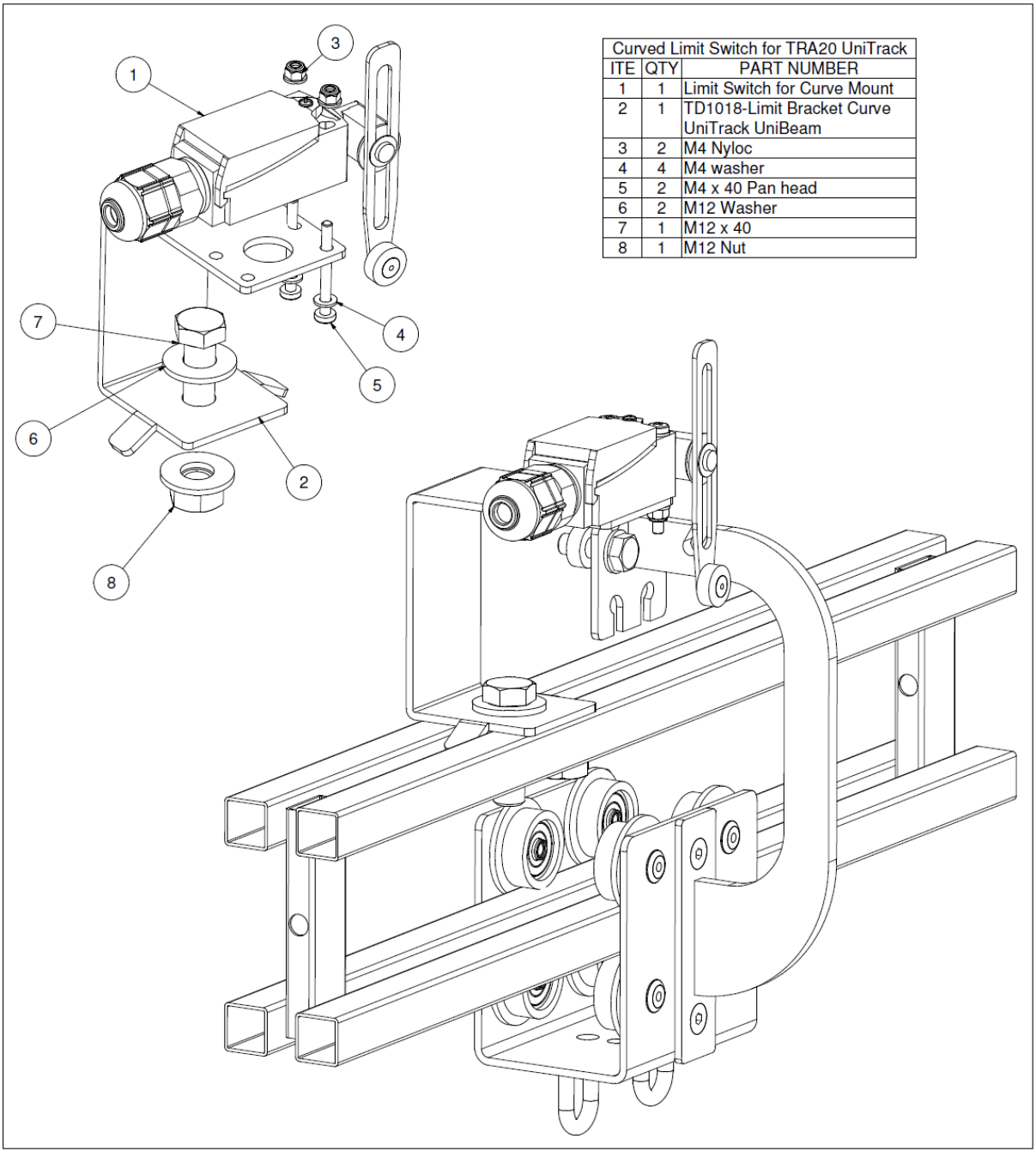

Curved Limit Switch for TRA20 UniTrack		
ITE	QTY	PART NUMBER
1	1	Limit Switch for Curve Mount
2	1	TD1018-Limit Bracket Curve UniTrack UniBeam
3	2	M4 Nyloc
4	4	M4 washer
5	2	M4 x 40 Pan head
6	2	M12 Washer
7	1	M12 x 40
8	1	M12 Nut

Figure 9: Curved Track Limit set up for TRA20 on UniTrack with adjustable limit switch arm

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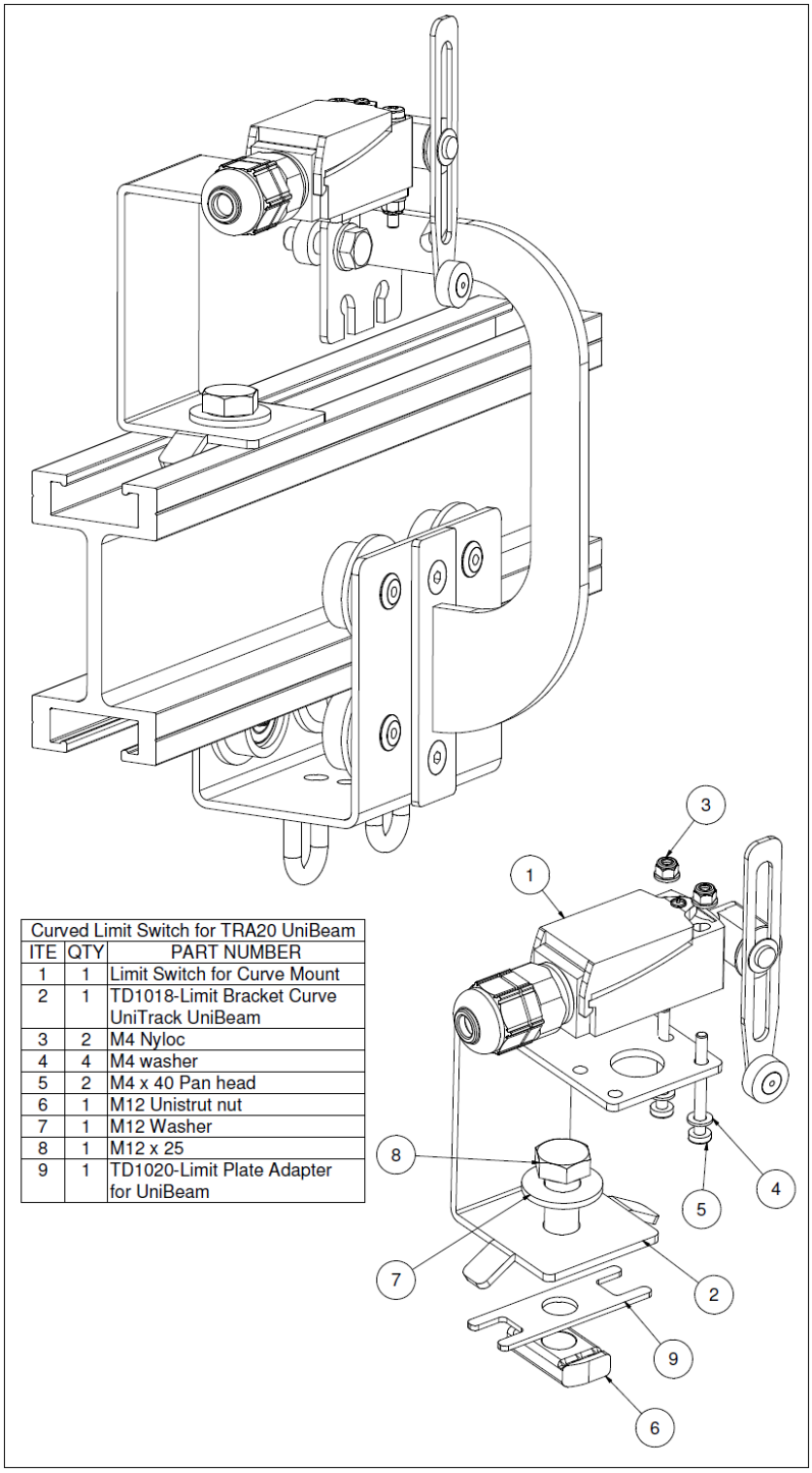

Curved Limit Switch for TRA20 UniBeam		
ITE	QTY	PART NUMBER
1	1	Limit Switch for Curve Mount
2	1	TD1018-Limit Bracket Curve UniTrack UniBeam
3	2	M4 Nyloc
4	4	M4 washer
5	2	M4 x 40 Pan head
6	1	M12 Unistrut nut
7	1	M12 Washer
8	1	M12 x 25
9	1	TD1020-Limit Plate Adapter for UniBeam

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

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2.2.3. Electrical Installation

T-Drive control supply circuit requires a **MOTOR RATED** circuit breaker on the supply so that the unit can be used with an RCD on the supply without causing nuisance tripping. The supplied power lead simply needs to be connected to mains (120 VAC, 60Hz), track mounted limits need to be plugged into the correct XLR sockets and finally the pendant connected to one of the pendant sockets.

The T-Drive is ready to go!

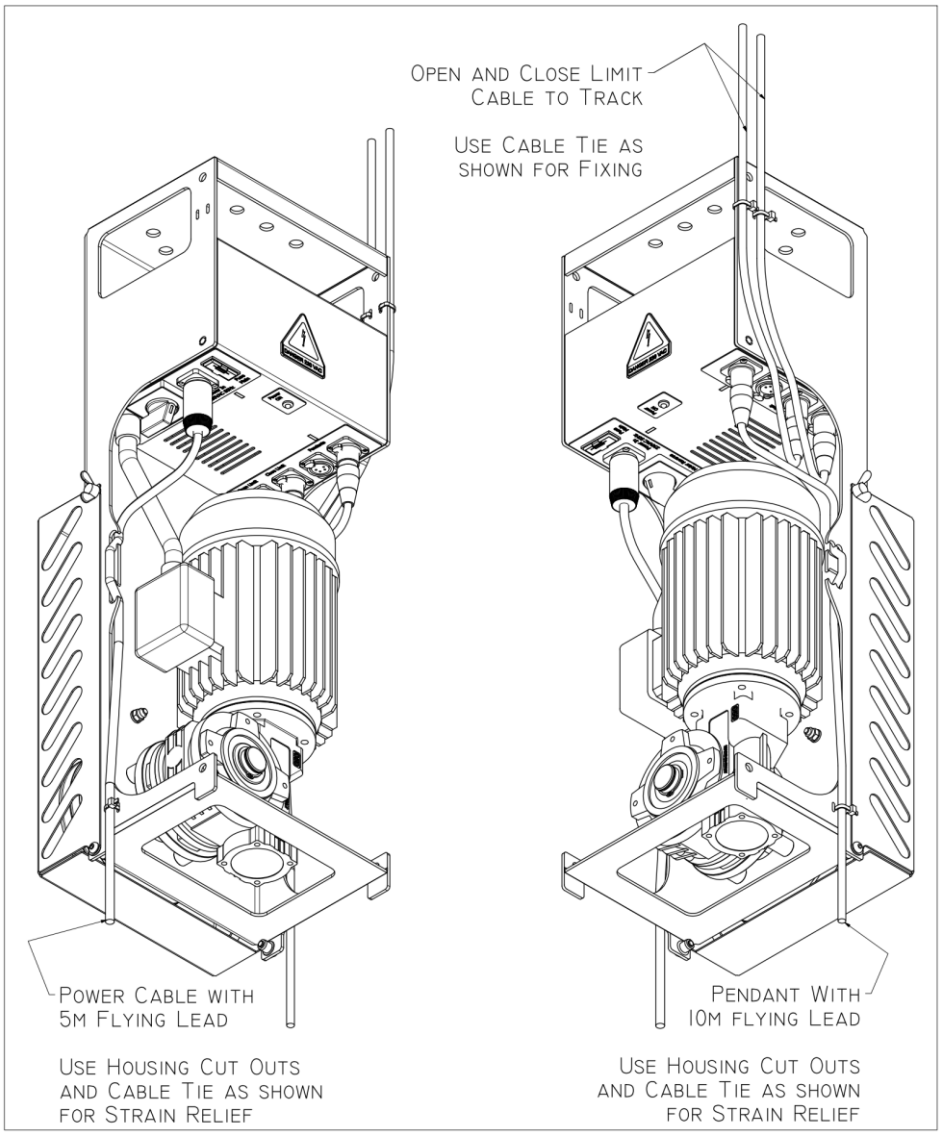

Figure 11: Electrical Installation of a T-Drive. Simply connect the supplied power lead to the mains (120 VAC, 60Hz), position the limits on the track and plug into the correct terminal and finally connect the pendant. Make sure that the strain relief precautions are met to avoid cables pulling out of the connectors.

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2.2.4. Pendant Control Options

As standard the T-Drive is supplied with a three push button pendant with speed control. 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 33ft (10m) lead.

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

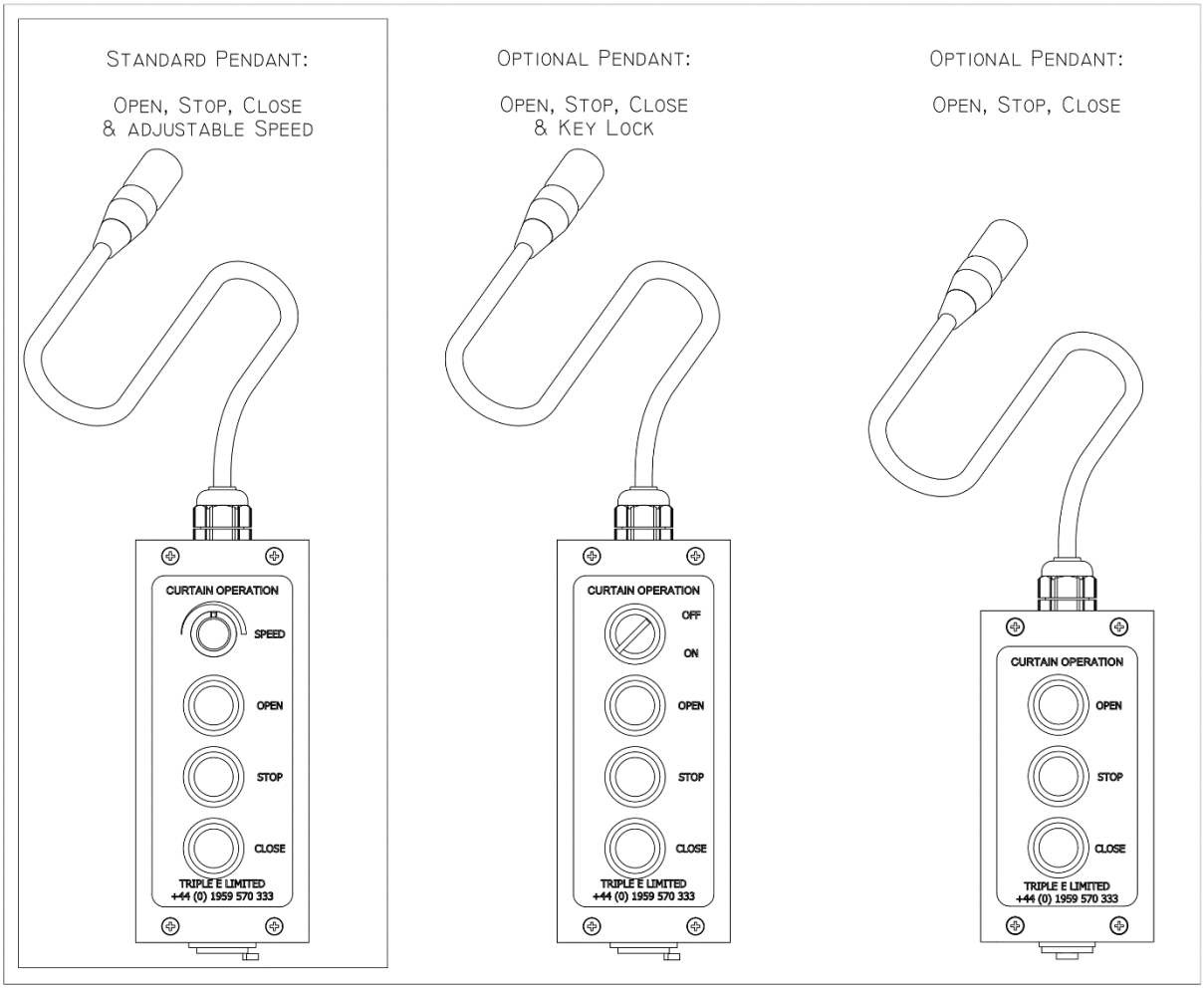

Figure 12: Avaliable Control Options. Three push button plus speed control as standard, optional with key lock or as open-stop-close version only. All pendants come with a 33 ft (10m) lead.

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2.2.5. Multiple Motor Control

If you aim to control multiple motors from one user interface our touch screen is the ideal solution. For specific details and pricing for your application please don't hesitate to get in touch with us.

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