

TL3

series



Product Segments

- **Care Motion**
- **Comfort Motion**
- **Industrial Motion**

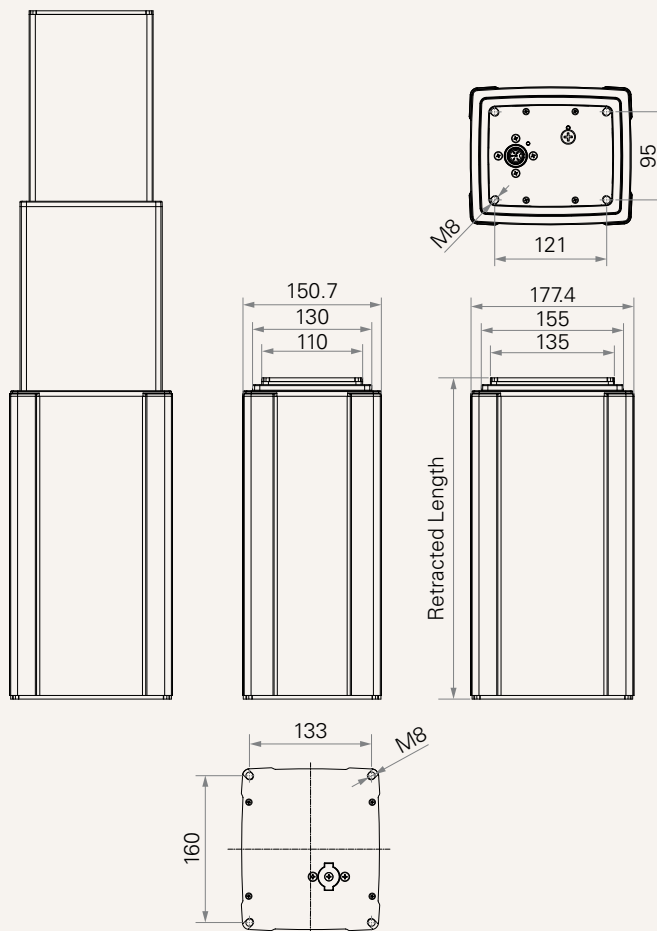
The TL3 columns from TiMOTION are made up of three extruded aluminum tubes of rectangular shape that give the system great stability and a high stroke with reduced retracted length. This electric lifting column allows for an easy integration into many height adjustable workstation applications.

General Features

Maximum load & self - locking force	4,000N in push
Maximum dynamic bending moment	1,000Nm
Maximum static bending moment	2,000Nm
Maximum speed at full load	24mm/s (with 1,000N in a push condition)
Minimum installation dimension	$\geq \text{Stroke} / 2 + 150\text{mm}$
Dimension of cross section	177.4x150.7mm
Stroke	250~1200mm
Certificate	IEC60601-1, EMC
Operational temperature range:	+5°C~+45°C
Options	POT, Hall sensor(s), direct cut system

Drawing

Standard Dimensions
(mm)



Load and Speed

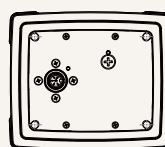
CODE	Load (N)	Self Locking Force (N)	Typical Current (A)		Typical Speed (mm/s)	
	Push		No Load 32V DC	With Load 24V DC	No Load 32V DC	With Load 24V DC
Motor Speed (2200RPM, duty cycle 10%)						
B	4000	4000	2.5	6.3	14.5	7.6
C	2000	2000	2.5	4.3	22.0	13.0
D	1000	1000	2.5	3.8	39.0	24.0
Motor Speed (2800RPM, duty cycle 10%)						
E	4000	4000	3.5	7.5	18.5	9.4
F	2000	2000	3.5	6.3	35.0	20.0
Motor Speed (3400RPM, duty cycle 10%)						
G	4000	4000	4.0	10.8	28.0	13.7

Note

- Parameters above are from tested average, please refer to approval drawing for final value.
- The current & speed in table are tested with 24V DC motor. With a 12V DC motor, the current is approximately twice the current measured in 24V DC; speed will be similar for both voltages.
- The current & speed in table and diagram are tested with TiMOTION control boxes, and there will be around 10% tolerance depending on different models of the control box. (Under no load condition, the voltage is around 32V DC. At rated load, the voltage output will be around 24V DC)
- Bending moment Y direction = $X \times 0.8$
- Static bending moment = dynamic $\times 2$

Dynamic bending moment (Nm)- X direction

Stroke (mm)	S/2+150	S/2+220
100-300	700	1000
301-500	500	800
501-700	300	500
701-1200	200	200

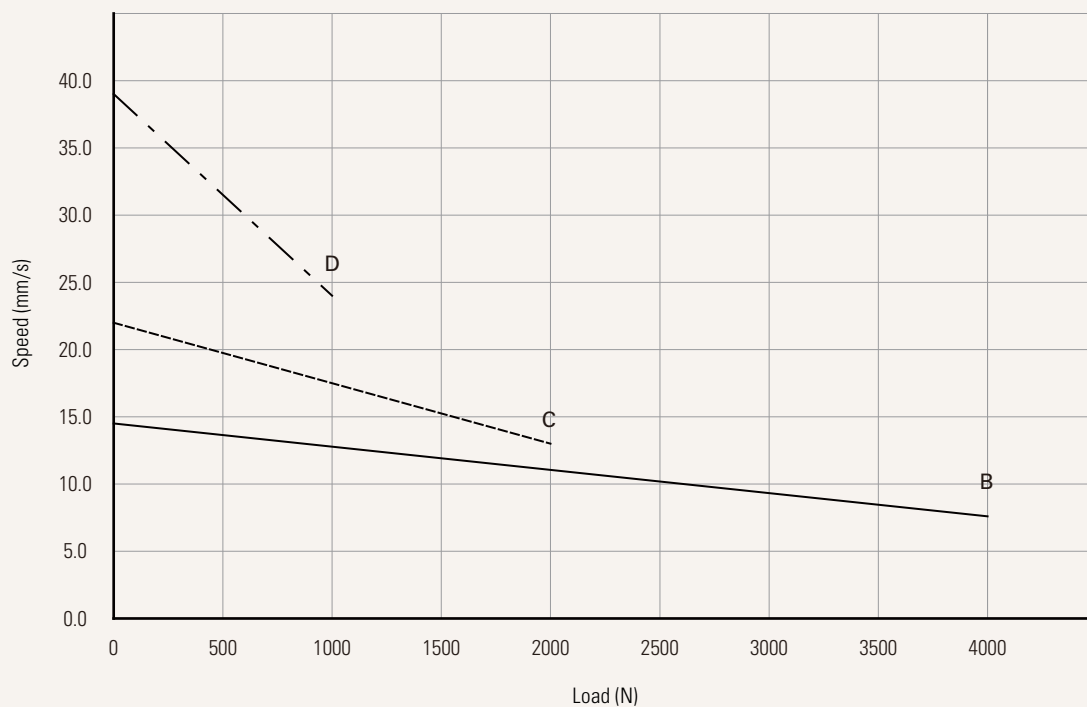


Bending moment Y

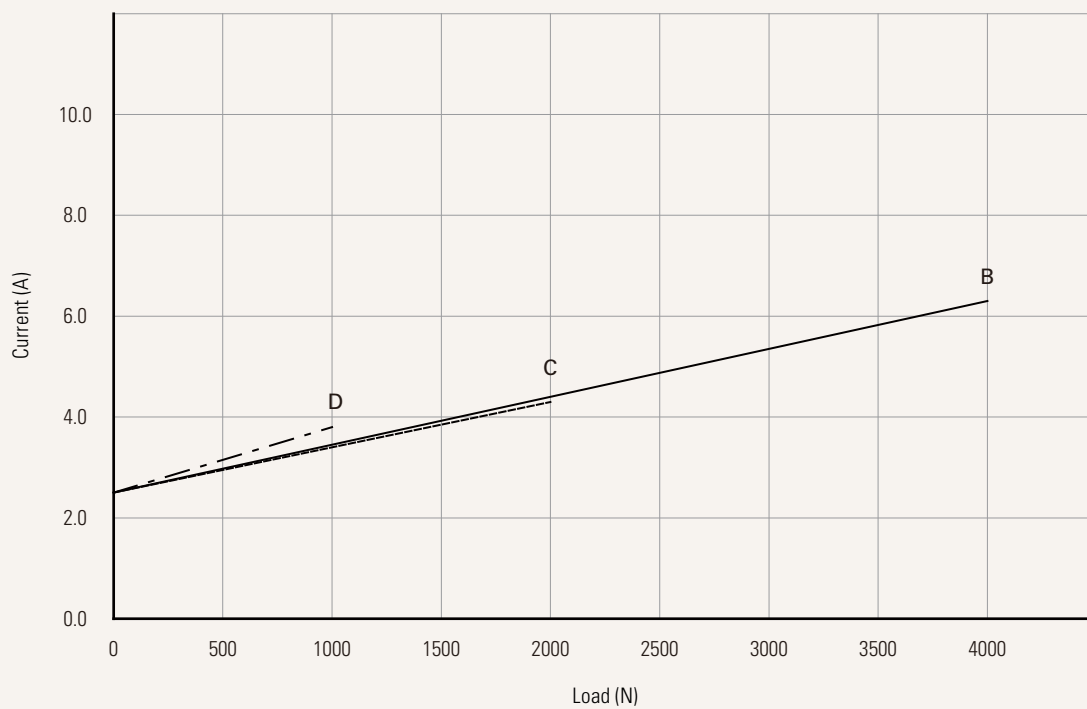
Performance Data (24V DC Motor)

Motor Speed (2200RPM)

Speed vs. Load



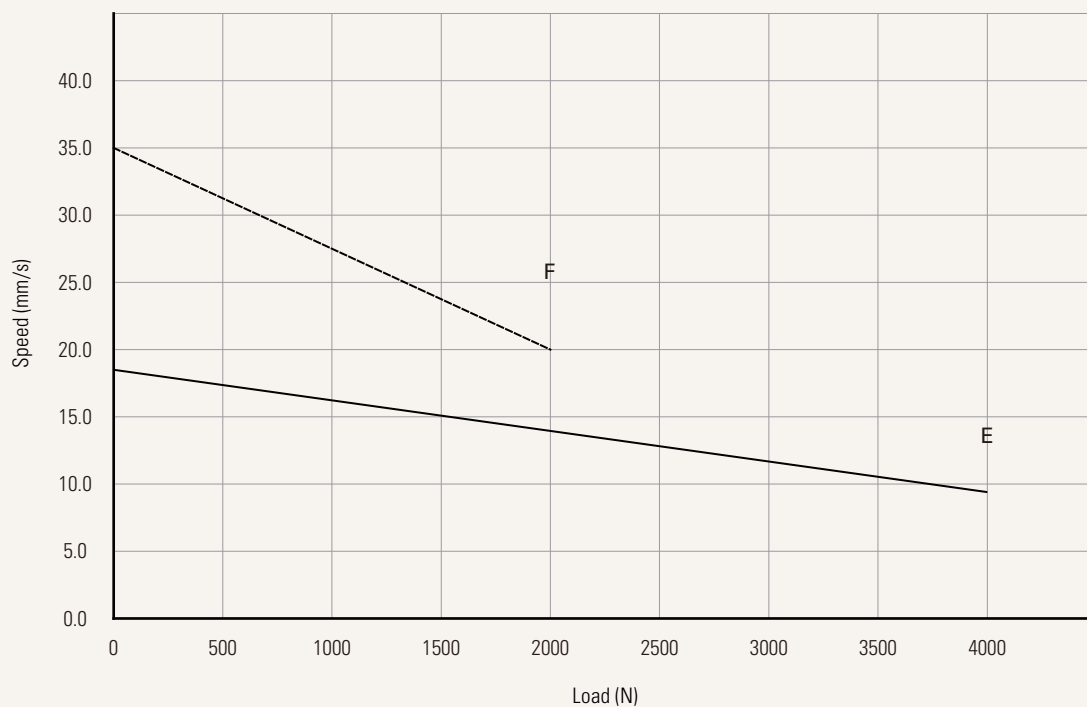
Current vs. Load



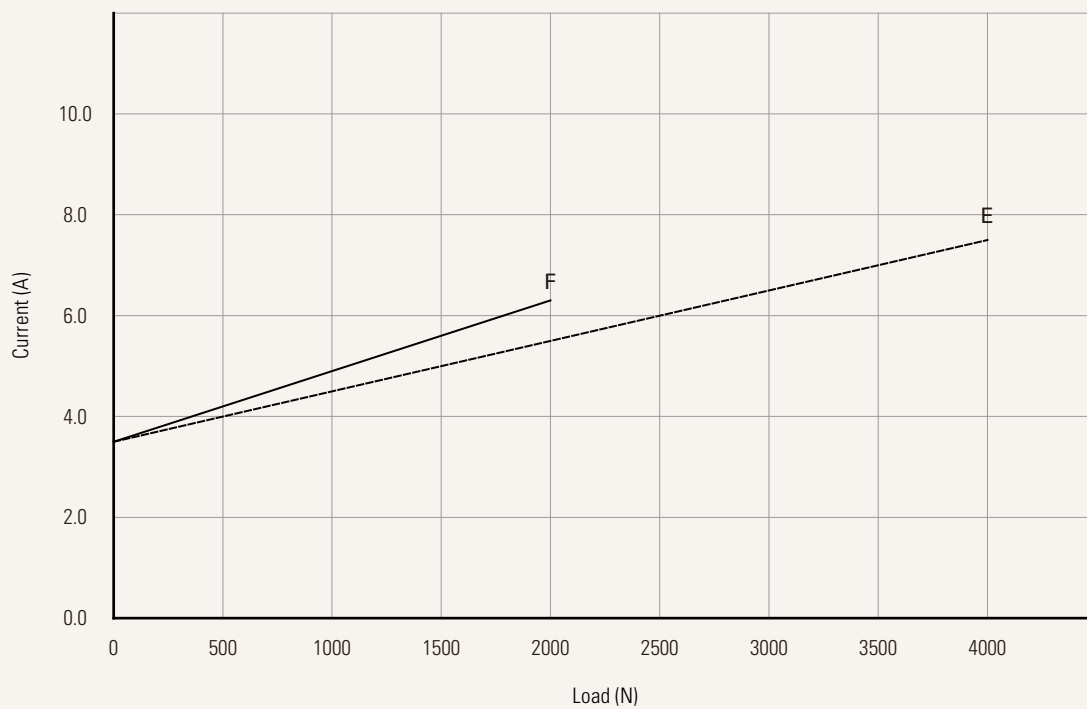
Performance Data (24V DC Motor)

Motor Speed (2800RPM)

Speed vs. Load



Current vs. Load



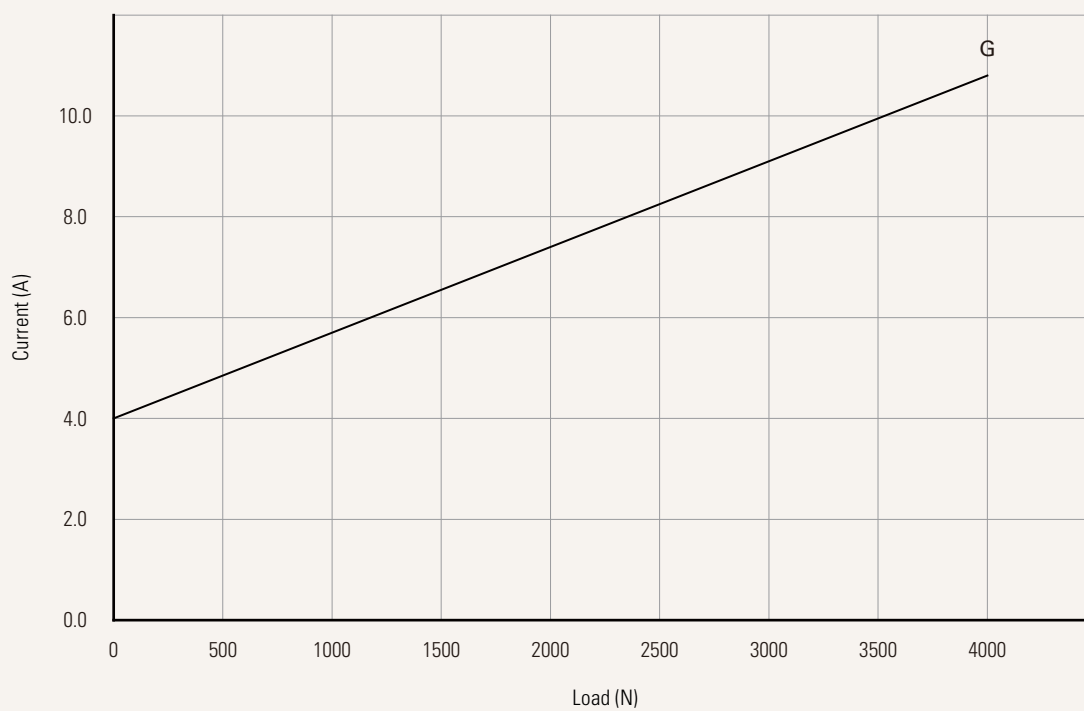
Performance Data (24V DC Motor)

Motor Speed (3400RPM)

Speed vs. Load



Current vs. Load



TL3 Ordering Key - Top End Socket

TL3

Version: 20180801-0

Voltage	1 = 12V DC	5 = 24V DC, thermal control
Load and Speed	See page 2	
Stroke (mm)	250~1200	
Retracted Length (mm)	See page 9	
Cable Exit See page 9	1 = Top end socket	
Special Functions for Spindle Sub-assembly	0 = Without (Standard)	1 = Safety nut
Functions for Limit Switches See page 10	1 = Two switches at full retracted / extended positions to cut current 3 = Two switches at full retracted / extended positions to send signal	
IP Rating	1 = Without	2 = IPX4 3 = IPX6
Output Signals	0 = Without	2 = Hall sensors*2 3 = POT
Connector See page 10	1 = DIN 6P, socket	
Cable Length (mm)	0 = Without (The corresponding extension cable TEC needs to be ordered seperately*) Note: please contact TiMOTION before making an order	
Color	1 = Black	2 = Matte silver
Tubes Direction See page 11	0 = Thinner on top	1 = Wider on top
Grounding Function	0 = Without	1 = With

Note

1 The TL3 is designed especially for push applications, not suitable for pull applications.

TL3 Ordering Key - Side Cable

TL3

Version: 20180801-0

Voltage	1 = 12V DC		5 = 24V DC, thermal control	
Load and Speed	See page 2			
Stroke (mm)	250~1200			
Retracted Length (mm)	See page 9			
Cable Exit See page 9	2 = Bottom side cable		3 = Top side cable	
Special Functions for Spindle Sub-assembly	0 = Without (Standard)		1 = Safety nut	
Functions for Limit Switches See page 10	1 = Two switches at full retracted / extended positions to cut current 3 = Two switches at full retracted / extended positions to send signal			
IP Rating	1 = Without	2 = IPX4	3 = IPX6	
Output Signals	0 = Without	2 = Hall sensors*2	3 = POT	
Connector See page 10	1 = DIN 6P, 90° plug	2 = Tinned leads	F = DIN 6P, 180° socket	
Cable Length (mm)	1 = Straight, 500 2 = Straight, 750	3 = Straight, 1000 4 = Straight, 1250	5 = Straight, 1500 6 = Straight, 1750	7 = Straight, 2000
Color	1 = Black (Black cable set) 2 = Silver (428C color cable set)		3 = Silver (Black cable set)	
Tubes Direction See page 11	0 = Thinner on top		1 = Wider on top	
Grounding Function	0 = Without		1 = With	

Note

1 The TL3 is designed especially for push applications, not suitable for pull applications.

TL3 Ordering Key - Direct Cut

TL3

Version: 20180801-0

Voltage	5 = 24V DC, thermal protector		
Load and Speed	See page 2		
Stroke (mm)	250~1200		
Retracted Length (mm)	See page 9		
Cable Exit See page 9	B = Top side - for TH; Bottom side - for TP C = Bottom side - Y cable, for TH + TP D = Top side - for the 2nd column; Bottom side - for TH & TP; direct cut operation with 2 columns E = Top side - for the 2nd column & TH; Bottom side - for TP; direct cut operation with 2 columns		
Special Functions for Spindle Sub-assembly	0 = Without (Standard) 1 = Safety nut		
Functions for Limit Switches See page 10	1 = Two switches at full retracted / extended positions to cut current		
IP Rating	1 = Without	2 = IPX4	3 = IPX6
Output Signals	0 = Without		
Connector See page 10	C = Direct cut, water proof, anti-pull		
Cable Length (mm) See page 11	B = Cable exit #B, L2 = L3 = 100 C = Cable exit #C, L1 = L2 = L3 = 100 D = Cable exit #D, L2 = L3 = L4 = 100 E = Cable exit #E, L2 = L3 = L4 = 100		
Color	1 = Black (With black cable set) 2 = Matte silver (With 428C color cable set) 3 = Matte silver (With black cable set)		
Tubes Direction See page 11	0 = Thinner on top 1 = Wider on top		
Grounding Function	0 = Without 1 = With		

Note

¹ The TL3 is designed especially for push applications, not suitable for pull applications.

Retracted Length (mm)

1. Retracted length needs to $\geq A+B+C$

A. Load (N)	1000	2000	4000
	Stroke / 2+150 or Stroke / 2+220		

Note

1 The minimum retracted length generated by the formula - Stroke / 2+150 applies to the minimum bending moment rating. Please refer to the left column of the “Dynamic bending moment chart ” [on page 2](#).

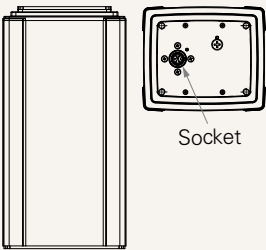
B. Cable Exit				
CODE	Top End Socket	Bottom Side Cable	Top Side Cable	Direct Cut
1	-	-	-	-
2	-	-	-	-
3	-	-	+15	-
B, D, E	-	-	-	+35
C	-	-	-	-

C. When with POT (When without POT, C=0)

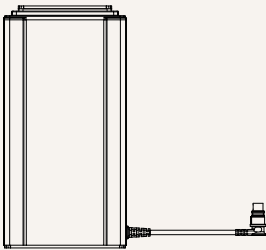
Cable Exit Code	Top End Socket	Bottom Side Cable	Top Side Cable
1	+40	-	-
2	-	+40	-
3	-	-	+40

Cable Exit

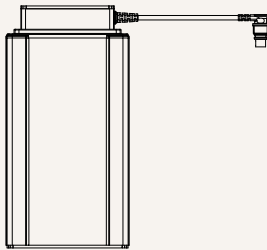
1 = Top end socket



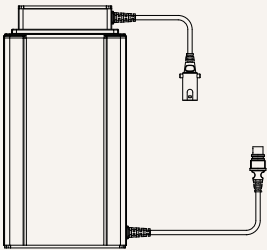
2 = Bottom side cable



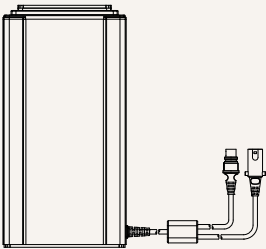
3 = Top side cable



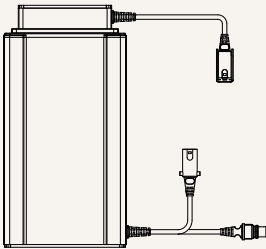
B = Top side - for TH; Bottom side - for TP



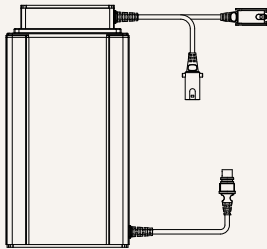
C = Bottom side - Y cable, for TH + TP



D = Top side - for the 2nd column; Bottom side - for TH & TP; direct cut operation with 2 columns



E = Top side - for the 2nd column & TH; Bottom side - for TP; direct cut operation with 2 columns

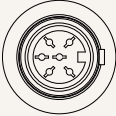


Functions for Limit Switches

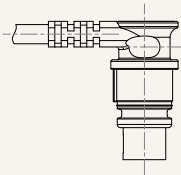
Wire Definitions						
CODE	Pin					
	 1 (Green)	 2 (Red)	 3 (White)	 4 (Black)	 5 (Yellow)	 6 (Blue)
1	extend (VDC+)	N/A	N/A	N/A	retract (VDC+)	N/A
3	extend (VDC+)	common	upper limit switch	N/A	retract (VDC+)	lower limit switch

Connector

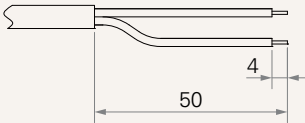
1 = DIN 6P, socket (Top end socket)



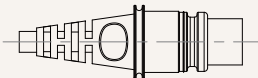
1 = DIN 6P, 90° plug (Side cable)



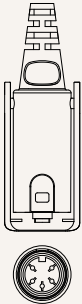
2 = Tinned leads



F = DIN 6P, 180° plug



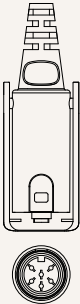
C = Direct cut, water proof, anti-pull



For TH:
long DIN 5P (Pin array 240°),
180° socket (with anti-pull clip)

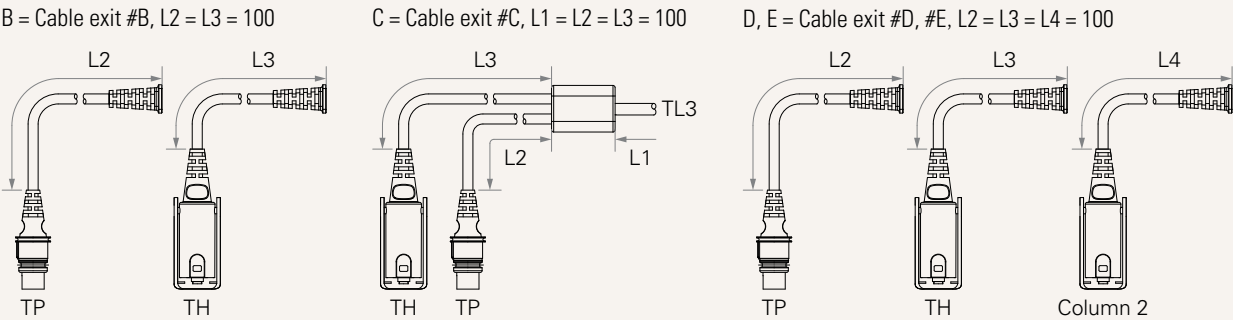


For TP:
long DIN 5P (Pin array 240°),
180° plug (with O-ring)

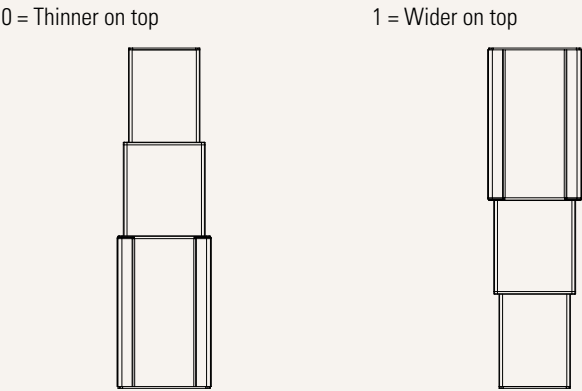


For Column 2:
long DIN 6P (Pin array 240°),
180° plug (with anti-pull clip)

Cable Length (mm)



Tubes Direction



Terms of Use

The user is responsible for determining the suitability of TiMOTION products for a specific application. TiMOTION products are subject to change without prior notice.