

EN: This Datasheet is presented by the manufacturer.

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PIHER



MECHANICAL SPECIFICATIONS

- Mechanical rotation angle: $310^{\circ} \pm 5^{\circ}$ - Electrical rotation angle: $290^{\circ} \pm 20^{\circ}$

- Torque: 0.5 to 1.5 Ncm. (0.7 to 2.1 in-oz)

- Stop torque: > 80 Ncm. (> 112 in-oz)

T-21

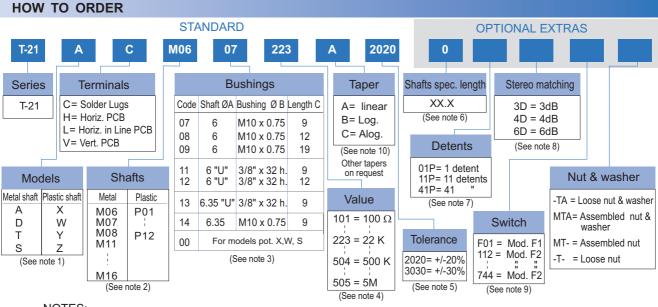
21mm Carbon Potentiometer

FEATURES

- Carbon resistive element.
- High mechanical endurance.
- Upon request:
 - Detents
 - · Stereo matching
 - Switch
 - · Nut & washer

ELECTRICAL SPECIFICATIONS

- Range of values (*) $100\Omega \le \text{Rn} \le 5 \text{ M} \text{ (Decad. } 1.0 \text{ } 2.0 \text{ } 2.2 \text{ } 2.5 \text{ } 4.7 \text{ } 5.0)$
- Tolerance (*): $100\Omega \le Rn \le 1M$ $\pm 20\%$ $1M\Omega < Rn \le 5M$ $\pm 30\%$
- Max. Voltage: 250 VDC (lin) 150 VDC (no lin)
- Nominal Power 50°C (122°F) (see power rating curve)
 0.25 W (lin) 0.12 W (no lin)
- Taper (*) (Log. & Alog. only Rn > 1K) Lin; Log; Alog.
- Residual resistance(*): $\leq 0.5\%$ Rn (5Ω min)
- Equivalent Noise Resistance: \leq 3% Rn (3 Ω min.)
- Operating temperature**: -25°C + 70°C (-13°F + 158°F)



NOTES: (1) MODELS: Models D y T are not available with "V" terminals

- (2) SHAFTS: The codes indicate diameter and length. M08: Code for the double potentiometer.
- 3) BUSHINGS; The codes types 11, 12 and 13 have an antirotation lug (at 90°CW). Plastic shaft and double model are only available with Ø6 bushing.

(6) Shafts special length:

Only for special length and plain shafts (not knurled).
 Example: Shaft Ø6 L= 24.5

 Flatted and slotted shafts, etc. will need drawing.
 Shaft M08 (T-21D) with other length, order under special drawing number. Recomendation: Shaft L > 60 bushing C = 19

(7) DETENTS : - Not available in models with plastic shaft X, W, Y, Z. - Detents and switch are not compatible.

(8) Stereo matching: Only available in tandem models and upon request

(9) SWITCHES: Two types of switches are offered: F1 and F2.

F1 = The code is "F01"
 Plastic shafts are only available if they are code P10, P11 or P12

• F2 = (Only with metal shaft) Indicate the corresponding I-21 switch code

(10) Switch option not available with antilog taper

NOTE: The information contained here should be used for reference purposes only.



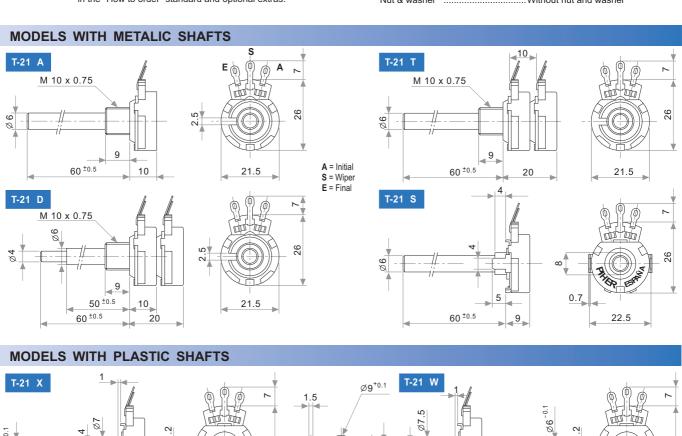
special length shafts

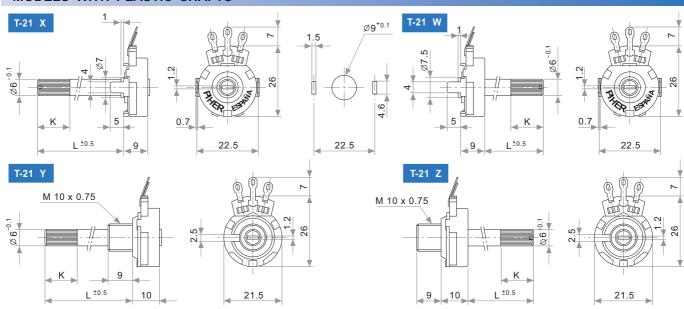
STANDARD OPTIONS

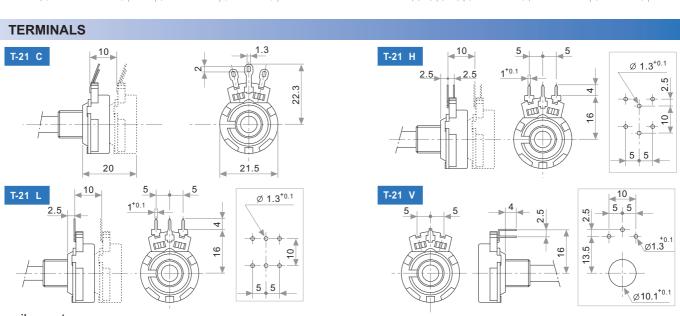
T-21 A C + DRAWING NUMBER (Max. 16 digits)

This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

Shaft length ... 0 standard
Detents ... Without
Stereo matching ... Only for model "T" and upon request
Switch ... No switch
Nut & washer ... Without nut and washer







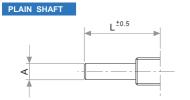
PLASTIC SHAFTS

T-2	1 X/Y w	ithout Sv	vitch
Knurling length	T-21 X	T-21 Y	CODE
K = 0	L= 2	/	P01
K = 6	L = 10	/	P02
K = 12	L = 16	L = 15	P03
K = 12	L=26	L = 25	P04
K = 12	L=36	L = 35	P05
K = 35	L=46	L=45	P06

T-21	Y w/Sw	F01
Knurling length	T-21 Y	CODE
K = 5	L= 16	P10
K = 14.6	L = 25	P11
K = 35	L= 46	P12

T-21	W/Z wi	thout Sv	vitch
Knurling length	T-21 W	T-21 Z	CODE
K = 12	L= 26	L = 26	P07
K = 12	L= 36	L= 36	P08
K= 12	L = 46	L= 46	P09

METALIC SHAFTS



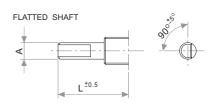
В

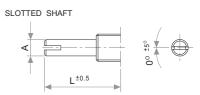
C,

Α	L	CODE
4	40	M04
6	60	M06
6.35	60	M07
4/6	50/60	M08

L	A	В	С	CODE
15	2	6	7	M11
20	2	10	11	M12
25	4	12	14	M13
30	4	12	14	M14
35	4	12	14	M15
40	4	12	14	M16

UNDER DRAWING

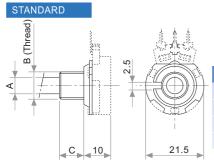




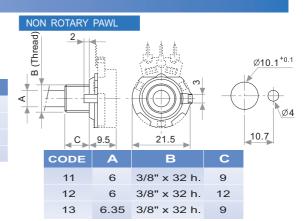
BUSHINGS

KNURLED SHAFT

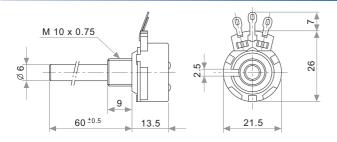
18 tooth



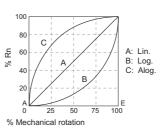
CODE	Α	В	С
07	6	M10 x 0.75	9
08	6	M10 x 0.75	12
09	6	M10 x 0.75	19
14	6.35	M10 x 0.75	9

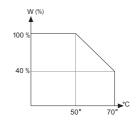


DETENTS



TAPERS





POWER RATING CURVE

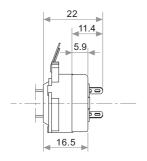
TESTS		TYPICAL VARIATIONS
ELECTRICAL LIFE	1.000 h. 50°C; 0.25 W	±5 %
MECHANICAL LIFE*:	25.000 (10-15 CPM)	±3 % (Rn < 1 M)
TEMPERATURE COEFFICIENT	–25°C; +70°C	±300 ppm (Rn <100 K)
THERMAL CYCLING	16 h. @ 85°C; 2h. @ -25°C	±2.5 %
DAMP HEAT	500 h. 40°C 95% HR	±5 %
VIBRATION (for each plane X,Y,Z)	2 h. @ 10 Hz – 55 Hz.	±2 %

NOTE: Out of range values may not comply these results.

(*) only applicable to values ≥1K. For lower values please consult.

PACKAGING

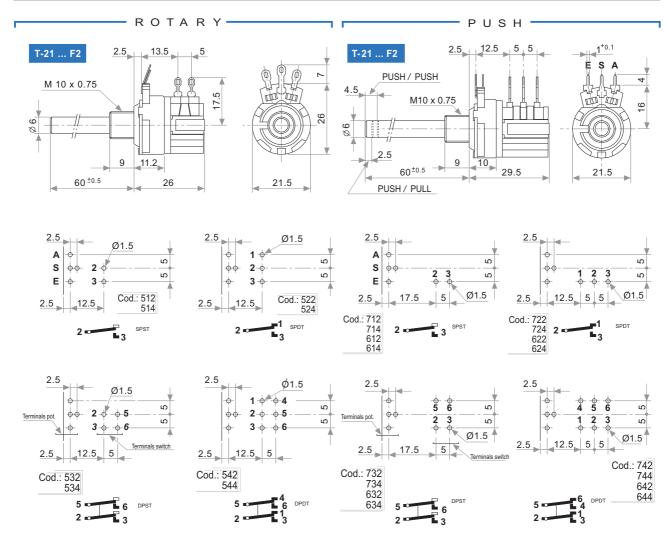
Boxes of 150 / 200 pieces (160 x 110 x 85 mm.)

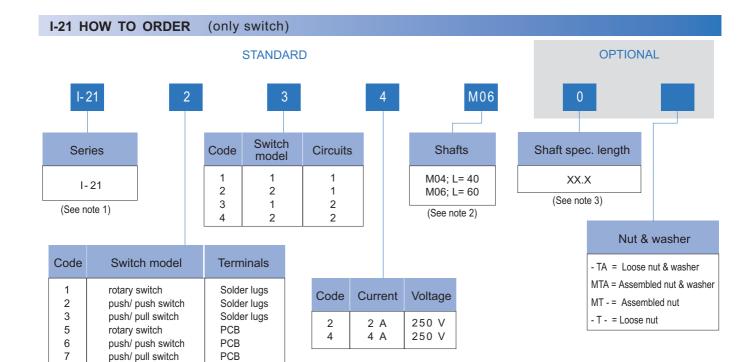


MECHANICAL & ELECTRICAL SPECIFICATIONS	F 1
OPERATING ANGLE	50° ±5°
OPERATING TORQUE	3-7 Ncm (4.2-9.8 in-oz)
MAXIMUM AXIAL CHARGE	80 N; 17 pounds
NOMINAL CURRENT	1A; 250 VAC
CONTACT RESISTANCE	$\leq 25 m\Omega$
TEST VOLTAGE (DIELECTRIC STRENGTH)	2000 V (50 Hz)

SWITCH F2

ELECTRICAL SPECIFICATIONS	F 2
SWITCH RATING	2 or 4A; 250 VAC
CONTACT RESISTANCE	\leq 25 m Ω
DIELECTRIC STRENGTH	2000 V
INSULATION RESISTANCE	100 ΜΩ
MECHANICAL SPECIFICATIONS	F 2
OPERATING ANGLE (ROTARY)	35° ± 5°
PUSH / PUSH OPERATING TRAVEL	4 mm.
PUSH / PULL OPERATING TRAVEL	2.5 mm.
OPERATING TORQUE (ROTARY)	2 to 9 Ncm. (2.8 to 12.7oz/in)
OPERATING FORCE (Push/Push; Push/Pull)	4 to 7 N (14 to 27 oz)
MECHANICAL LIFE	10.000 cycles
STOP TORQUE	> 100 Ncm. (142 oz/in)





NOTES:

- (1) When only the switch is ordered (without potentiometer), it will be called "I -21" followed by the respective code.
- (2) The shaft and bushing for "I -21" is:



(3) Only for special length and plain shaft (not knurled).

Example: E: Ø6 L= 24.5 M06 <u>24.5</u>

Flatted and slotted shafts, etc. will need drawing.

HOW TO ORDER CUSTOM DRAWING

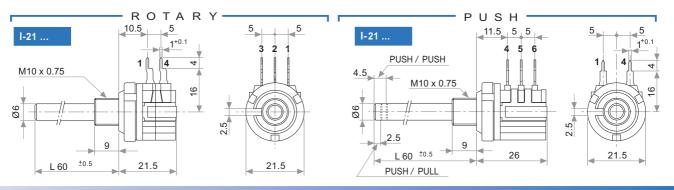
STANDARD OPTIONS

|-21 + DRAWING NUMBER (Max. 16 digits)

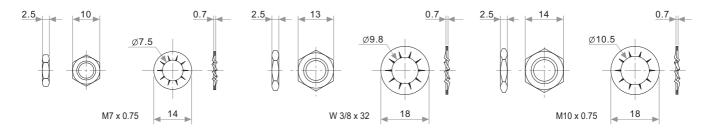
This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

Shaft length See note 2

Nut & washer Without nut and washer



NUT & WASHER



PACKAGING

Boxes of 100 pieces (160 x 110 x 85 mm.).

Disclaimer

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