

For large-sized tables

TPC5 SR6 / SR12 / SR30

Single axis NC controllers automatically start large-sized TSUDAKOMA NC rotary tables by receiving M-signals from machining center.

Easy programming by simple input of the interactive system.

In increments of 0.001° (standard), 0.0001° or 1 sec.

Ready to set optional functions easily.

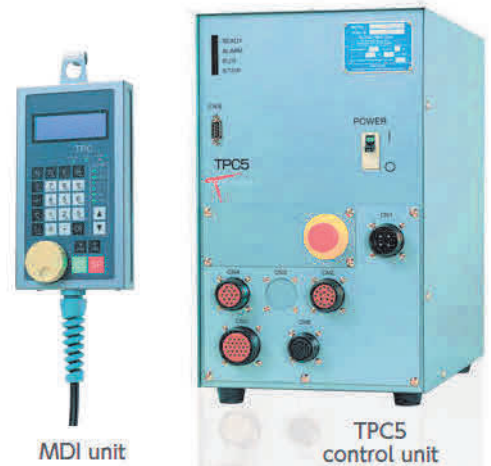
- With an optional function of B signal, the workpiece number, block number and tilting angle command can be entered from machining center.

- Operation can be programmed by machining center.

With "remote mode + M" specification

(Parameter change) **P.52**

※Corresponding to Cable option



MDI unit

TPC5 control unit

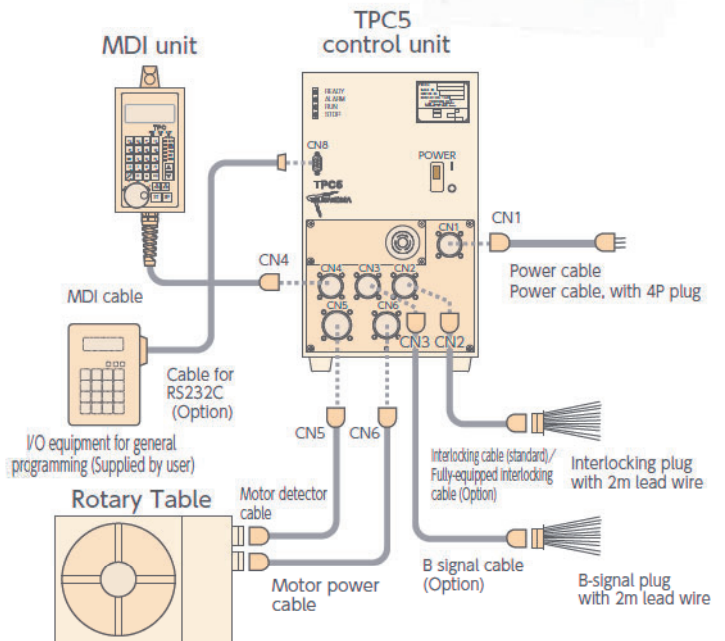
Applicable models

	SR6	SR12	SR30
RWB-250	●		
RWB-320,400,500		●	
RWM-160	●		
RWM-200 / 250 / 320-2	●		
RCH/RCV-800		●	
RCH/RCV-1000,1250			●
RCV-1600			●
RNC-2001,1501			●
TN-320	●		
TN-450			●
TWB-320	● (R)	● (T)	
TWB-630		●	
TWM-250*	● (R)	● (T)	
RBS/RBH-160	●		
RBS/RBH-250	●		
RBS/RBH-320		●	
RBM-160 *	●		
TBS-250	●		

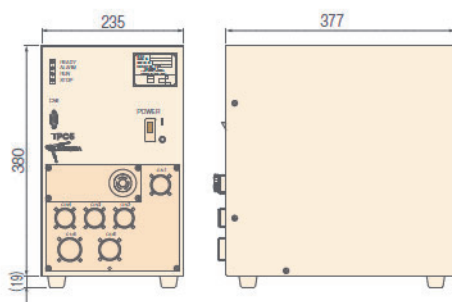
*Table maximum rotation speed is limited.

RBH requires special TPC5.

Cables

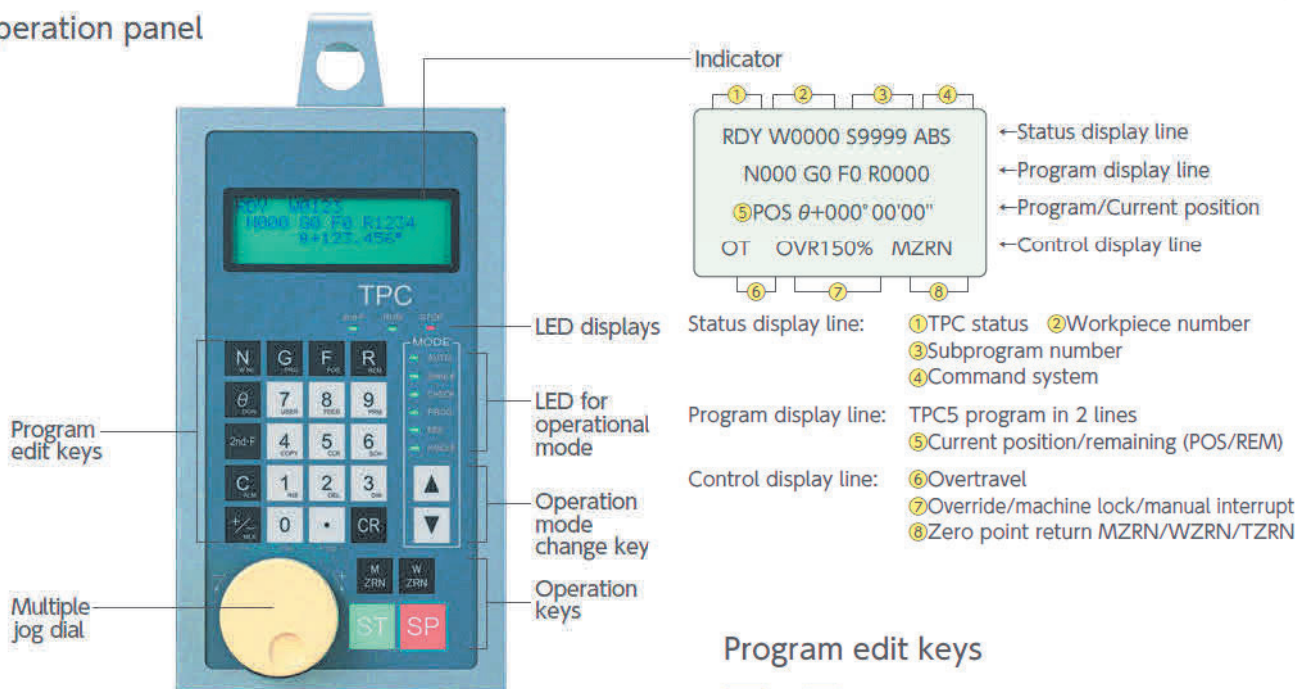


Dimensions



TPC5 FUNCTIONS

Operation panel



OPERATION MODE

- AUTO** AUTO : Automatic operation interlocked with machining center
- SINGLE** SINGLE : Single operation of TPC5
- CHECK** CHECK : Program check and self-diagnosis
- PROG** Program mode : Program entry
- MDI** MDI mode : Setup operation
- HANDLE** Handle mode : Manual pulse operation/jog mode

Program edit keys

- 2nd-F** + **N** Workpiece No. (Program No.)
0000 to 9999
100 programs registerable
- N** Block No. 000 to 999
- G** Operation command
G0 to G4 : Movement command
G5 to G9 : Assistance function
- F** Feed rate select command
F0 : Rapid positioning speed
F1 to F9 : Cutting feed rate
- R** Assistance code for codes
- θ** Travel distance command
(angle, divided number)

G-code		R-code		θ-code	
No.	Command	No.	Command	Command	Setting
G0	Direct angle command	0001 to 9999	Number of Repetition (INC command)	Command angle	±000.001° to 999.999°
		0000	(ABS command)	Command angle	±000.000° to 360.000°
G1	Direct indexing number command	0001 to 9999	Number of repetitions	Number of divisions for 360°	±1 to 999999div.
G2	Arc-indexing number command	0001 to 9999	Number of divisions, Number of repetitions	Arc-angle indexed	±000.001° to 360.000°
G3	Lead cutting command	0000 to 0100	Number of table rotations	Command angle	±0° to 360.000°
G4	Zero point return command	0000	1st zero point return (mechanical zero point)	Not required	
		0001	2nd zero point return		
		0002	3rd zero point return		
G5	Sub-program call command	0000 to 9999	Number of repetitions	Sub-program No.	0000 (0001) to 9999
G6	Subprogram return command		Not required	Not required	
G7	Program end command		Not required	Target address	000 to 999
G8	Workpiece coordinate system setting command		Not required	Reference coordinate	±0° to 360.000°
G9	Declaration command	0000	No operation	Not required	
		0001/0002	Clamp OFF/ON		
		0003/0004	Dowel OFF/ON	Dwell time	001 to 999 (×10m sec)
		0005/0006	Indexing group control OFF/ON	Not required	
		0007/0008	Directional positioning OFF/ON		
		0009/0010	Completion signal control command OFF/ON	Completion signal selection	Not required
		0011	Program display selection command		
		0012	Current position display selection command		
		0013	Remaining angle display selection command		

RBS

RBH

Multi-Spindle
RBM

TBS

RWE/RWA
RN

RWH

RWA-B
RNCV-B

RWB

RWB-K
RNCK

RCB

RCH
RNC

RCV

Multi-Spindle
RWM

TWA/TN

TWB
TTNCMulti-Spindle
TWM

RDS

RTV
RTTTDS
TDB

NC Controllers

Accessories

Options

Technical
Information

Specifications of TPC

	TPC-Jr	TPC5
Control axis	1 axis	
Servo motor	AC servo: ABS detector	
Command unit	0.001° (Decimal)	1 sec, 0.001°, 0.0001° (Decimal)
Indexing	1 to 999999 even indexing	
Direct indexing number	1 to 999 even indexing	
Arc-indexing	1 to 9999 even indexing	
Max. command angle	±999.999°	±999°59'59", ±999.999°, ±999.9999°
Command system	INC, ABS, Shortcut ABS, INC/ABS mixed system	
Input system	MDI	
Program control	Workpiece No. (W0000 to 9999)	
Program capacity	1,000 blocks (Total of main and sub programs)	2,000 blocks (Total of main and sub programs)
Positioning speed	Max, motor rotation speed: 3,000rpm	Max, motor rotation speed: 2,000rpm
Operation Mode	AUTO: Operation interlocked with a machining center SINGLE: Single operation of TPC CHECK: Program check and call PROG: Program edit MDI: Setup operation JOG: Manual feed, step feed HANDLE: Manual pulse operation	AUTO: Operation interlocked with a machining center SINGLE: Single operation of TPC CHECK: Program check and call PROG: Program edit MDI: Setup operation HANDLE: Manual pulse operation
Display	OELD 20 figures×4lines	Liquid crystal display 20 figures×4lines
Direct indexing number command	Move angle is directly commanded	
Repetition	Command of number of move amount repetitions 999 (TPC-Jr) 1 to 9999 (TPC5)	
Direct indexing number command	Indexing number of six digits for 360 degrees	
Arc-indexing number command	Command of arbitrary 3-digit angle (TPC-Jr) or 4-digit angle (TPC5)	
Lead cutting command	Interlocked operation with one axis of the machining center in the open loop status	
Zero point return command	Allows return to the first, second or third-zero point	
Feedrate command	F0: positioning speed F1 to 9: cutting feedrate	
Feedrate setting	1. By radius and surface speed setting 2. By move amount per second	
Sub-program	Up to eight levels of nesting are possible	
Workpiece coordinate system setting	Allows a workpiece coordinate to be set at any point	
Dwell	Allows output of a positioning completion signal to be delayed	
Single directional positioning	Allows positioning in one direction	
Backlash compensation	In increments of 0.001°	Setting by command unit
Soft limit function	Sets a soft limit measured from the 1 st zero position	
Automatic setting at power ON	1. Mode selection, AUTO/CHECK 2. Workpiece number setting 3. Block number setting	
Edit function	1. Insert 2. Delete 3. COPY	
Alarm	1. Program format errors 2. Program memory errors 3. Communication errors 4. Soft limit alarms 5. Overtravel 6. Servo motor alarms 7. Overheat in the cabinet (TPC5)	
Override function	×	5 to 200% 5% steps
JOG/HANDLE feeding	Manual pulse feed, Jog feed, step feed	Manual pulse feed, jog feed
Overtravel	The rotation range of the rotary table can be limited by limit switches. (Standard tilting axis)	
Manual 2 nd zero setting	Enables the 2 nd zero position to be set and changed at any point in the JOG (HANDLE) mode	
Input/output signal check	○	
Power	1φ200/220V±10% 50/60Hz 3φ200/220V±10% 50/60Hz	
Earth (less than 100 ohm earth resistance)	Model Power capacity Fuse rating Jr K2 1.2KVA 10A Jr K3 1.9KVA 15A	Model Power capacity Fuse rating TPC5-SR6 2.3KVA 10A TPC5-SR12 4.0KVA 15A TPC5-SR30 5.9KVA 20A
Environmental conditions	Ambient temperature: 0-40 degree Relative humidity: 20-80% (no condensation) Vibration: 0.3G or less, No corrosive gas	
Weight	Jr K2 unit Weight: 7.0kg 285mm (W)×255mm (D)×135mm (H) Jr K3 unit Weight: 7.6kg 285mm (W)×255mm (D)×135mm (H)	Control unit Weight: 15kg 235mm (W)×377mm (D)×380mm (H) MDI unit Weight: 0.5kg 111mm (W)×30mm (D)×199mm (H)
External output signal	From TPC to machining center Contact ratings: DC24V, 0.1A or less	

	TPC-Jr	TPC5
FIN1	Positioning completion signal during interlocking operation	
FIN2	Output of G7 completion or workpiece number setting completion (selectable by parameters)	
FIN3	Output of G7 completion or workpiece number setting completion (selectable by parameters)	
FIN4	Output of zero position (selectable by parameters)	
Workpiece number setting completion	Output at workpiece number setting completion (selectable by parameters)	
In AUTO mode	Output in AUTO mode	
LEVEL	Output during positioning (selectable by parameters)	
ALARM	Output in when alarm detected	
External input signal	From machining center to TPC (External power DC24V is also available.)	
START	Positioning start signal during interlocking operation (M-signal)	
STOP	Input to stop rotary table	
INTERLOCK	Input to interlock rotary table	
Selection of outer program	Workpiece number can be set externally	
BF (Strobe signal)	Strobe signal for setting workpiece number externally	
M-signal	M signal data fixed input system	
MDI lock	Input for locking MDI key operation	
Zero point return	1st zero return command	
Manual pulse generator	Manual operation can be performed with a manual pulse generator	
Full-closed feedback control	Movement magnification: ×1, ×10, ×100	
MP scale	Detecting unit 0.0001° (360poles) or 0.00005° (720poles)	
Encoder	Detecting unit 0.0001° or 0.00005°	
Serial channel	TPC program, feed rate and parameters can be stored in an external device	
Cable supplied (standard)	Between rotary table and TPC-Jr (1 pc) For Motor: 5m	Between rotary table and TPC5 (2 pcs.) For motor power supply: 5m For motor detector: 5m
Cable supplied (Option)	Cables of different length are available	
	RS232C cable: 5m	Interlocking cable: 5m
	Manual pulse generator (cable) 3m	B signal cable: 5m
	—	RS232C cable: 5m

●:Standard

◇:Optional interlocking cables are supplied

◆:Optional units and parts are supplied