Specification

Turning Machine Controller

○Yes --No △Optical

Product Specification

	Model No.	T3600A	T3600D	T5800A	T5800D T5850D T5900D	T6800D T6850D T6900D	T7850D	T7900D
HW	Monitor	7"		8.4"	8.4"	10.4"	15"	15.4"
	Axial Port	3		4/6	2	2	2	2
	Servo Protocol	--	MII / EtherCAT	--	MII / MIII / EtherCAT	MII / MIII / EtherCAT	MII / EtherCAT	MII / EtherCAT
	D/A Output	1		2	2	2	2	2
	MPG Port	1		1	1	1	1	1
	Input Point	128		32	128	128	128	128
	Output Point	128		32	128	128	128	128
	Front USB Port	○		○	○	○	○	○
	Front Network Port	○		--	--	○	○	○
	Built-In MPG	--		○	○	△	△	△
	LED Tool No. Display	○		--	○	○	○	○
Control	Path Control (Max.)	1		2	2	2	2	2
	Axis Control (Max.)	2		4/6	9	9	9	32
	Spindle Axis (Max.)	1		3	6	6	6	32

Accessories Specification

Model No.	SIOA1700	REL1805	SIOA1760R
Input Voltage	DC24.0±10%	--	DC24.0±10%
Max. Current	1.5A	--	--
Input Point	22	--	16
Output Point	16	5	16
Input Spec.	DC24V	--	DC24V
Optical Coupler Inputs	NPN/PNP Switchable	--	NPN/PNP Switchable
Output Spec.	Low level output (Crystal) Connection point not over 200mA	Relay output ; Connection point spec.: AC250V 2A	Connection point spec.: AC 250V 2A / DC 30V 2A

Model Naming Rule

T	6800	D3	S2	V5	C2	F1
Turning Machine Controller	**Main Model**	**Servo Communication**	**Channels**	**Servo Axis**	**Spindle Cs Control**	**Double Feedback**
	5800 8"	D1 MECHATROLINK-II	S1 Single	V1 1	C1 1	F1 1
	6800 10"	D2 RTEX	S2 Dual	V2 2	C2 2	F2 2
	7900 15" High-speed machine	D3 EtherCAT				
		A Pulse				

LNC Technology Co., Ltd
Controller Business Group

Intelligent Machines Information & Intelligence

Comprehensive Upgrade of Smart Machinery

Besides of the hard core technology of precision and processing speed, the developing trend of the modern machinery is to integrate smart functions to upgrade machine to intelligent machinery. The key technologies include integration of sensors, intelligent accessories and IoT. LNC Technology provides powerful product integration control capabilities to bring modern smart machinery and more efficient manufacturing process come true.

LNC Technology Co., Ltd.

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More Information

SENSOR

TURNING MACHINE

TURNING MACHINE CONTROLLER SERIES

High Speed, High Precision | Mill-Turn Machines
Duo-system, Duo-feedback | Intelligent Sensor

www.LNC.com.tw   Service@LNC.com.tw

LNC SCADA

LNC Turning Machine Controller

LNC Turning machine controller series supports various digital communication protocols including EtherCAT, MII, RTEX... etc. It can be matched with different types of servo motors on the market. By upgrading with a high-speed computing core and support advanced functions such as dual-channel and dual-path, it can meet requirements of advanced applications such as mill-turn machines, 2-in-1 control contains lathe and robotic arm and so on. LNC turning controllers are give with a considerate hardware designs: fanless design and IP complicant protection for oil and dust-proof. In addition, work with LNC's smart sensors (vibration/thermal) and LNC SCADA, cloud platform, it is in line with the future development trend of Industry 4.0 and smart manufacturing.

- Support various protocols: MII/EtherCAT/RTEX
- EtherCAT protocol allows various smart sensors and IO connection
- Powerful function: 6 paths 32 axis
- Core accuracy upgrades to nanometer precision level
- High-speed and high-precision interpolation satisfies requirements of advanced applications
- Several smart functions
- Dual system functions
- Friendly user interface

Product Series

LNC Turning Machine Control System Series

T3600A/T3600D
- 7.4" TFT LCD
- Include 3 pulse axial ports
- Support MII/EtherCAT and 1 pulse axis port
- Collaboration w/ LNC sensors

T5800A/T5800D
- 8.4" LCD
- All-in-one design (HW fixed)
- Pulse type interface
- Support M II/EtherCAT

T5800D
- 8.4" LCD
- HW separable controller
- Support M II/EtherCAT
- Hard-key type keyboard

T6800D(Horizontal)
- 10.4 " LCD
- HW separable controller
- Support MII/EtherCAT/RTEX
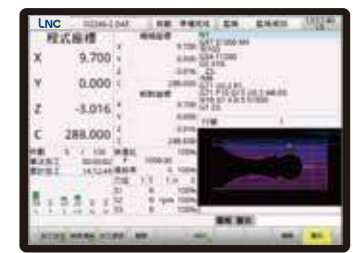- Hard-key type keyboard

T6800D(Vertical)
- 10.4 " LCD
- HW separable controller
- Support MII/EtherCAT/RTEX
- Hard-key type keyboard

Software

Software Function

Coordinated User Interface & Loading Monitoring
- Coordinates, programs and graphics can be viewed on the same page to reduce page switching. Can monitor the drive type and loading information.

Command Highlight & Online Help
- Commanding could be high-light marked on screen which helps users check easily.
- Online help function is convenient to inquireand edit programs.

Intelligent Monitoring of Tool Loading
- Controller learns to how to make judgement of tool duration by monitoring servo loading.
- With intelligent tool life management based on learning servo load.

Intelligent Servo Tailstock
- Torque can be adjusted in real time without auxiliary springs.
- Using the absolute value of servo, and requires no origin stop block.
- Thimble can move and position quickly.

Diagnosis of Thread-cutting
- System calculates the angle of thread cutting.
- As long as the actual feed angle is correct, there will be no error in threading cutting.

Arc Threading
- Provide arc threading function that could apply to special manufacturing.

On-line Oscilloscope
- Including controller's status, machine external output/ input status, PLC on-line diagnosis function.
- Easy to find PLC sequence type problems.

Ballbar Testing
- Ensure the accuracy of the workpiece in the first processing of machine tool.
- Reduce machine downtime, NG rate, and cost of inspection.

Chip Breaking Cutting
- The high-speed reciprocating movement of the feed axis achieves the purpose of chip breaking and cutting.
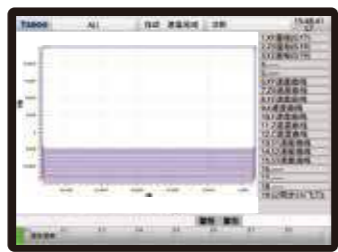- Can be used for roughing and finishing.

Ellipse Processing
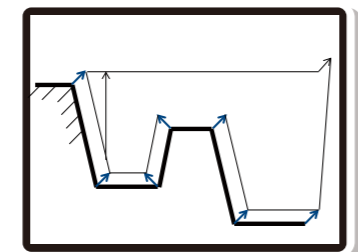- C-axis collaborate with X-axis to complete ellipse and cam profile processing.

Lathe Drawing Page
- The mechanical coordinate position of system commands and actual motor feedback can be set.

Tolerance of Finishing
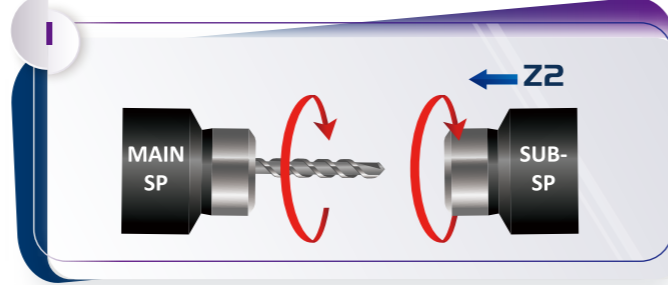- The tolerance can be changed with the machining contour to avoid over-cutting.

Dual System
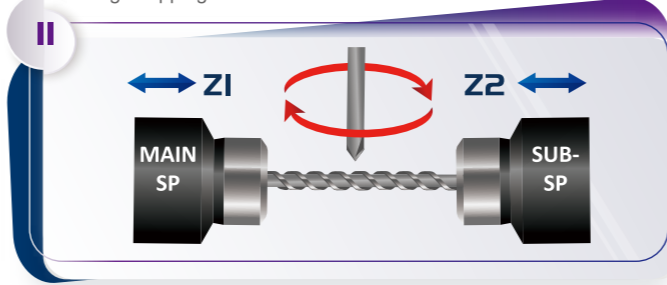
Dual System Function

Spindle Speed & Phase Synchronization
- Spindle and sub-spindle can synchronous run so as to facilitate the joining of circular or polygonal working pieces.

I — Z2 / MAIN SP / SUB-SP

Servo Axis Synchronization Control Function
- Apply to long type work clamp processing such as lathe threading, rigid tapping and knurled.
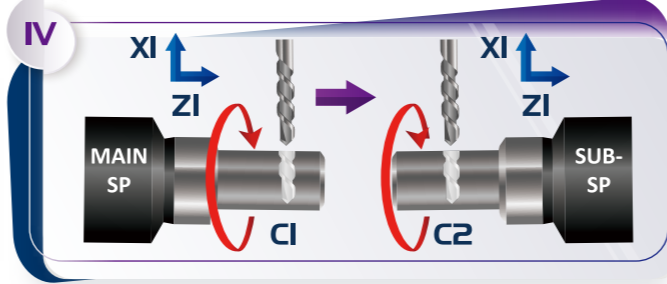
II — Z1 / Z2 / MAIN SP / SUB-SP

Servo Axis Overlapped Function
- While main spindle runs continuously, the side milling axis could overlap doing the rigid tapping to reduce main spindle pausing time.

III — Z1 / X1 / Z2 / MAIN SP / SUB-SP
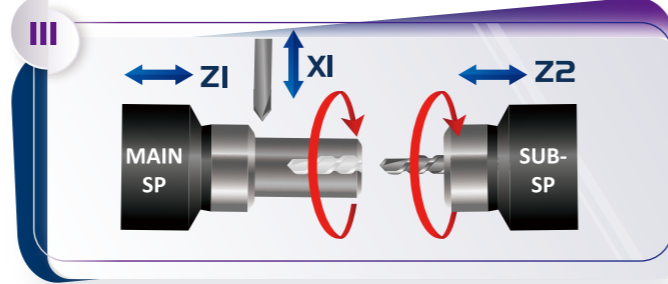
Hybrid Control
- You could use program command sequence to exchange other servo axis in other path.

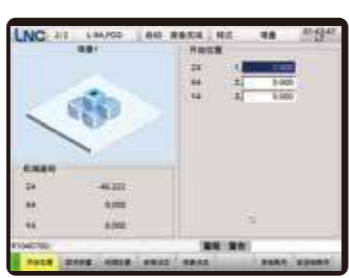**IV** — X1 / Z1 / X1 / Z1 / MAIN SP / SUB-SP / C1 / C2

Dual System

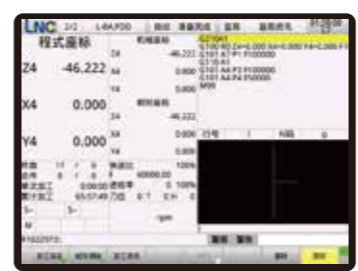## Two-in-one Control of Lathe with Gantry Robot

Arbitrary Point Setting

Tray Stacking Setting

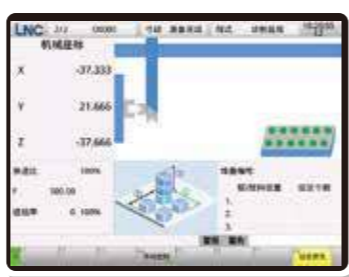**G Code Programming Design of Lathe Robot Arm**

Text Teaching

Restrict Area Setting
- Prohibited area can be easily set through the teaching method

Diagnosis & Monitoring
- Dynamic display of the current manipulator movement

Support M Code
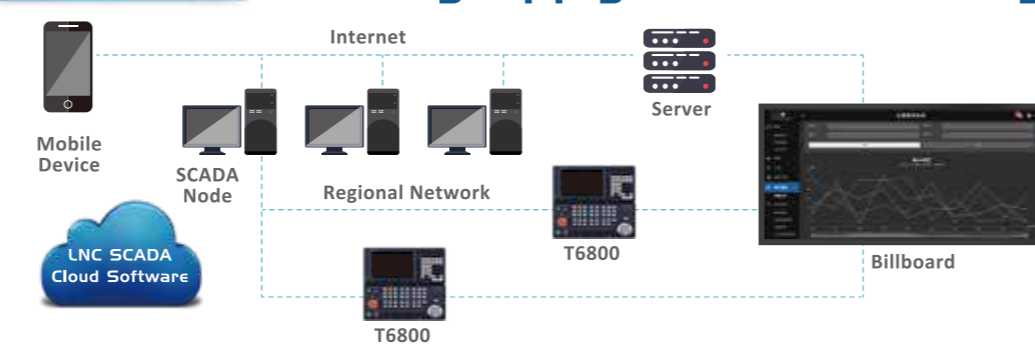- Customized M code function to meet different needs of customers

System Path Setting
- Easy to set up and save time of machine adjustment

LNC SCADA Cloud Software

Quickly Apply to Cloud Managment

Mobile Device / Internet / Server / SCADA Node / Regional Network / T6800 / Billboard / T6800 / LNC SCADA Cloud Software

Through the LNC SCADA cloud software, users can monitor the product quality and production capacity of the factory, and can trace back the quality statistics and analysis related data of the product when a product abnormality occurs, and reflect it on the production decision, which can prevent the same problem from recurring. It's the current trend of smart production, which can be widely used in large-scale production lines that have high requirements for quality. LNC provides a complete cloud monitoring system solution for production plants to meet the needs of intelligent production line management and transparency of production information.
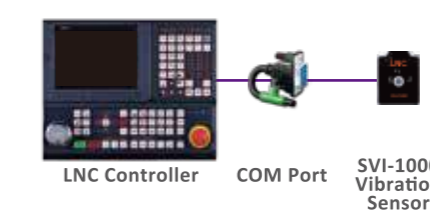
Features
- Monitor production quality, and summarize statistical analysis data to the server.
- Upload and download through the Internet and check the current processing program in real time.
- Machine maintenance schedule will be reminded in advance, and a warning will be issued if the time is overdue.
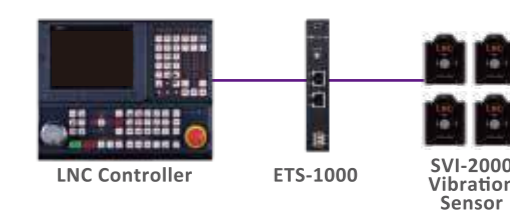- Check the current work order production information, machine status, utilization rate... etc. at any time through the Internet.
- By setting the personnel authority, personnel can operate or view data according to different authority levels to improve security.
- Real-time alerts can be sent to designated personnel via Email, Line, Wechat, mobile phone when the machine is abnormal.

Temperature Compensation

Auxiliary Function of Temperature Compensation

LNC Controller / ETS-2000 Power Module / ETS-3100 Temperature Sensor Module / K-type Thermocouple

Set Compensation Parameter
- The relevant parameters of the X, Y, and Z axes can be set as the linear axes commonly used in lathes, and six-stage temperature rise compensation can be shown.

Temperature Compensation Page

Vibration Sensor

Vibration Sensor

System Connection 1
1. Connect via COM port
2. Qty of sensor connection: 1

LNC Controller / COM Port / SVI-1000 Vibration Sensor

System Connection 2
1. Connect via EtherCAT
2. Qty of sensor connection: 4

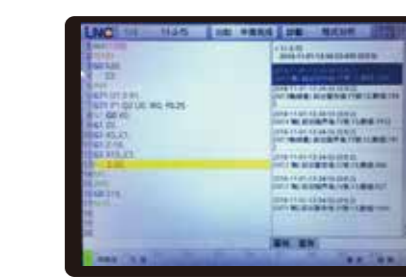LNC Controller / ETS-1000 / SVI-2000 Vibration Sensor

Abnormal Section Marking Function
- When an abnormal vibration is detected during processing, the program lines will be marked in red. This function provides ease of checking error and debugging.

Program Analysis
- User can read the processing alarm record, which records the abnormal vibration direction, vibration value and program line numbers, and this is helpful for analyzing abnormal information.

Application

01 Sliding Head Turning

02 Twin Spindle Turning

03 Turning & Milling Center

04 Flat Bed Turning

05 Vertical Turning