

# TOYOPUC-Nano

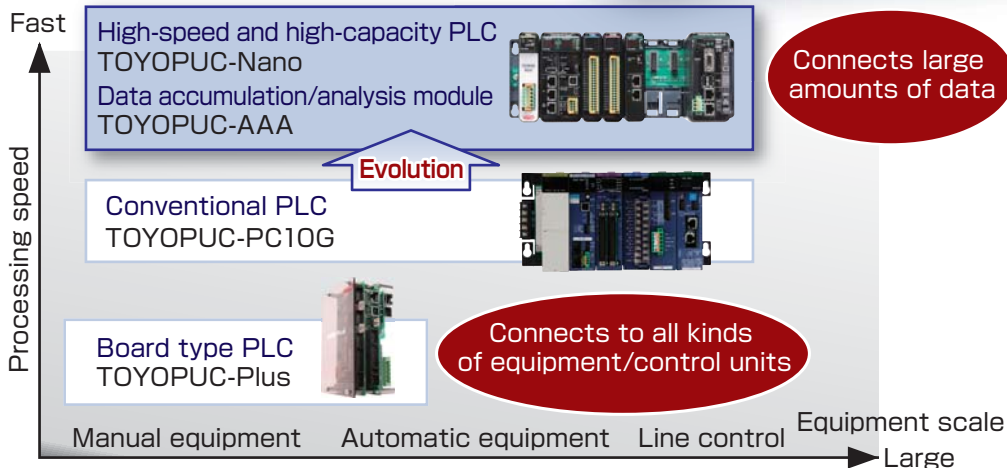
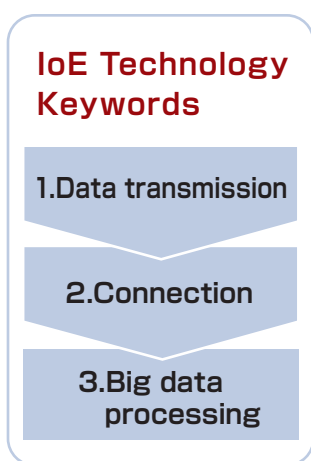
*New Architecture Next Operation*

Equipment advancement  
through big data

Transition of  
PLC into IoE era



## PLC with IoE (Internet of Everything)



## New Architecture

*New high-speed platform with two "brains"*

*Achieves high-speed processing and high-level big data processing*

- 16 times faster than PC10G ※1
- 1.3 times more capacity than PC10G ※2

- Achieves high-level analysis by combined use of data accumulation and an analysis module

※1 Speed comparison refers to basic command processing speed  
※2 Capacity comparison refers to user usage area capacity

High-speed and high-capacity PLC  
TOYOPUC-Nano

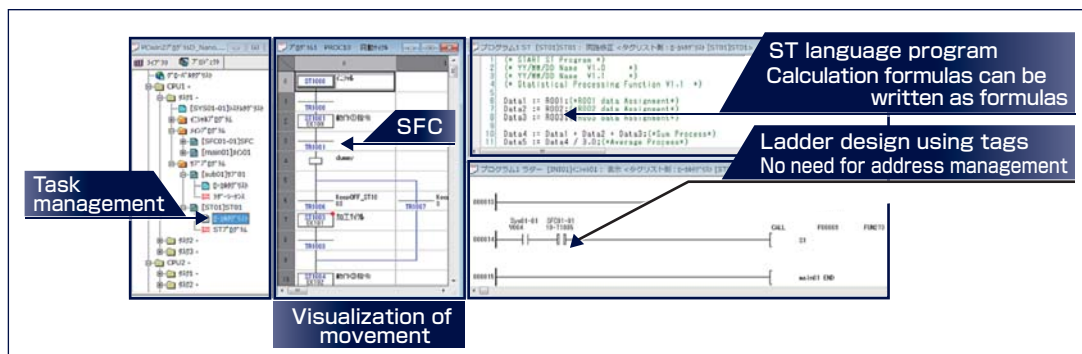
Data accumulation/analysis module  
TOYOPUC-Nano-AAA



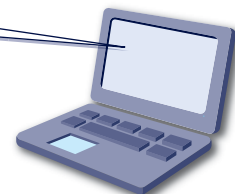
TOYOPUC-AAA can be used in stand-alone mode

## Next Operation

*Smart programming which reduces design time*



Programming tool  
PCwin2



# TOYOPUC-Nano

Easily supports big data processing with high-speed processing speed and program capacity of industry-leading class

## Line-up

Device		Name	Type	Specifications	Remarks
DC 24V power		PW2	TUV-6942	DC 24V power (with diagnosis function)	
CPU		CPU	TUC-6941	Memory containing 540K words, Communication: Ether system 2-port, serial system 2-port, USB memory port*1	
Input module	16-point input	I-12	TUK-1006	DC 24V, 16-point input (8-point/common), non-polar	
	32-point input	I-22	TUK-6948	DC 24V, 32-point input (8-point/common), non-polar	
	Switch input	SW	TUK-6965	16-point switch input	
Output module	16-point relay contact output	O-12	TUK-1007	DC 24V 16-point (8-point/common) 2A/-point 5A/common, non-polar, with IO power monitor function	Scheduled for sale*1
	16-point FET output *3	O-18	TUK-1008	DC 12/24V 16-point (8-point/common) 1.0A/-point 4A/common (+) common, with IO power monitor/short circuit diagnosis function	Scheduled for sale*1
	16-point FET output *3	O-19	TUK-1009	DC 12/24V 16-point (8-point/common) 1.0A/-point 4A/common (+) common, with IO power monitor/short circuit diagnosis function	Scheduled for sale*1
	32-point FET output	O-28	TUK-1010	DC 12/24V 32-point (8-point/common) 0.5A/-point 2A/common (-) common, with IO power monitor/short circuit diagnosis function	Scheduled for sale*1
I/O module	32-point input/ 32-point output	IO-328	TUK-1005	DC 24V 32-point input (16-point/common) (+) common DC 24V 32-point (16-point/common) 0.3A/-point 2A/common (-) common, with IO power monitor/short circuit diagnosis function	Scheduled for sale*1
		IO-329	TUK-6952	DC 24V 32-point input (16-point/common) (-) common DC 24V 32-point (16-point/common) 0.3A/-point 2A/common (+) common, with IO power monitor/short circuit diagnosis function*2	Function addition*3
Base	8-slot base	8BS	TUR-6943	8-slot base (Up to 7 I/O modules when a CPU is equipped)	
	6-slot base	6BS	TUR-6966	6-slot base (Up to 5 I/O modules when a CPU is equipped)	
	4-slot base	4BS	TUR-6967	4-slot base (Up to 3 I/O modules when a CPU is equipped)	
Communication module	2 ports Ethernet *4	2ET	TUU-6949	(Ethernet*/EtherNet/IP*/EtherCAT*/FL-net*/FL remote) selection type 2-port	
	DeviceNet	DL	TUU-6956	DeviceNet master/slave (switch-based selection)	
	2 ports multi link	2ML	TUU-6954	(PC/CMP/MODBUS/SIO) selection type 2-port	
	Selection	SL	TUU-6955	For rack expansion, max. 100 m between racks, max. no of racks: 8 (incl. CPU rack)	
Special module	High speed counter	CT	TUK-6974	8Mpps, DC5V/12V/24V/RS-422	
	Analog input	AD	TUK-6975	-10~10V, 0~20mA 480μs/ch 8ch	
	Analog output	DA	TUK-6976	-10~10V, 0~20mA 60μs/ch 8ch	
Edge-type analysis module	TOYOPUC-Nano-AAA	TUK-6987-02	Direct circuit monitor software/ScreenWorks/ TOYOPUC-AAA basic software/TOYOPUC-AAA communication software		

\*1 Please contact us for details.

\*2 Regarding output currents O-18 and O-19, the combined total of each address, 0/1, 2/3, 4/5, 6/7, 8/9, A/B, C/D, E/F, must be 1A or less.

\*3 For information on the timing of transition to the short circuit diagnosis function additional version, please contact the sales team in charge.

\*4 Only one port can be used for EtherCAT, including the CPU built-in port.

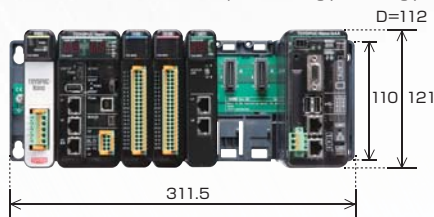
## General specifications

Item	TOYOPUC-Nano
Power supply	DC24V -15%/+20%(20.4V ~ 28.8V)
Power consumption	30VA or less
Ambient temperature	0 ~ 55° C
Relative humidity	10 ~ 95%RH (must be free from dew)
Atmosphere	No corrosive gas allowed
Vibration resistance	5 to 8.4 Hz single amplitude 3.5 mm, 8.4 to 150 Hz 9.8 m/s <sup>2</sup>
Shock resistance	147 m/s <sup>2</sup> 3 times in 3 directions
Noise resistance	Complies with EMC standard EN61131-2
Dielectric voltage	AC1000 V one minute (between DC external terminal and earth)
Insulation resistance	DC100V 10MΩ or more (between DC external terminal and earth)
Momentary power failure	Allowable momentary power failure time: 10 ms or less (interval of momentary power failure: 1 s or more)
Overseas standards	Please confirm the latest status on the Response to Overseas Standards page on JTEKT's website. URL: <a href="http://www.jtekt.co.jp/products/toyopuc/csa.html">http://www.jtekt.co.jp/products/toyopuc/csa.html</a>

## CPU I/F specifications

I/F	TOYOPUC-Nano
Built-in Ethernet 1	L1: FL-net*/Ethernet*/FL-remote M/EtherCAT* (selection type)
Built-in Ethernet 2	L2: FL-net*/Ethernet*/FL-remote (selection type)
Built-in Serial 1	L3: SN-I/F/PC-LINK/CMP-LINK/MODBUS*/SIO (selection type)
Built-in Serial 2	L4: PC-LINK/CMP-LINK/MODBUS*/SIO (selection type)
USB for peripheral equipment	USB: Full Speed: 12 Mbps Fixed (isolated)
USB memory port	USB: High Speed: 480 Mbps, Full Speed: 12 Mbps (automatic recognition)
Expansion bus (I/O BUS)	Special-purpose bus
USB for conventional module connection	BUS-EXP special port USB: High Speed: 480 Mbps

## Outside dimensions When 8BS is used (not including protruding portions) Unit: mm



\* Ethernet is a registered trademark of Fuji Xerox.

\* EtherNet/IP is a registered trademark of Open DeviceNet Vendor Association Inc.

\* EtherCAT is a registered trademark of Beckhoff Automation GmbH.

\* DeviceNet is a registered trademark of Open DeviceNet Vendor Association Inc.

\* MODBUS is a registered trademark of AEG Schneider Automation International.

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No. M1099-1E

## Performance specifications

Item	TOYOPUC-Nano
Program method	Stored program method Event monitor function by parameter setting
Program control method	Cyclic calculation method Constant periodic interruption function
Programming language	SFC, LD, FBD, ST
Input/Output control method	Image register method
Basic command processing speed	0.96 ns per command
Basic commands	20
Timer/counter commands	23
Application commands	Over 700 (allows signed operations and floating-point operations)
Program capacity	Total of 540K words
Library capacity	(Program + FB library + standard library + user library)
Memory types	Flash memory, MRAM, FRAM
Battery	None (backup by non-volatile memory + super capacitor) May be added optionally
No. of external input/output points	4096 points
No. of internal output points	86016 points (4096 points x 3 + 8192 points + 65536 points)
No. of keep relay points	6400 points (768 points x 3 + 4096 points)
Timer function	0.1 to 6553.5 sec/0.01 to 655.35 sec 0.001 to 65.535 sec/1 to 6553.5 sec Total: 9,728 points
Counter function	1 to 65535 (2560 points x 3 + 2048 points)
No. of link relay points	38,912 points (10,240 points x 3 + 8192 points)
Rise/fall detection	11,776 points (2560 points x 3 + 4096 points)
Data register	164 KW (12 KW x 3 + 128 KW) Expansion buffer register: 256 KW direct specification available Flash register: 4 Mb flash memory (read only) Write-in possible for 64K byte units
Link register	6 KW/16 bit (2 KW x 3)
Equipment data memory	8Mbyte
No. of special modules mounted	Communication (link) module: MAX 24 No memory usage limit on number of modules

## Programming tool

Name	Type	Specifications
PCwin 2	TJA-2032	PCwin : For TOYOPUC -PC10G_3J series PCwin2 : For TOYOPUC-Nano
	TJA-2031	PCwin : For TOYOPUC -PC10G_3J series PCwin2 : For TOYOPUC-Nano

PCwin2 can be used with the same license as PCwin.

Type of Equipment : Programmable Controller

Model Number : TOYOPUC

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