

Brief Product Profile

Industrial Systems
Toshiba India Private Limited



For requirements & queries, please contact

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(Industrial Systems)

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Industrial Products

Electrical / Power Electronics

- **AC Motors including Hazardous Area Motors**
- **AC Variable Speed Drives**
- **Digital Soft Starters**

Control & Instrumentation

- **DCS, PLC, Loop Controller, MD-PID**
- **Flow Meters**



For many years, Toshiba has remained at the fore front of Product and Technology Development of Industrial Products.

Toshiba Group Companies' Products are committed to

- ❖ Global Standards
- ❖ Energy Efficiency and Productivity Improvement
- ❖ Safe, Reliable, Robust and High Performance Operation
- ❖ Environmental Friendliness
- ❖ Committed to the Future, Technology for Tomorrow
- ❖ Local Delivery of Global Strength
- ❖ Customer Satisfaction

Committed to People
Committed to the Future

AC Motors

CCOE approval available

Up to 80 Deg.C ambient

Hazardous Area Motors

IEC Standard

- Exn, Exe, Exd, ExtD types
- 0.12 kW - 860 kW
- Zone 1, 2; Gas Group IIA/B/C
- Temperature class T1 to T6

NEMA Standard

- 0.75 HP - 350 HP
- 230V, 460V/ 525V, 60 Hz



ATEX



Safe Area Motors

Permanent Magnet PM (IE4)

- 0.75 kW - 150 kW
- 4 pole or more

Power Series (IE2)

- 0.37 kW - 315 kW
- 2, 4, 6 Pole
- 380, 400, 415 VAC

NEMA

- 0.75 HP - 350 HP
- 2, 4, 6 Pole
- 230V, 460V/ 525V, 60Hz

High efficiency HE series

(equiv. to IE3)

- 0.75 kW - 150 kW
- 2, 4, 6 Pole

Applications

- Industrial Pumps
- Industrial Fans & Blowers
- Packaging Machines
- Textile
- Grinding Machines
- Wire Drawing Machines
- Compressors
- Feeders
- Mixers
- Conveyors
- Shredders
- Crushers
- Palletisers
- and many more

- Energy saving
- Customization Flexibility
- Heavy Duty Construction
- Low Noise Design
- Corrosion Resistant Finish
- Premium Efficiency Laminations
- Low Loss Windings
- Flexible Terminal Box Design
- High Torque Rotor
- Long Life Bearings
- Drive Applications
- IP56 - IP66 Degree of Protection
- Minus (-) 60 Deg.C also Available
- Extended Warranty Available
- All Cast Iron Construction

AC Variable Speed Drives

TOSVERT VF Series

- 200/ 400/ 500/ 575/ 600/ 690V Class
- Single, Three Phase
- 0.2 kW to 630 kW

- **nC3** Ultra compact
- **S15** Simple compact and high performance
- **AS3** High performance with most advance functions like web server
- **AS1** High performance, flexibility for high torque machinery
- **PS1** Large capacity, energy saving for fan and pump application
- **MB1** Multi-function, book/ slim type Inverter



**TOSVERT
VF-nC3**

(Up to 4 kW)



VF-S15

(Up to 15 kW)



VF-AS3

(Up to 315 kW)



VF-AS1

(Up to 500 kW)



VF-PS1

(Up to 630 kW)

- Elevator
- Conveyor
- Solar water pump
- Material handling
- Hoisting, Crane
- Fan
- Pump
- Compressor
- Machine tool,....



Battery
operated



PM motor drive (w/, w/o sensor)

- VF-AS3 can drive not only 3-phase induction motors but also Interior Permanent Magnetic Motor (IPM) and Surface Permanent Magnetic Motor (SPM) with / without feedback sensor.

Digital Soft Starters

Upto 60 deg.C ambient

Conformal Coated

- **TMC7 series:**
 - Provides current limit starting and motor protection in a low cost package
 - 7.5 – 110 KW
 - 200 – 575 VAC range
- **TMS9 series:**
 - Comprehensive & customisable motor protection
 - 7.5 – 800 KW, compact design
 - 200 – 690 VAC, 3 phase control



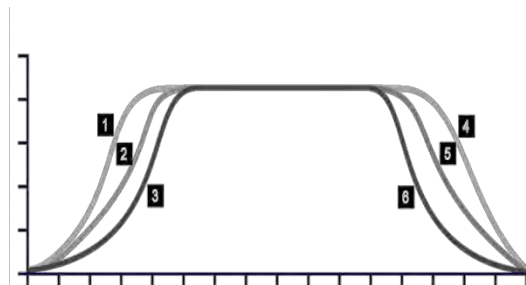
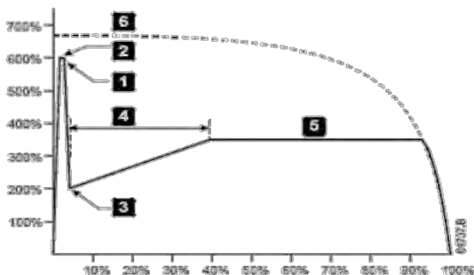
TMC7

Ideal for starting and stopping:

- pumps
- fans and blowers
- compressors and chillers
- conveyors
- augers and screw feeders
- industrial machinery



TMS9



Conveyors



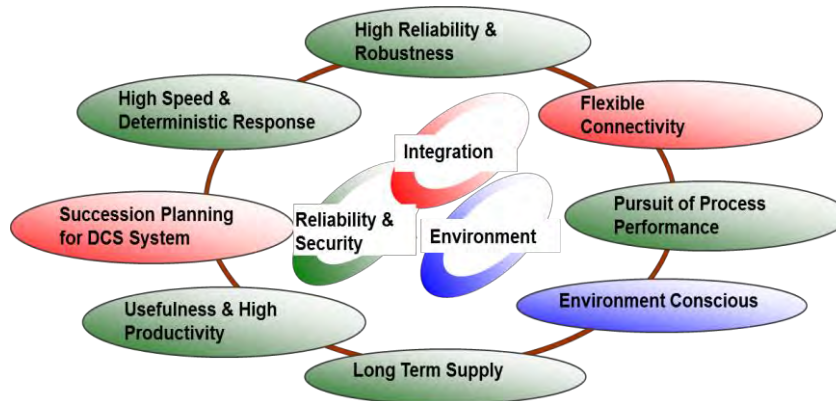
Fans



Pumps

Advanced Distributed Control System (DCS)

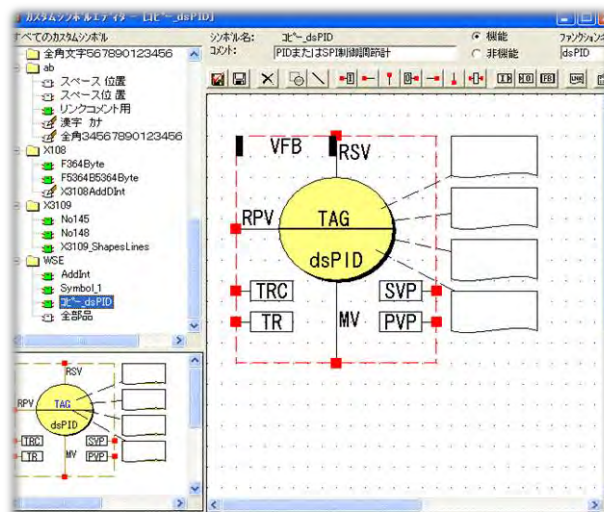
- **New-Generation Navigator Unified Controller **nv** series/ nvlight series**
- True high-speed robust control, true location-free configuration, reliable networking
- The nv series consists of powerful processors suited for high speed machine control and dual redundant process control. It also includes features such as high speed serial I/O, a high speed control network and a common hardware platform.
- Scope of applications extends beyond sequence control (PLC) and process control (DCS)
- **nv** series is able to provide **1 Gbps** Ethernet and 100 Mbps TC-net 100 control network to ensure that all information is available in real time.
- 1st time for an Industrial Controller – **100 Mbps** speed I/O system
- Connect with **OIS-DS HMI package** to get complete Control System Solution



nv Controller



nv type 2 light Controller



OIS-DS provides:
Extensive Monitoring and Operation Functions
Secure and Advanced Operation Environment

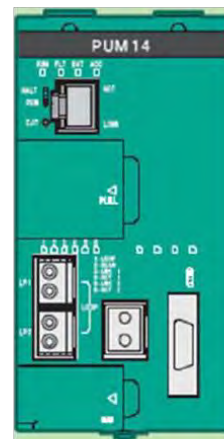
PLC (nv series type1 light)



Type1 light S
Standard sequence control module



Type1 light H
High performance sequence control module



Type1 light D
Redundant sequence control module

Program capacity: **32K steps**
No. of I/O connections: upto **32**
External interface:

- Ethernet
- RS485 (graphic panel)
- USB (for connecting tools)

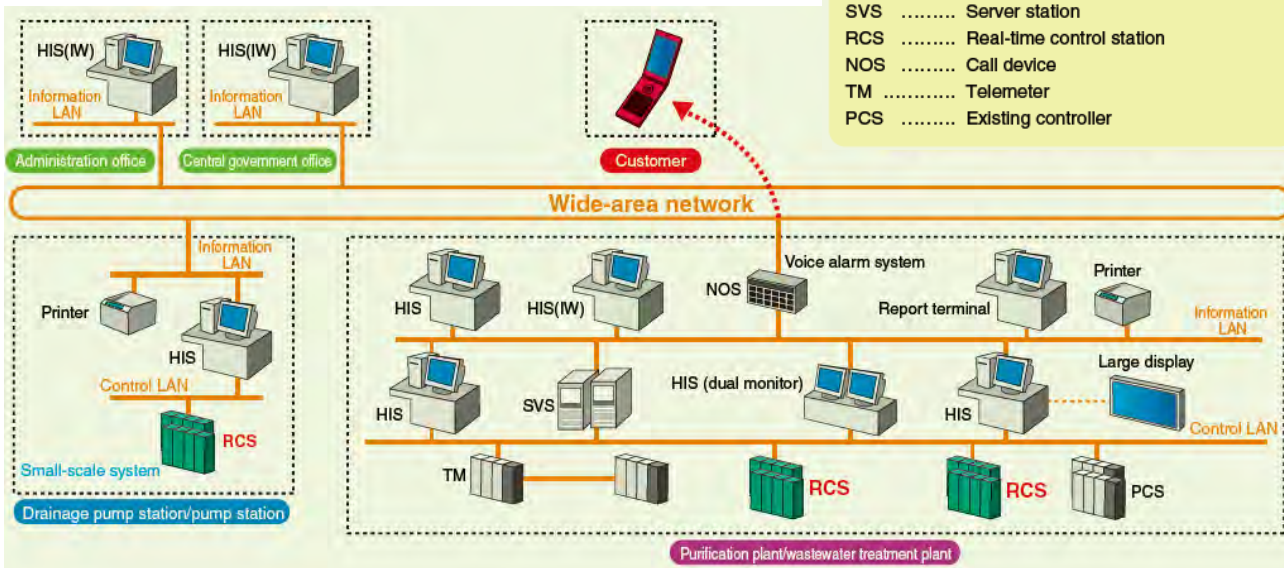
Program capacity: **64K steps**
TC-net I/O Loop: **1 loop**
No. of TC-net I/O connections: upto **64**
External interface:

- Ethernet
- USB (for connecting tools)

Program capacity: **128K steps**
TC-net I/O Loop: **1 loop**
No. of TC-net I/O connections: upto **192**
External interface:

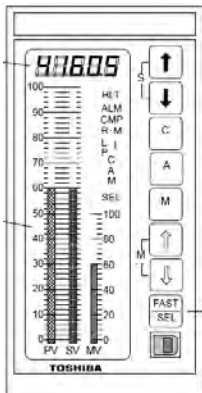
- Ethernet
- USB (for connecting tools)

- Water & Wastewater
- Oil & Gas
- Transportation Infrastructure
- Aviation Systems
- Power Generation
- Material Handling
- And many more



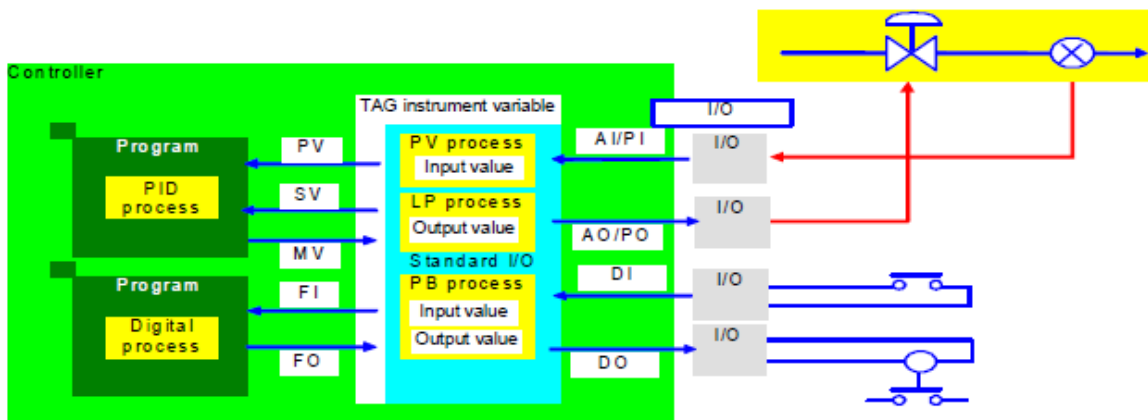
Smart Loop Controllers

- The **Single Loop Controller LC531** is a controller of the **Unified Controller nv Series** for instrument control for ultra small scale.
- The LC531 alone can **achieve PID control and digital control of up to 8 loops.**
- It has **built-in I/O's** and does not basically require any external I/O.
- The LC531 has the **RS485 communication port** and **Ethernet communication port** that allow connection of other LC531s, other controllers, and monitoring devices. It allows you to configure a monitoring and control system that consists of multiple controllers and monitoring devices. Also, it can be **connected to** and used with the **existing model EC300 series.**
- The LC531 supports **IEC 61131-3 compliant programming.** It supports **fully-graphical programming** as well as generic programming using **LD (ladder diagram)** and **FBD (function block diagram)** realizing highly effective development of application programs.



LC531 offers the following characteristics.

- Loop display
- PID control
- Build-in I/O's
- Watchdog timer output
- Compact implementation
- Side keyboard
- Removing/installing units while power is applied
- Network installation

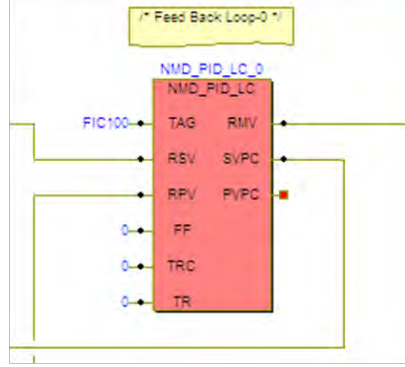


MD-PID

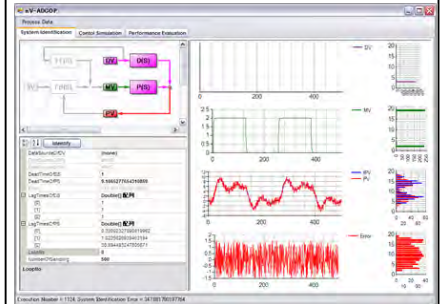
Controller : LC531
Controller : PU821



Function block : MD-PID



Optimizer : nv-ADCOP



LC531:

Loop controller of nv-series

PU821:

DCS controller of nv-series

Each has MD-PID function block and the IEC61131-3 programming is available.

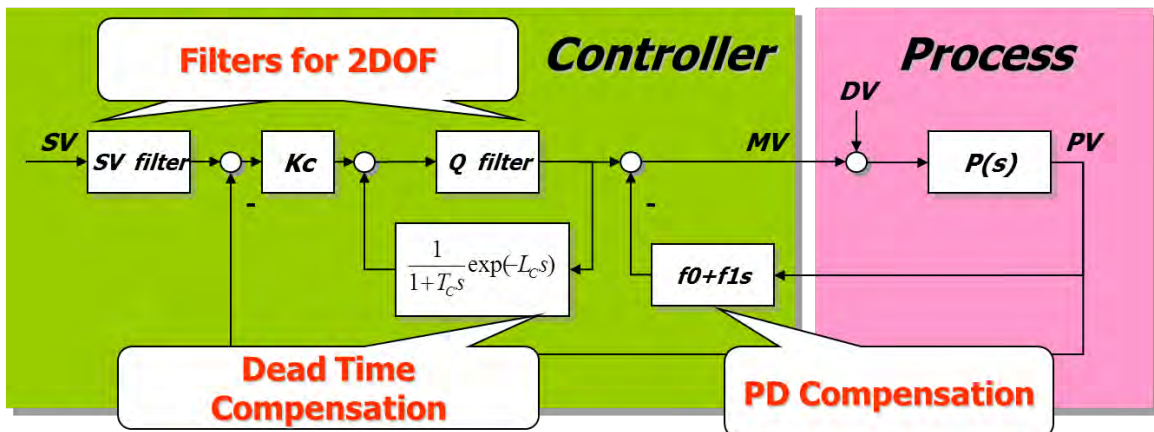
MD-PID:

A function block which executes excellent performance especially for long dead time and various dynamic processes.

nv-ADCOP:

An optimizer which realize System Identification, Control Optimization and Performance Evaluation for target process and real controller.

MD-PID (Model Driven PID)



Merit-1: Optimal Control for Long Dead Time



Merit-2: Optimal for Disturbance & Set Point Change



Merit-3: Optimal for Various Process Dynamics

Electromagnetic Flow Meters

Electromagnetic Flow Meters are instruments for measuring flow of conductive fluids, using Faraday's principle of electromagnetic induction.



LF620 (Integral type)



Flange Type
LF430 Series



LF622 (Remote type)

High Accuracy

- Functional Magnetic Field

High Stability

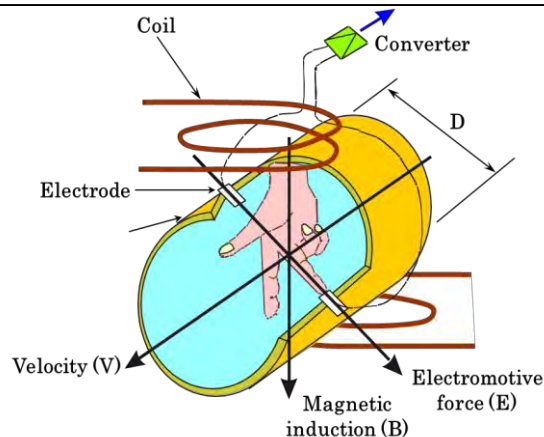
- Square Wave Exciting Method
- Noise Suppressor
- Multi-sampling system

High Endurance & Long Life

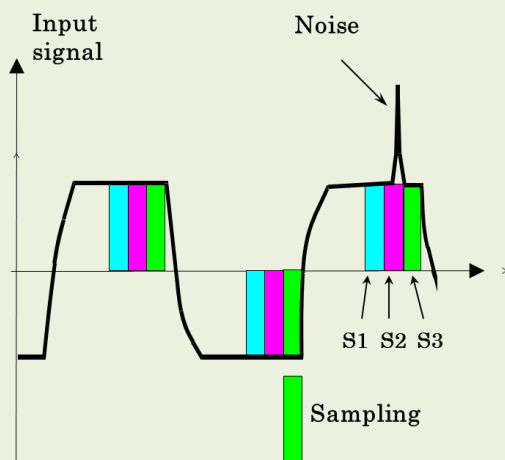
- Welding Construction, Lining (or tube)
(Ceramic, TEFLON PFA, EPDM-Rubber)

Easy Operation & Maintenance

- HART, Self Diagnosis, LCD with backlight



Multi-sampling system



S2 is rejected, S1 and S3 are accepted

