Automation for a Changing World

Equipment IoT Platform
DIALink

DELTA

Smarter. Greener. Together.

Delta Equipment IoT Platform DIALink is designed for collecting on-site equipment's operating data from CNC machine tools and PLC-controlled equipment, providing a unified interface to the upper management systems, as well as achieving data visualization that efficiently reveals production parameters and operating status in real-time. The DIALink adopts second development functions with edge computing and IoT technology to achieve factory automation and visualization.

System Structure

SCADA

MES

Energy Management

Equipment Network

DIALink
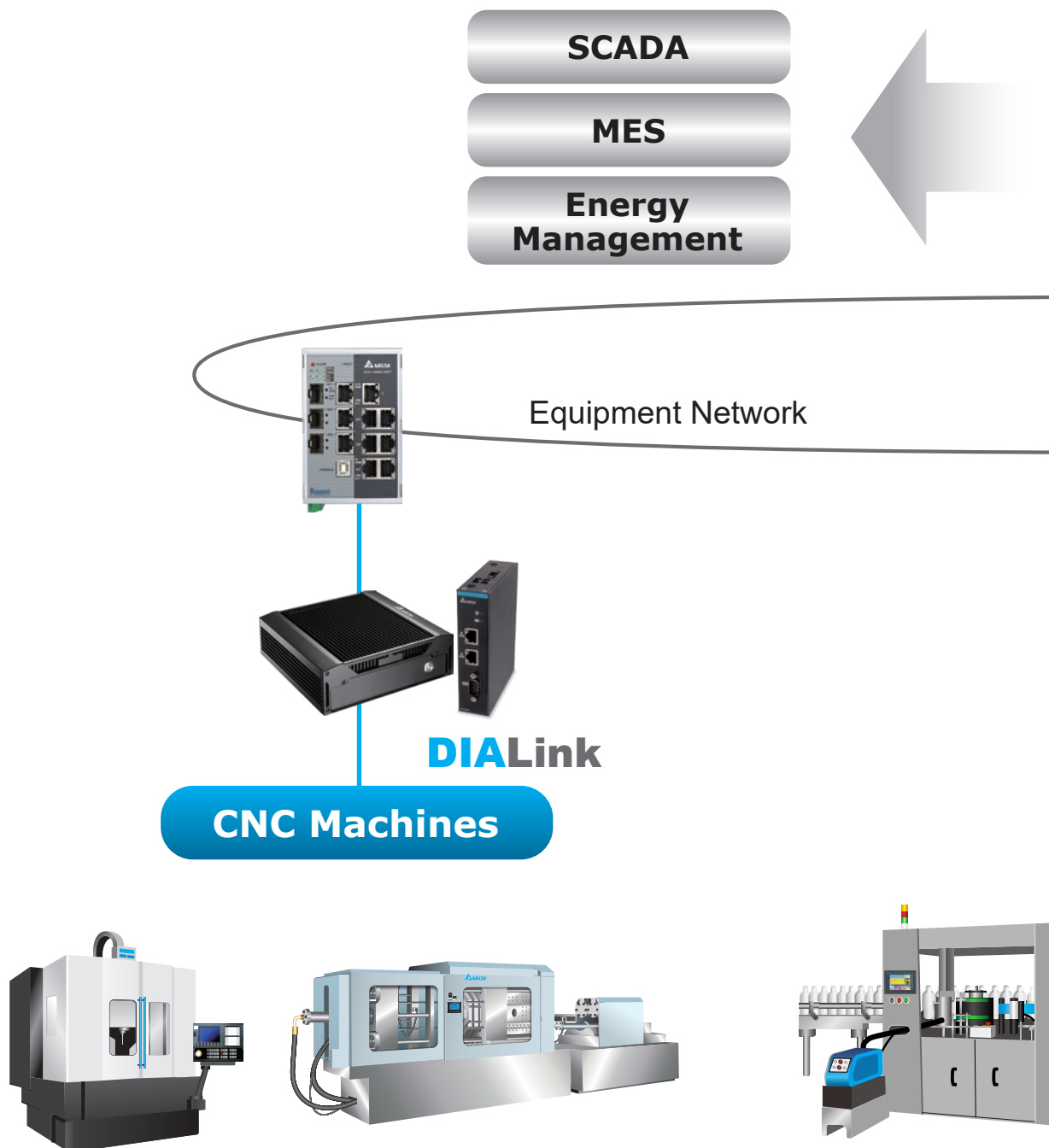
CNC Machines

With the progress of smart manufacturing, industrial automation is integrating intelligent machines, manufacturing execution systems, and cloud platforms. As an application of edge computing, the DIALink can achieve higher equipment efficiency and energy-savings through data communication, analytics and logical operations.

Equipment Management
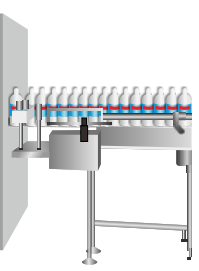
Statistics

Cloud Connect

Equipment Network

DIALink

DIALink

PLC-Controlled Machines

Other Equipment

DELTA

Product Features

DIALink for CNC Machines

Building IoT in a Snap

► Collects equipment data and transmits to the cloud database

► Visualized interfaces for clear and intuitive equipment information display

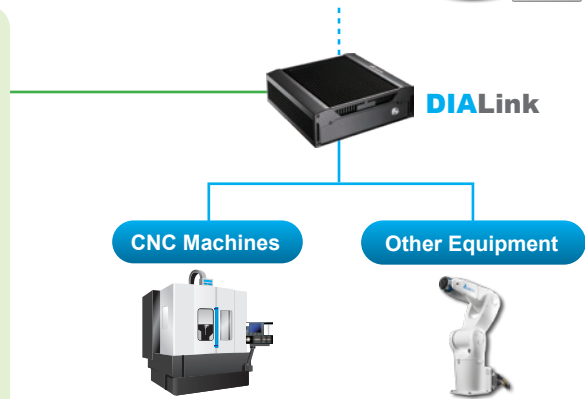► Web-based interfaces for easy setups and system development

Equipment Information
Displays equipment operation information (utilization rate, operating time, operating status and alarms) in real-time to achieve system diagnosis and maintenance

Equipment Overview
Reveals equipment fundamental status, (including connection, turning speed and operating temperature) in real-time to monitor the overall conditions of a factory

Tag List
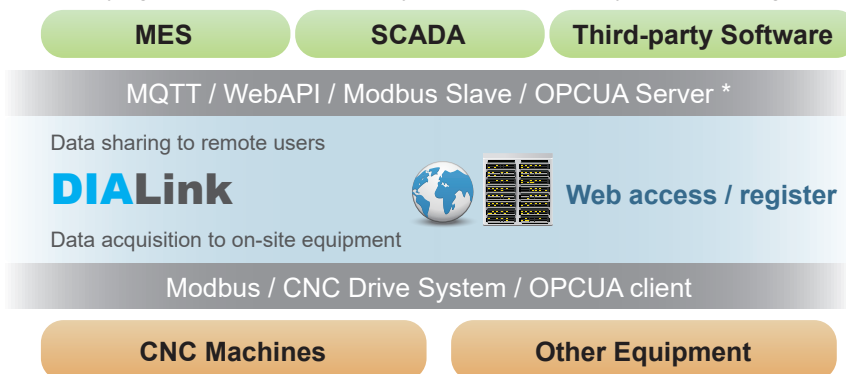Acquires equipment data for remote transmission and analysis

DIALink

CNC Machines   **Other Equipment**

Seamless Equipment and Management Integration

► Supports third-party CNC controllers:

- **Delta**	- **Mitsubishi**	- **Heidenhain**
NC300A	M70 / M700	iTNC530 / iTNC640 (DNC enabled)
- **FANUC**	M80 / M800	- **Syntec**
0i-B/C/D/F	- **Siemens**	EZ Series
16i / 18i / 21i / 30i / 31i / 32i	840D SL with RPC	
	SINUMERIK 828D	
	(OPC UA Server required)	

  * The CNC controllers may require to install specific communication cards or software, please contact the CNC controller anufacturers.

► Adopts Modbus communication for equipment integration

► Connects the cloud platform via MQTT / WebAPI / Modbus Slave for enhanced data access efficiency, as well as simplifying processes for remote system and third-party software integration

MES	**SCADA**	**Third-party Software**

MQTT / WebAPI / Modbus Slave / OPCUA Server *

Data sharing to remote users

DIALink   **Web access / register**

Data acquisition to on-site equipment

Modbus / CNC Drive System / OPCUA client

CNC Machines	**Other Equipment**

Web API List

Web API provides various functions for users to build a remote access structure

  * OPCUA module required

- OPCUA client

Connect
ON

Name*
OPCUA01

Type*
OPCUA

IP*
127.0.0.1

Port*
4840

URL*
opc.tcp://opcua.123mc.com:4840/

Server Name*
McOpcUaServer@opcua.123mc.com[Basic256Sha256:Sig
McOpcUaServer@opcua.123mc.com[Basic256S ∨   Scan

Interface ID

Authentication
Anonymous   User   Certificate

Browse Retry*
50

Browse Timeout*
200

- OPCUA Sever
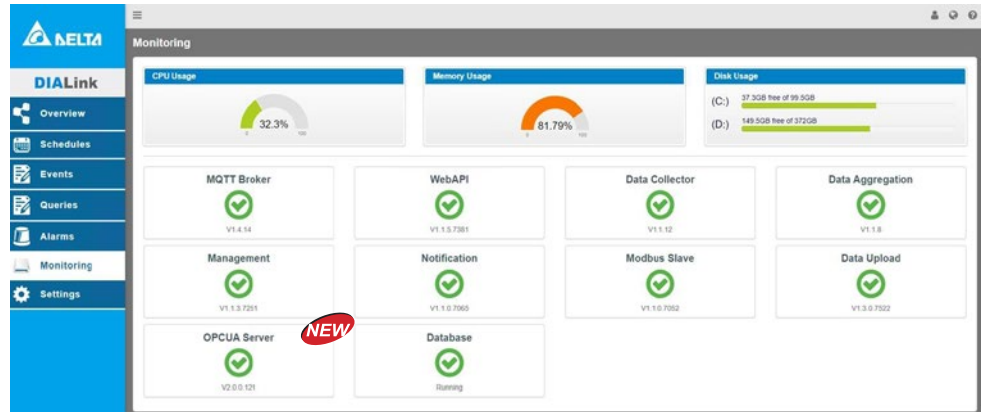
Edge Computing Technology

► Events and Schedules

- Allows the system to trigger events under specific circumstances. When an event is triggered, the system will send messages or execute Web API in real-time

E-mail

SMS / Line Wechat

Web API Write Tag

Error detected

DIALink

Cloud service / Device / Third-party software

When equipment errors are detected, the DIALink will immediately notify users via E-mail, SMS, Line, Wechat, and execute Write Tag, WebAPI for remote access
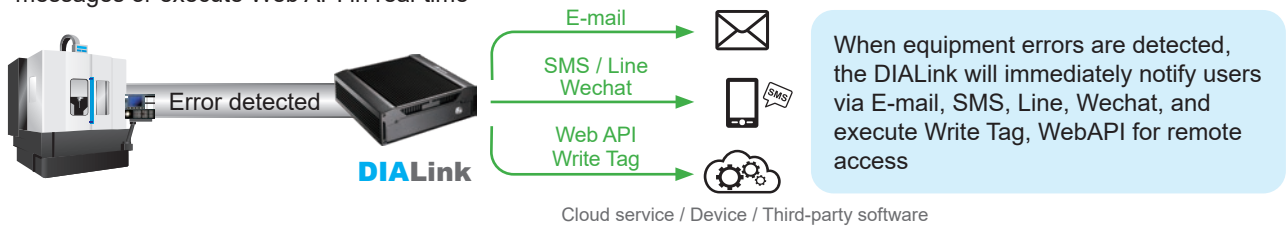
- Existing events can be set up to be triggered based on fixed time intervals or a specific time schedule

Auto machine status report via E-mail every 30 minutes

30 mins   30 mins

Machine maintenance notification via SMS at 8:00 AM every Monday
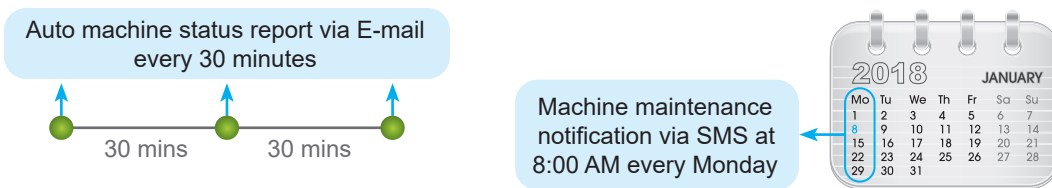
► Real-time Monitoring, Analysis & Response

- Calculates usable data for equipment data collection in real-time

IoT   **Edge Computing**   **Application**
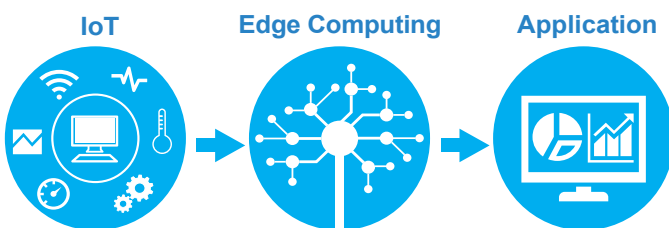
Equipment Data Backup & Restore

► Tag Import / Export

    - Exports the tags into Excel files, and imports them to other equipment in batches for backup, saving complex manual operation
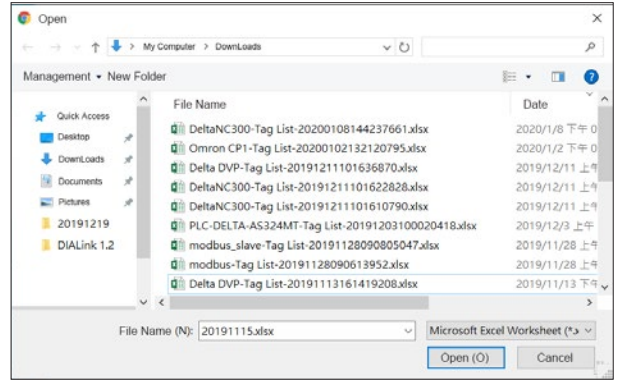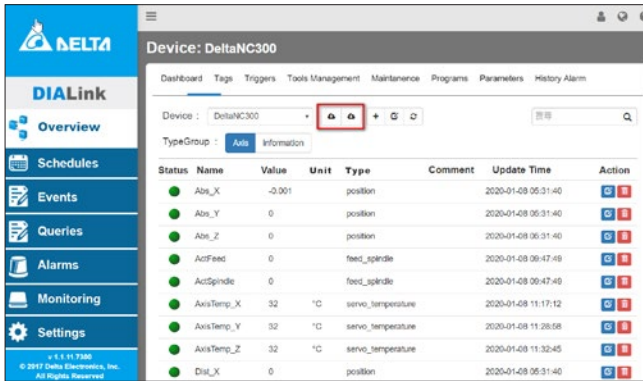
► Arithmetic, Logic Comparison, Timer, Counter and Trigonometric Functions

    - Arithmetic and trigonometric functions setup
    - Logic comparison setup
    - Counter setup
    - Timer setup

DIALink for PLC-based Equipment

Building IoT in a Snap

► Collects equipment data and transmits to the cloud database

► Adopts intuitive interface for easy operation and efficient communication

DIALink

PLC-Controlled Machines   **Other Equipment**

Seamless Equipment and Management Integration

▶ Supports third-party PLCs:

- **Delta**	- **Modbus**	- **Siemens**	- **Mitsubishi**	- **Omron**	- **Panasonic**	- **Keyence**
DVP	Modbus TCPIP	S7 200	FX Series	CJ Series	FP7 Series TCP	KV Series
RTU-EN01 Ethernet	Modbus RTU	S7 200 Smart	Q Series	NJ FINS TCP	FP Series TCP	
AH Modbus / TCP	Modbus ASCII	S7 1200		CP1 Series		
AS Modbus / TCP		S7 1500				
15MC TCP						

▶ Adopts Modbus and MQTT Client communication for equipment integration

▶ Connects the cloud platform via MQTT / WebAPI / Modbus Slave for enhanced data access efficiency, as well as simplifying processes for remote system integration

MES	SCADA	Third-party Software

MQTT / WebAPI / Modbus Slave
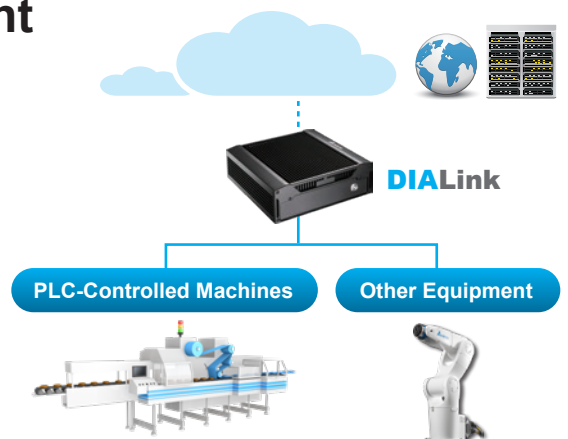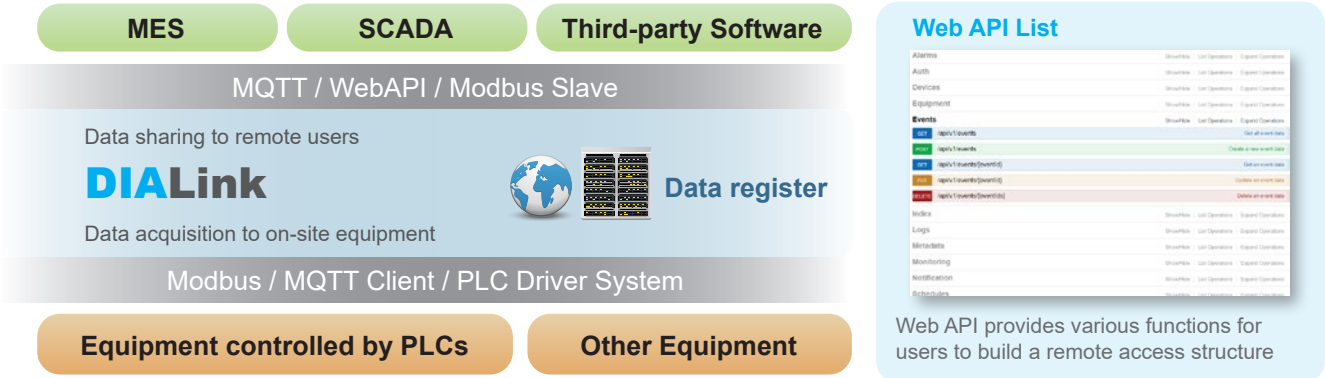
Data sharing to remote users

DIALink

Data acquisition to on-site equipment

Data register

Modbus / MQTT Client / PLC Driver System

Equipment controlled by PLCs	Other Equipment

Web API List

Web API provides various functions for users to build a remote access structure

Applications

▶ Widely applied in various industries through integration with different industry knowledge bases

Injection Molding

Metal Processing

Electronic Component Assembly
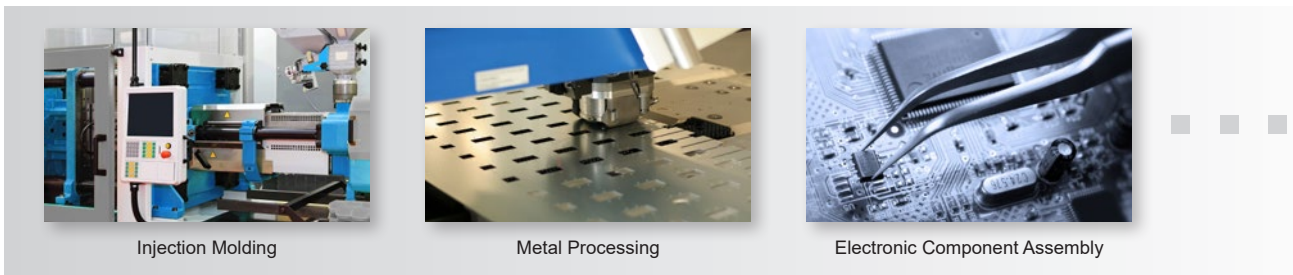
Hardware Features
Integrated Functions

▶ A software/hardware integrated solution with built-in operating system and hard drive for instant use after plug-in

▶ Highly integrated system to avoid compatibility issues

Real Win10 Operating System

High-integration

WINDOWS

- Windows10 Operating System
- 4G Memory
- SSD 256G

Suitable for Industrial Environments

▶ An industrial PC with robust design, it is suitable for various industrial environments

▶ Fanless design and low energy consumption

▶ High/low temperature durability with dust and water resistance

▶ Data analysis for equipment production performance

High/low temperature durability

Anti-EMI

Low energy consumption

Water/dust resistance

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Hardware Specifications

DIALink

► OS: Windows10 Professional

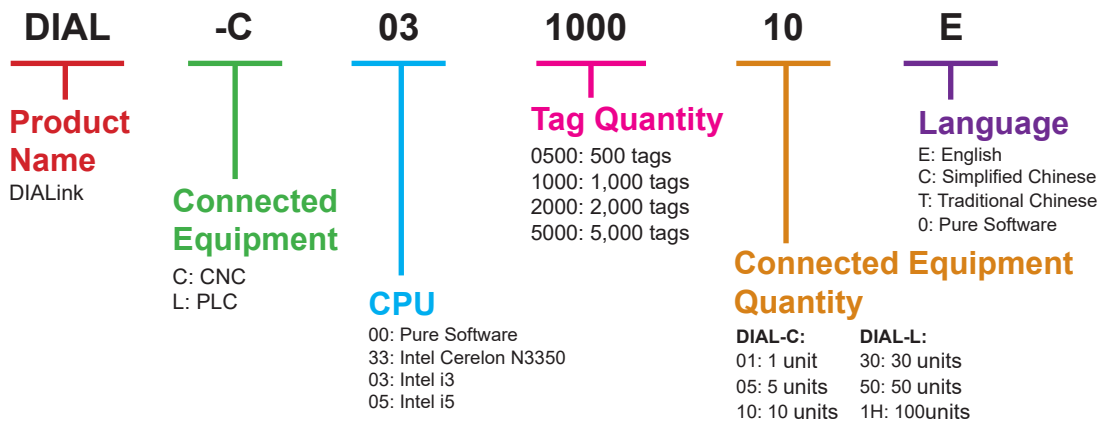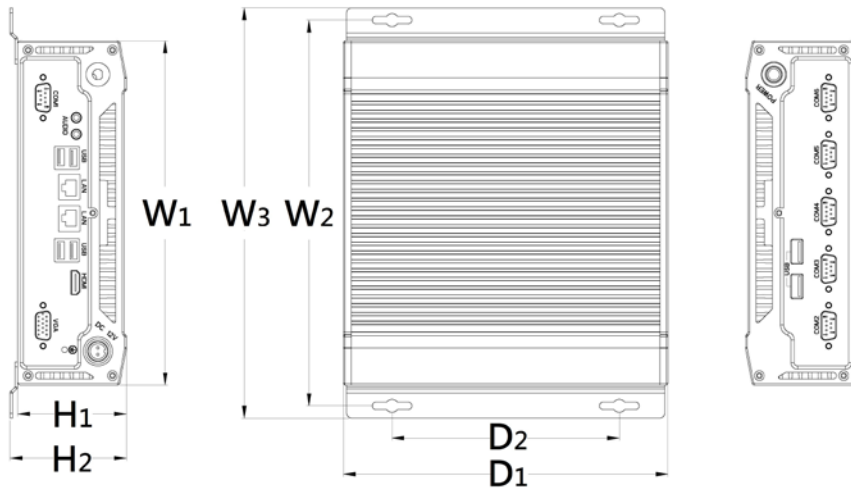| Item	Specifications
CPU	6th Generation Intel® Core i3-6100U / i5-6200U processors
RAM	4GB DDR4 2400MHz, max. up to 16GB
SSD	256GB mSata SSD
Network	2x Intel® I211 Gigabit Ethernet Controller
Audio	1x Standard frequency I/O
Expansion	Supports mini PCIE interface and Wi-Fi communication modules
External I/O	Serial port: COM 1~2 & 5~6 (RS-232), COM 3~4 (RS-485) 2 x USB 2.0, 4 x USB 3.0 (blue) 1 x VGA output 1 x HDMI output
Dimensions	Rack NOT included: 211.5 mm (L) × 200 mm (W) × 67 mm (H) ; Rack included: 251.9 mm (L) × 200 mm(W) × 71.6 mm (H)
Structure	Case: High-strength aluminum alloy, sand blasting anodizing aluminum Color: Black Thermal conductivity: An integrated aluminum case with active heat conduction design Material: Aluminum alloy heat sink
Weight	Net weight: 2.8 Kg; Gross weight: 3.5 Kg
Temperature	Operation temperature: -20° C ~ 40° C Storage temperature: -40° C ~ 70° C
Humidity	95% @ 40° C (non-condensing)
EMC	Level A, and GB9254-1998 GB/T 17618
Reliability	Mean time between failures (MTBF): ≥ 5000 h Mean time to recovery (MTTR): ≤ 0.5 h
Certification	CE、FCC、BSMI
Environment	Anti-vibration: 5-19 Hz / 1.0 mm amplitude ; 19-200 Hz / 1.0 g acceleration Anti-shock: 10 g acceleration, 11 ms duration
Power	Standard VT: Input voltage / frequency: 100 ~ 240 V_{AC} / 50 ~ 60 Hz Output voltage / current: 12 V_{DC} / 5A Power consumption: 7 W (stand-by); 16 W (running max. power 100%)

DIALink mini

► OS: Windows10 IoT

Item	Specifications
CPU	Intel® Celeron N3350
RAM	2 GB DDR3L 1600 MHz, max. up to 8 GB
SSD	64 GB mSata SSD
Network	Intel® i211AT Gigabit Ethernet Controller x2
Expansion	Full-size mini PCIe for wireless module expansion
I/O system	RS-232/ RS-422/ RS-485, default is RS-232 for BIOS setting USB 2.0 x2 DI/DO x1 (8-bit, DB9 Connector) Default is DO for Pin 1~4, DI for Pin 5~8 for BIOS setting
Display interface	VGA output x1
Dimensions	100 mm (L) × 31 mm (W) × 125 mm (H)
Weights	Net weight : 0.3 Kg ; Gross weight : 0.46 Kg
Temperature	Operation temperature : -20°C ~ 70°C (-4°F ~ +158°F) Storage temperature : -45°C ~ 85°C (-49°F ~ +185°F)
Humidity	10 % ~ 90 % · (non-condensing)
Reliability	Mean time between failures (MTBF) : ≥ 69,000 h Mean time to recovery (MTTR) : ≤ 0.5 h
Certification	CE、FCC
Environment	Anti-vibration : 2.0 G / 5 ~ 500 Hz
Power	Input voltage range : 12 ~ 24 VDC · 17 W Embedded system is recommended to use along with power supply (UPS) in order to avoid abnormal power outage that leads to damaged files in OS

Model Information

DIAL	-C	03	1000	10	E

Product Name
DIALink

Connected Equipment
C: CNC
L: PLC

CPU
00: Pure Software
33: Intel Cerelon N3350
03: Intel i3
05: Intel i5

Tag Quantity
0500: 500 tags
1000: 1,000 tags
2000: 2,000 tags
5000: 5,000 tags

Connected Equipment Quantity

DIAL-C:	DIAL-L:
01: 1 unit	30: 30 units
05: 5 units	50: 50 units
10: 10 units	1H: 100units

Language
E: English
C: Simplified Chinese
T: Traditional Chinese
0: Pure Software

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Dimensions unit: mm

Model	W (mm)			D (mm)		H (mm)	
	W_1	W_2	W_3	D_1	D_2	H_1	H_2
DIALink	211.5	236.9	251.9	200	140	67	71.6
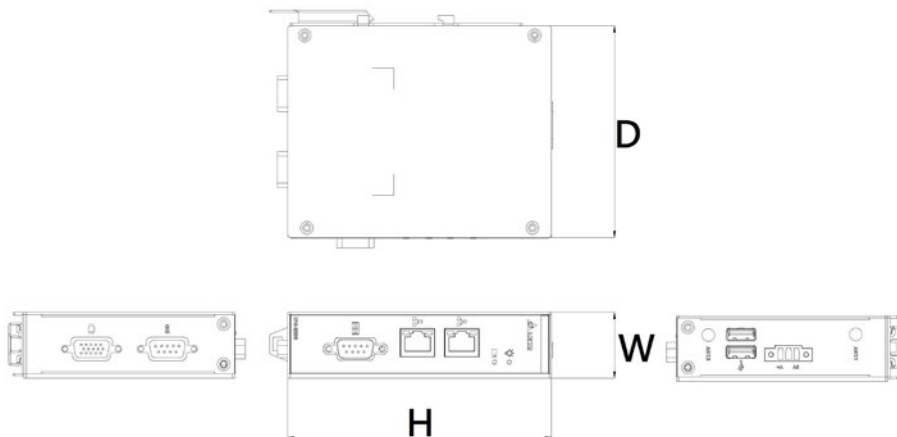
Model	W (mm)	D (mm)	H (mm)
DIALink mini	31	100	125

Ordering Information

DIALink mini for CNC Machines

Model name		Specification
DIAL-C33010001E	Supports 1 CNC machines and additional 2 PLCs of total <100 I/O points / English edition	Intel® Celeron N3350, RAM 2G, 64G SSD, Win10 IOT English edition

DIALink for CNC Machines

Model name		Specification
DIAL-C03100010C	Supports 10 CNC machines and additional 20 PLCs of total <1,000 I/O points / Simplified Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Simplified Chinese edition
DIAL-C03100010T	Supports 10 CNC machines and additional 20 PLCs of total <1,000 I/O points / Traditional Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Traditional Chinese edition
DIAL-C03100010E	Supports 10 CNC machines and additional 20 PLCs of total <1,000 I/O points / English edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro English edition
DIAL-C03050005C	Supports 5 CNC machines and additional 10 PLCs of total <500 I/O points / Simplified Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Simplified Chinese edition
DIAL-C03050005T	Supports 5 CNC machines and additional 10 PLCs of total <500 I/O points / Traditional Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Traditional Chinese edition
DIAL-C03050005E	Supports 5 CNC machines and additional 10 PLCs of total <500 I/O points / English edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro English edition

DIALink for PLC-based Equipment

Model name		Specification
DIAL-L03100030C	Supports 30 PLCs (1,000 I/O points) / Simplified Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Simplified Chinese edition
DIAL-L03100030T	Supports 30 PLCs (1,000 I/O points) / Traditional Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Traditional Chinese edition
DIAL-L03100030E	Supports 30 PLCs (1,000 I/O points) / English edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro English edition
DIAL-L03200050C	Supports 50 PLCs (2,000 I/O points) / Simplified Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Simplified Chinese edition
DIAL-L03200050T	Supports 50 PLCs (2,000 I/O points) / Traditional Chinese edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro Traditional Chinese edition
DIAL-L03200050E	Supports 50 PLCs (2,000 I/O points) / English edition	Intel® Core i3, RAM 4G, 256G SSD, Win10-Pro English edition
DIAL-L0550001HC	Supports 100 PLCs (5,000 I/O points) / Simplified Chinese edition	Intel® Core i5, RAM 4G, 256G SSD, Win10-Pro Simplified Chinese edition
DIAL-L0550001HT	Supports 100 PLCs (5,000 I/O points) / Traditional Chinese edition	Intel® Core i5, RAM 4G, 256G SSD, Win10-Pro Traditional Chinese edition
DIAL-L0550001HE	Supports 100 PLCs (5,000 I/O points) / English edition	Intel® Core i5, RAM 4G, 256G SSD, Win10-Pro English edition

DIALink Software

Model name	Specifications
DIAL-C00100010	Supports 10 devices and additional 20 PLCs of total <1,000 I/O points
DIAL-C00050005	Supports 5 devices and additional 10 PLCs of total <500 I/O points
DIAL-L00100030	Supports 30 PLCs (1,000 I/O points)
DIAL-L00200050	Supports 50 PLCs (2,000 I/O points)
DIAL-L0050001H	Supports 100 PLCs (5,000 I/O points)
NEW DIAL-OPCU001	OPCUA server module
NEW DIAL-05001UP *	Upgraded Version DIALink, supports 5 devices and additional 10 PLCs
NEW DIAL-10001UP *	Upgraded Version DIALink, supports 10 devices and additional 20 PLCs
NEW DIAL-30002UP *	Upgraded Version DIALink, supports 30 PLCs (1,000 I/O points)
NEW DIAL-50002UP *	Upgraded Version DIALink, supports 50 PLCs (2,000 I/O points)

* DIALink.CombinDongleKeys supports the expansion of hardware keys (dongle). Please refer to DIALink user manual for more details.

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