

Delta IIoT Solution

DIACloud

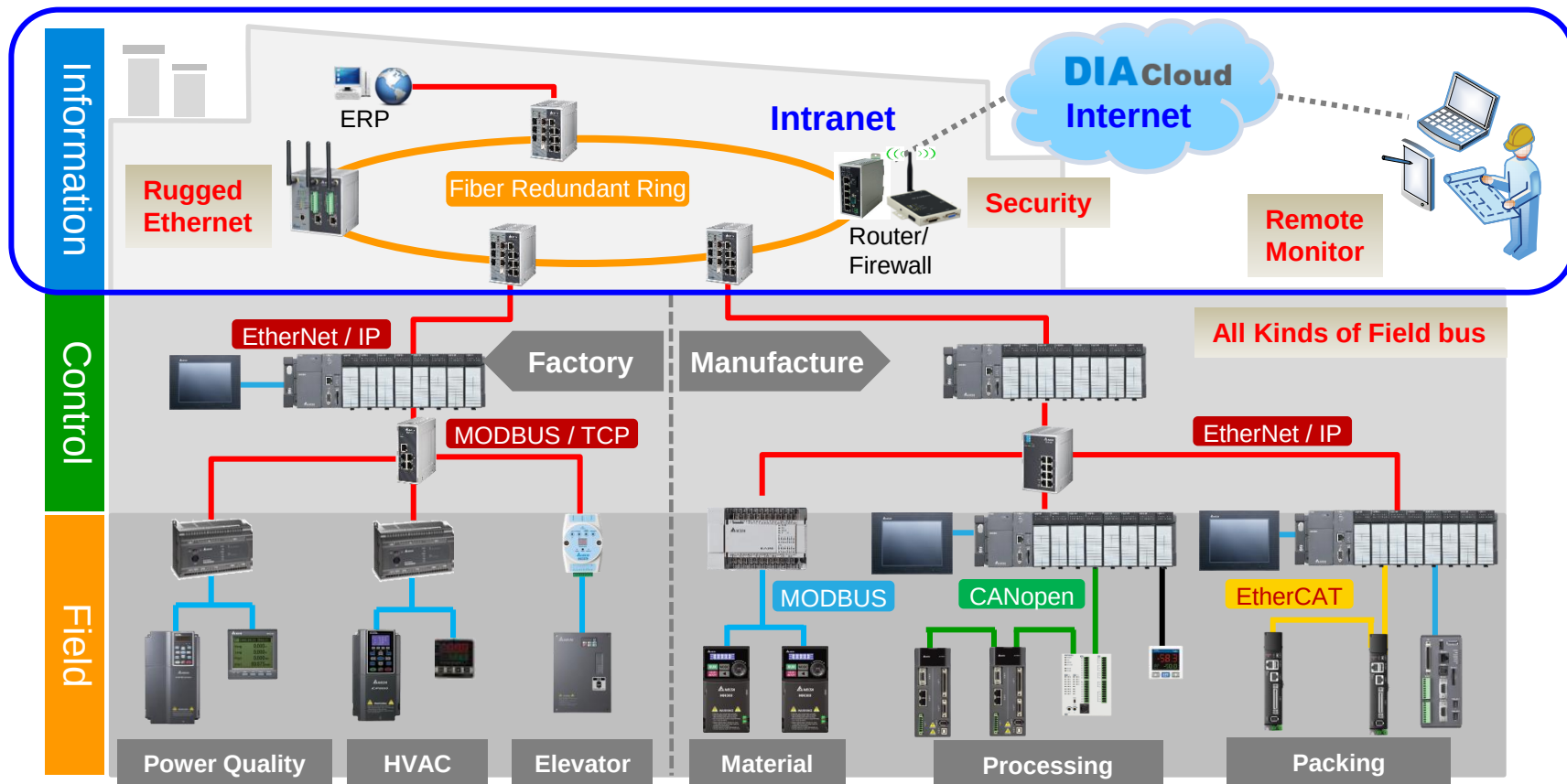
Start Your Journey To Smart Manufacturing

Alejandro Dova
IABG 2017

Automation for a Changing World



Delta Industrial Network Solution



DIACloud V.S. Traditional VPN



Regular VPN

- ~~VPN connection service~~
- ~~VPN Router~~
- ~~IT Manpower~~
- ~~Gateway for data collection~~

Delta Solution

- **DIACloud** server
- DX series routers
- Virtual COM & APP
- Global connectivity

Cost Saving
Wire Saving
Value Adding



EMC
LEVEL 3



FANLESS

- DX-2100RW-WW (3G router)
- DX-2300LN-WW (Ethernet router)
- Support HSPA/UMTS/WCDMA: 900/1900/2100 MHz
- Support GSM/GPRS/EDGE: 850/900/1800/1900 MHz
- 10/100Mbps Ethernet ports, (Support MODBUS TCP)
- RS232*1, RS485*1 (Up to 1Mbps) (Support MODBUS ASCII, RTU) (Siemens PPI)
- SD card support
- Built-in RTC
- Protocols : TCP / IP, UDP, ICMP, DHCP, HTTP, DNS, SSH, NTP Client, DHCP Server
- Firewall : SPI, DoS attacks , NAT, port triggering, port mapping , IP/MAC/URL filter
- Metal case, IP30
- Operation temperature: -20 °C to 70 °C
- Power: 9~40VDC





EMC
LEVEL 3



FANLESS

- **Mobile Function**

- 2 SIM slots, Support CHAP / PAP authentication and APN access
- Support HSUPA/UMTS/WCDMA: 800/850/900/1900/2100 MHz
- Support GSM/GPRS/EDGE: 850/900/1800/1900 MHz

- **Ethernet Function**

- 10/100Mbps, 4*LAN (Support MODBUS TCP), **1* WAN port** (static IP , DHCP client)

- **Priorities of the connection to Internet over WAN and 2 cellular networks are configurable**

- RS232*1, RS485*1 (Up to 1Mbps) (Support MODBUS ASCII, RTU)

- **Serial data server function**

- Built-in RTC

- Protocol : TCP / IP, UDP, ICMP, DHCP, HTTP, DNS, SSH, NTP Client, DHCP Server

- **Firewall : SPI, DoS attacks , NAT, port triggering, port mapping , IP/MAC/URL filter**

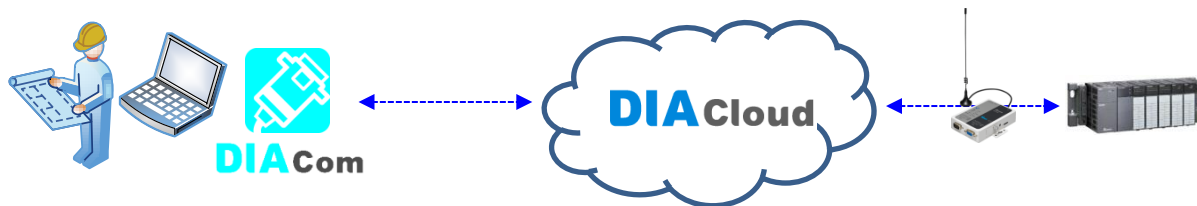
- IP30 Metal case, Operation temperature: -20 °C to 70 °C

- Power: 12~48VDC +/-20% tolerance



Scenarios

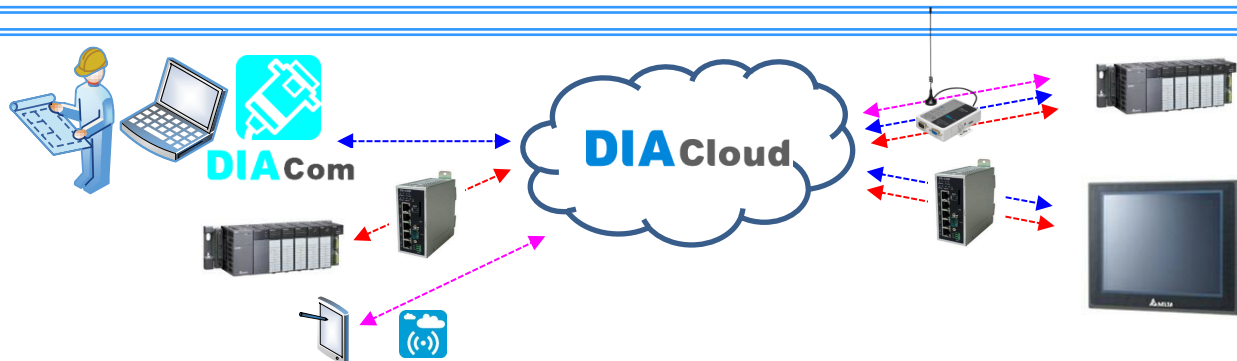
C to M



M to M



Mix

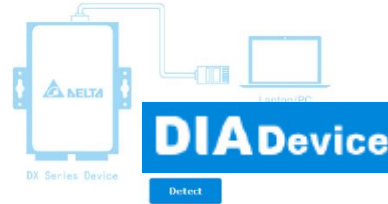


Service List

Software



DIA Com



Web Server

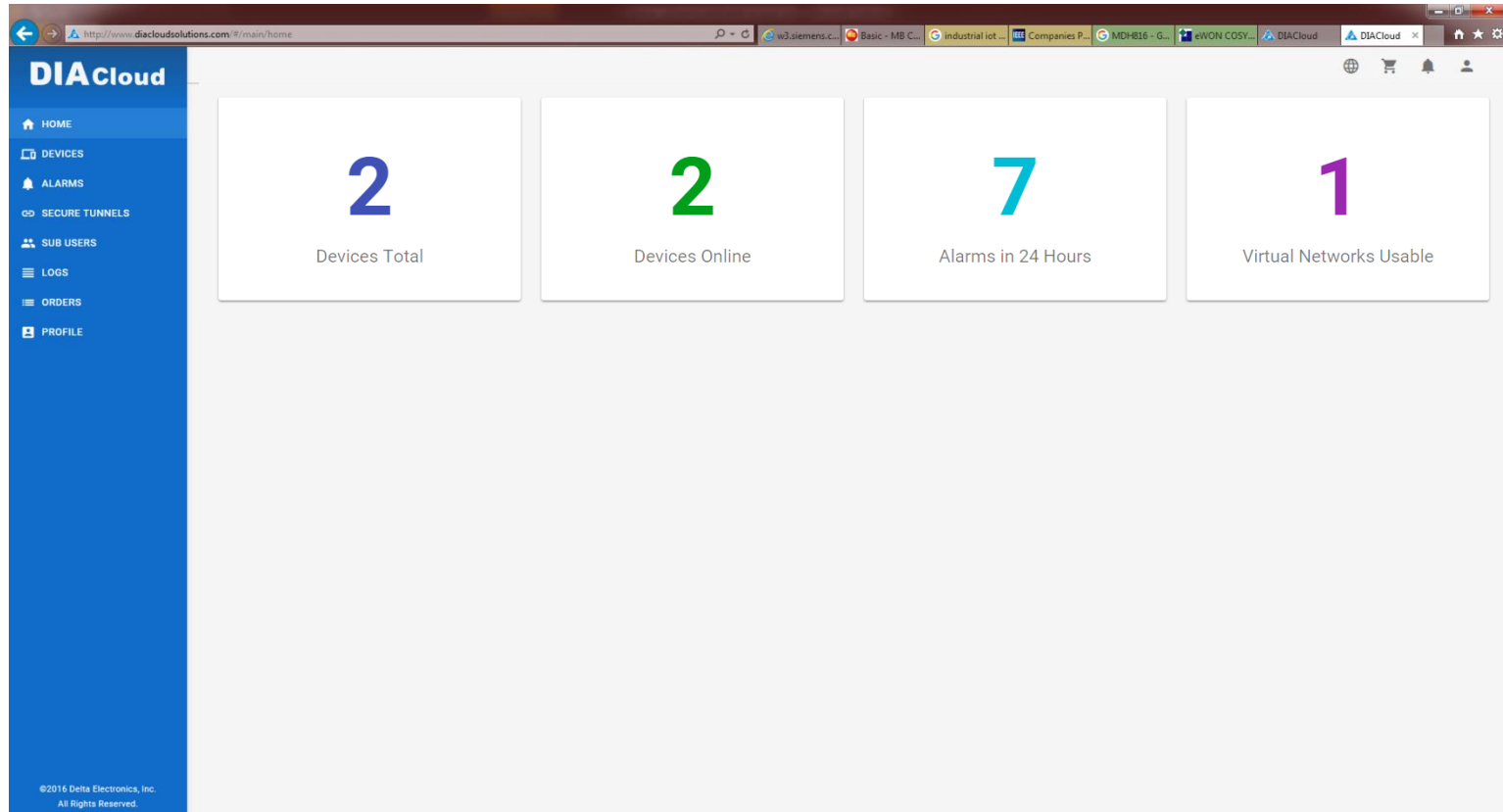
- Device Management and Configuration
- Device Location
- Event Log
- Alarms record
- Registers History Trends

[HTTP://www.diacloudsolutions.com](http://www.diacloudsolutions.com)

Service

- Unlimited user accounts
- 1Gb traffic/month (per device)
- 10Mb cloud storage (per user)
- E-mail
- SMS
- Data Traffic 1-year package (1Gb/month)
- Cloud stg. 5-year package (200Mb)
- API call (1 million access)

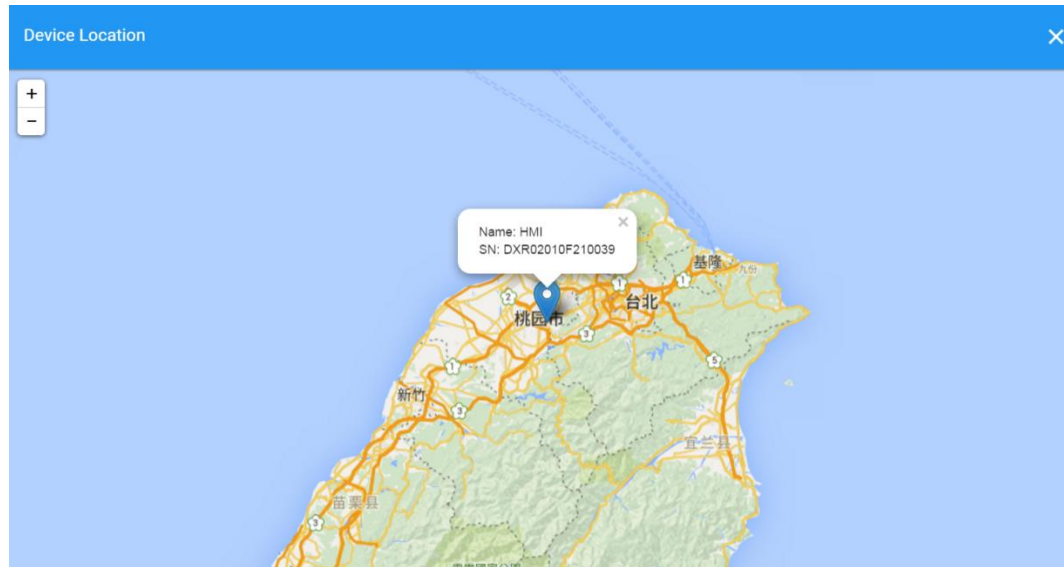
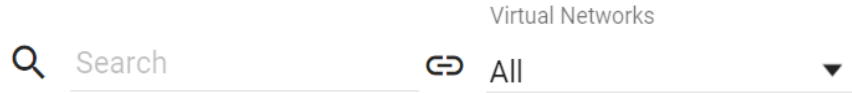
Device Web Management



Show All Devices

Virtual Networks						
 Search		 All		  		
#	Device Name ↑		Serial Number	Device Type	Created	Operation
1	 HMI	Offline	DXR02010F210039	DX2100	2016-02-25 09:29:48	...
2	 VFDControl	Online	DXR02010F210059	DX2100	2016-02-25 09:21:27	...
Total 2 Device(s)						

Device Location





Device Web Management

#	Device Name ↑	Serial Number	Device Type	Created	Operation
1	VFDControl	DXR02010F210059	DX2100	2016-02-25 09:21:27	...

Basic Information

VFDControl ▾

OVERVIEW STERS MORE

Basics

IP Address

192.168.199.38

Virtual Network

HM2016

Boot Time

2016-2-25 09:22 (+8)

RS232 Mode

Closed

RS485 Mode

Master

RSSI

Latest Alarms

!!!!!!!!!!WARNING!!!!!!!!!! VFD Status : Power ...

2016-02-25 10:50:38

!!!!!!!!!!WARNING!!!!!!!!!! VFD Status : Power ...

2016-02-25 10:46:03

Monitor/Configure Registers

VFDControl ▾

OVERVIEW **REGISTERS** MORE

Search < 1/1 >

-

0

2016-02-25 10:50:45

-

12571

2016-02-25 10:50:45

-

110

2016-02-25 10:51:00

Frq

1.1Hz

2016-02-25 10:51:00

Launch

Reverse

2016-02-25 10:50:26

SIM Card Information

MORE

More



Device Web Management

Alarm Messages

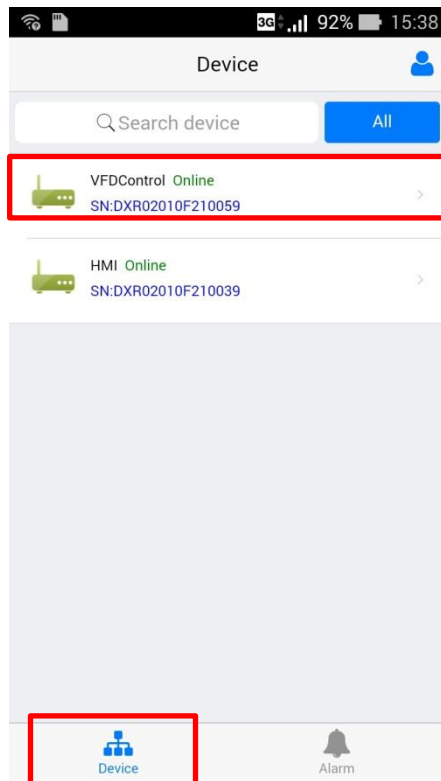
 Search 				
#	Device Name	Alarm Message	Status	Created
1	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:50:36 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:50:38
2	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:46:00 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:46:03
3	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:45:48 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:45:50
4	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:45:17 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:45:20
5	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:45:01 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:45:08
6	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Power OFF Time : 2016/02/2510:38:35 MS300 has been shut down, please contact the relevant member!!!		2016-02-25 10:39:03



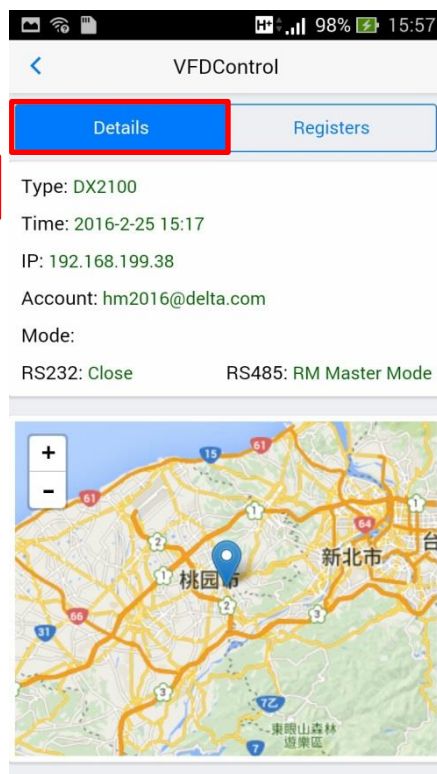
DIACloud APP



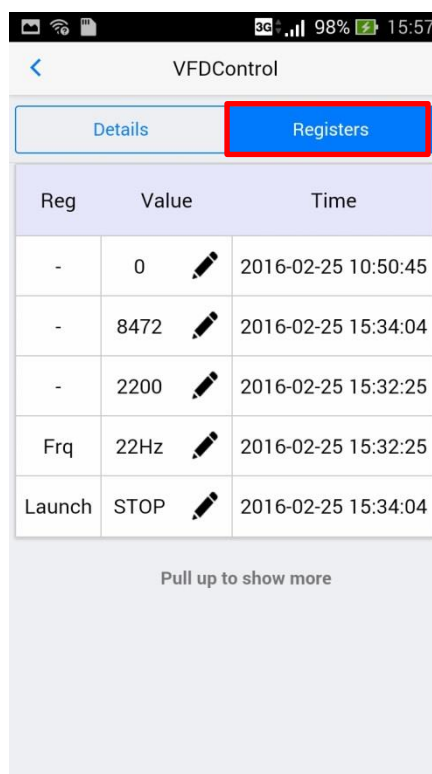
Devices List



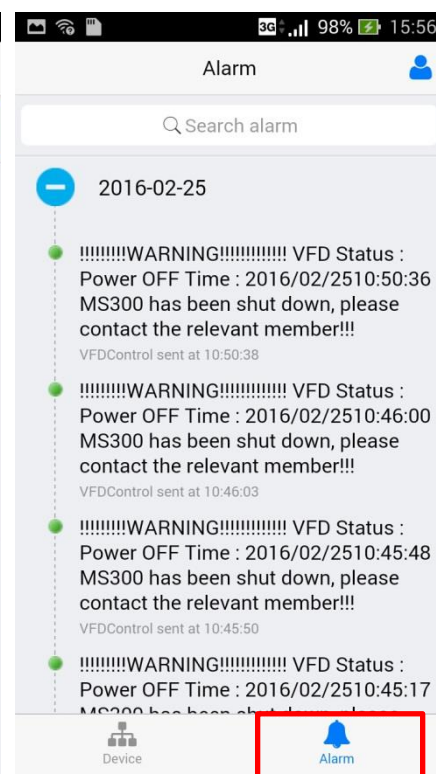
Device Location & Basic Information

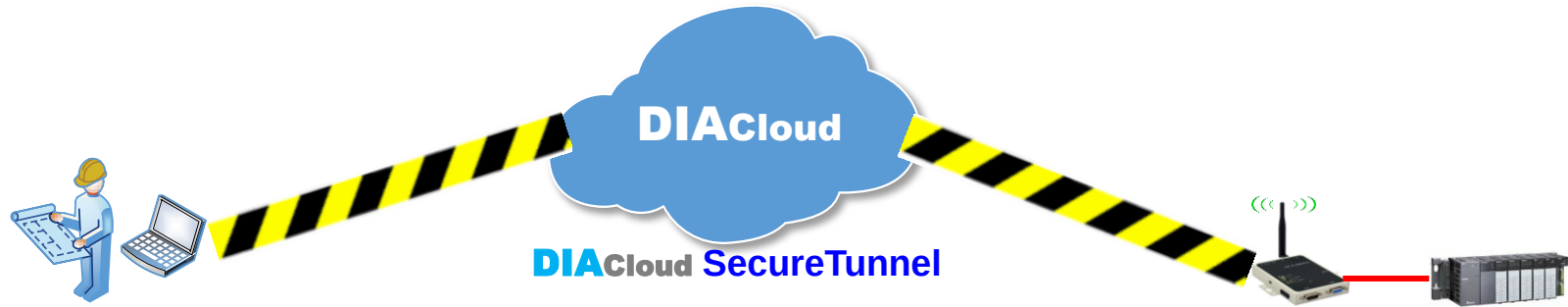


Register Configuration



Alarm Messages





Phase 1: Authentication

Technology: AES128bits + SHA-1
160bits + **Patent #1, #5, #6**

Phase 2: Authorization

Technology: AES128 bits + SHA-1
160bits + **Patent #1**

Phase 3: Data Encryption

Technology: AES 128bits + SHA-1
160bits + **Patent #1, #5, #6**

No	Patent List
1	Authentication and Authorization method and system
2	Terminal control system and gateway
3	Access control system
4	Image information method, system for image information transmission
5	Communication transmission system and method
6	Data transmission method, system and storage medium

DIACloud Server Roadmap





DIACloud

Application examples

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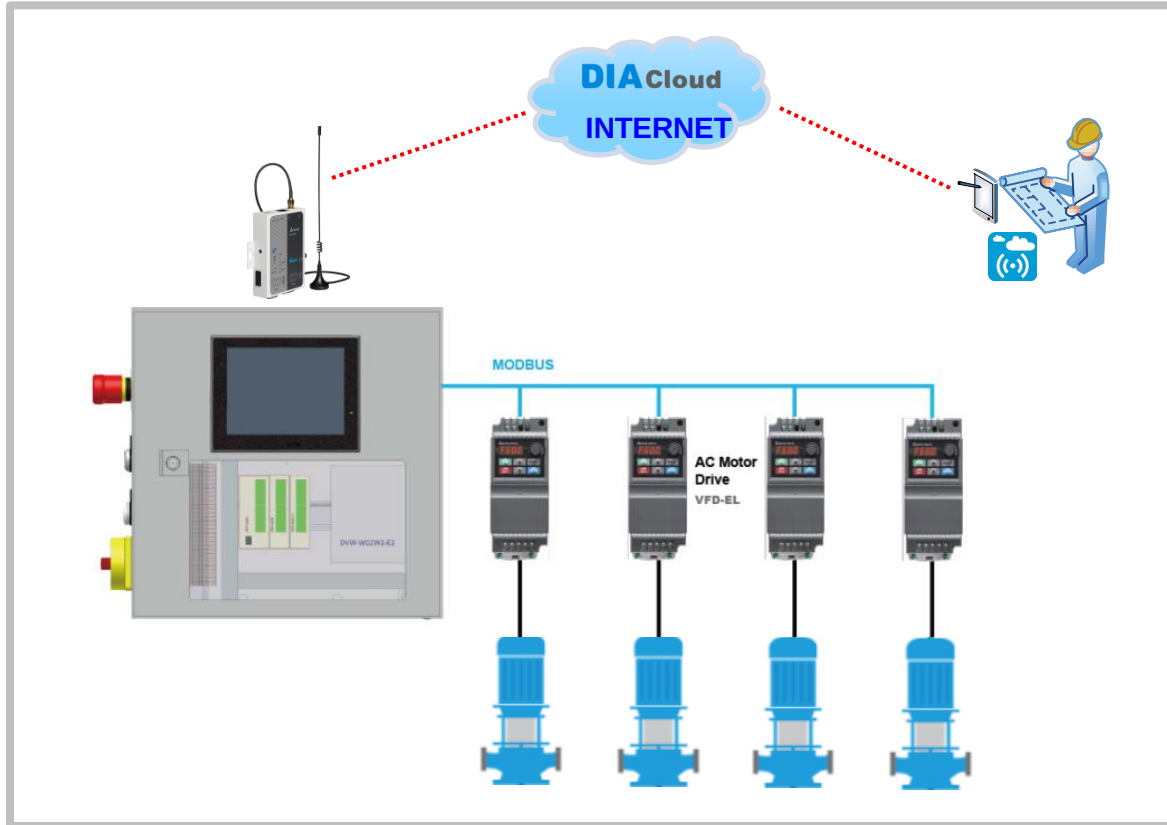


Machinery OEM



- **Remote Monitoring / Maintenance**
Flexible installation (3G or Ethernet router), support webpage and APP management
- **Safe Tunnel**
DIA Cloud private cloud and Delta specified patent for data security protection

Pump System



- **Remote Management**
Flexible installation (3G or Ethernet router), support webpage and APP management
- **Safe Tunnel**
DIACloud private cloud and Delta specified patent for data security protection

Wind Power

Wind power has emerged as an alternative energy solution in recent years. Wind power plants are typically located in remote areas, often within a vast territory. The ring network of fiber optic Ethernet is widely adopted for data transmission and management and real-time monitoring of power generation panels. These plant locations can be harsh and hazardous, with a large diurnal temperature variation. System reliability and transmission precision can only be guaranteed with highly noise-immune and durable network devices.

DVS-110W02-35FP

7-port FE + 3-port GbE Combo Managed Ethernet Switch

- GbE fiber port to enhance backbone transmission
- STP/RSTP/MSRP for network redundancy to ensure network reliability
- IP40 metal case, -40°C to 75°C operating temperature



DVS-016 Series

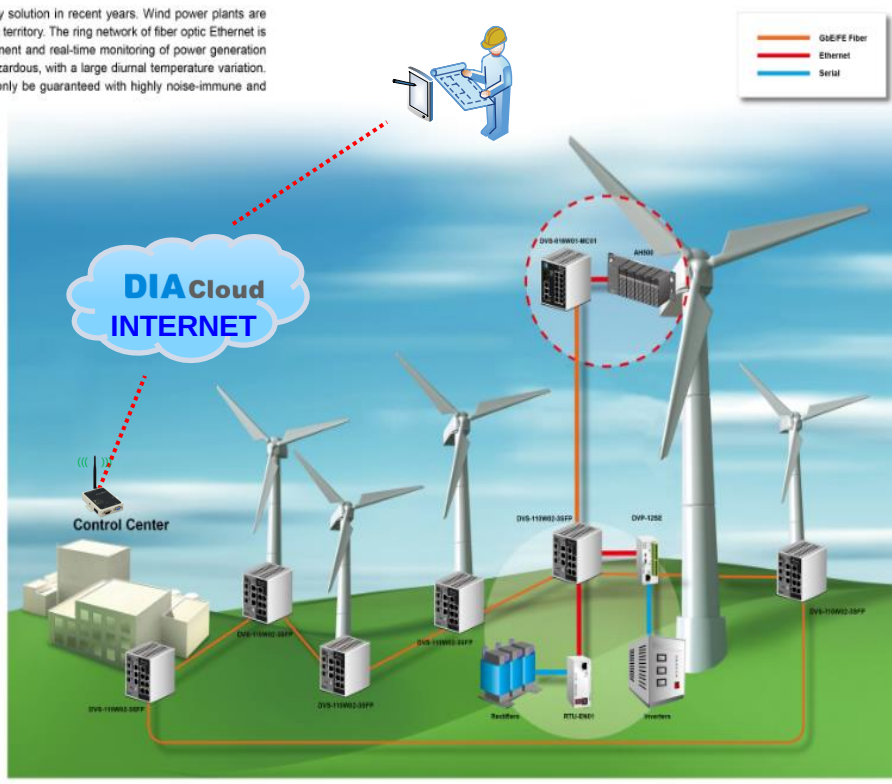
16-port FE Unmanaged Ethernet Switch

- Broadcast Storm Protection
- Auto warning for link-down and power failure by relay output
- IP40 metal case, -40°C to 75°C operating temperature



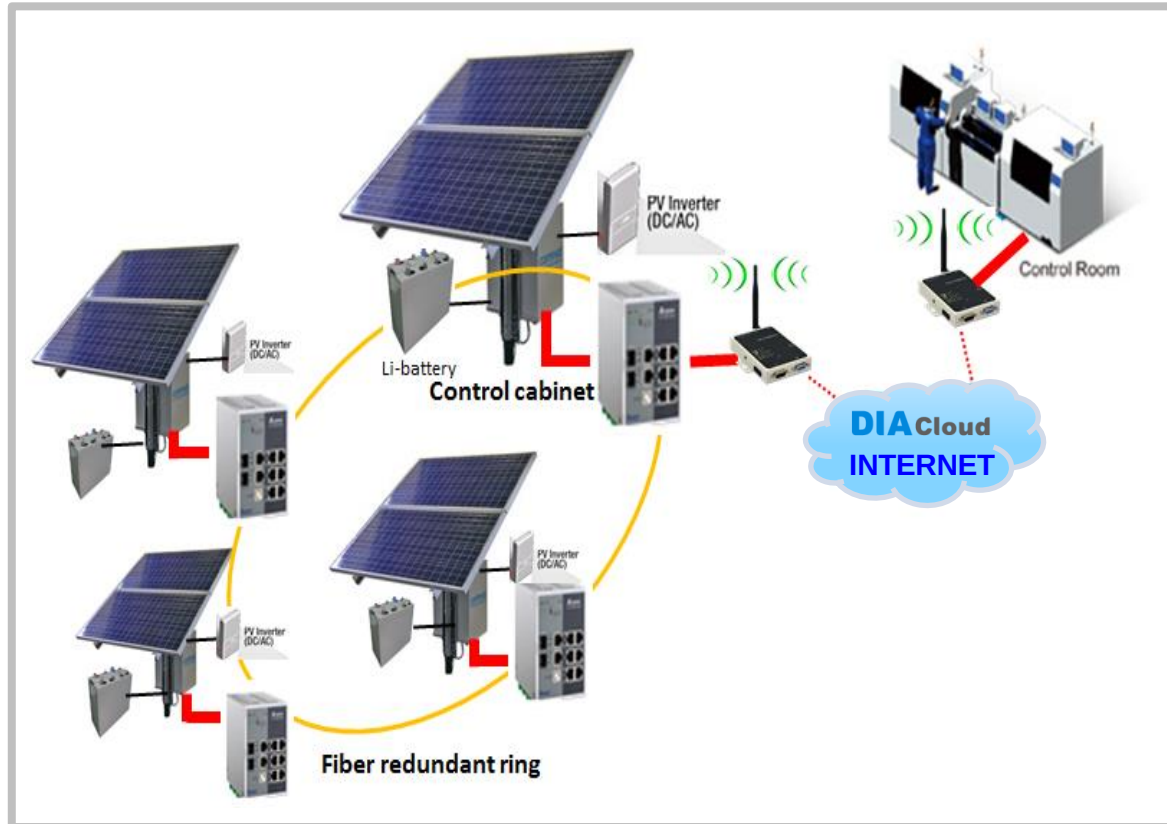
**DIACloud
INTERNET**

Control Center

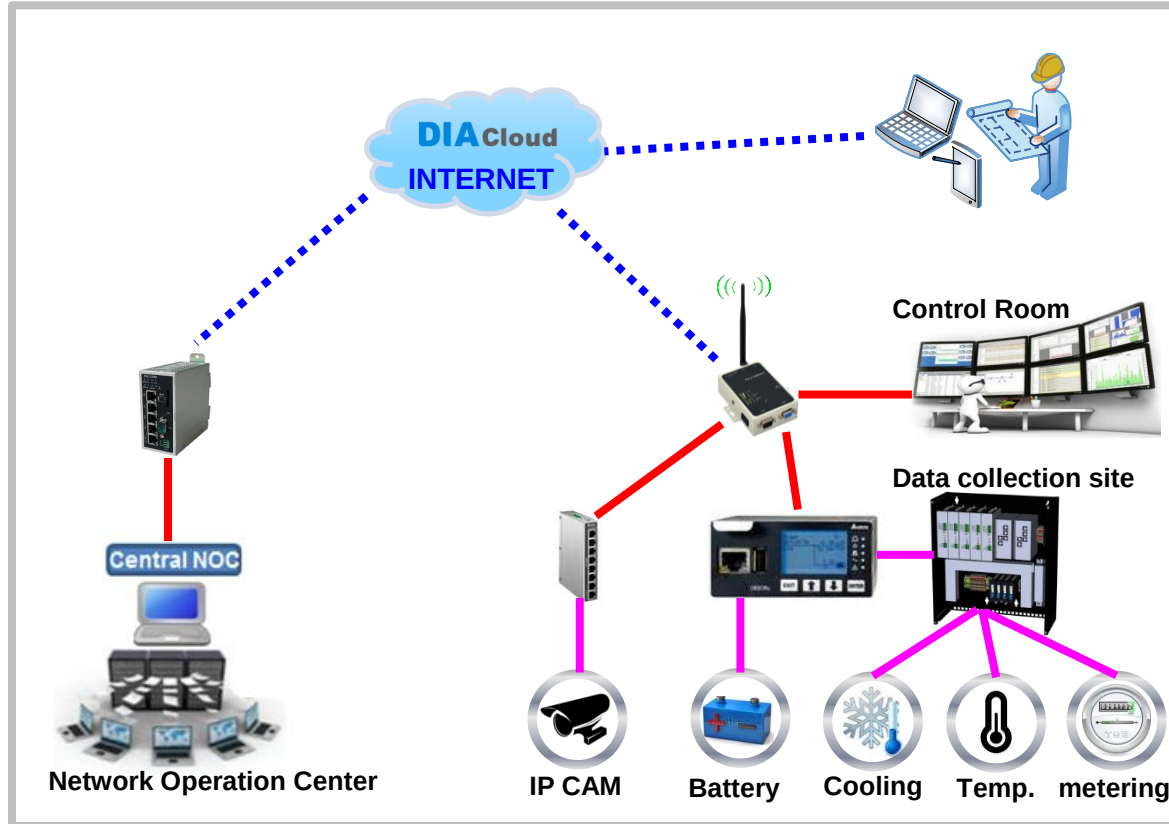


- **Redundant GbE fiber ring**
ONE RING – ONE CHAIN
redundant technology features a link-failure recovery time under 20 ms
- **Remote management**
Flexible installation (3G or Ethernet router), support webpage and APP management

Solar Farm



Telecom Remote Management



- **Remote Management**
Flexible installation (3G or Ethernet router), support webpage and APP management
- **Safe Tunnel**
DIACloud private cloud and Delta specified patent for data security protection
- **Power over Ethernet**
To power IP cameras saving cabling cost

Intelligent Traffic

Intelligent Transportation System

The Intelligent Transportation System (ITS) integrates advanced electronic, information and sensing technologies for real-time transportation management of pedestrians, roads and traffic. The ITS effectively improves the safety, convenience, and efficiency of transportation, reducing carbon emissions from transportation and its impact on the environment, and supporting economic development.

- ▶ Freeway Traffic Flow Monitoring System
- ▶ CMS Real-Time Traffic Message Display System
- ▶ Tunnel Signal and Alarm Monitoring System
- ▶ Electronic Toll Collection System

DVS-110W02-36FP

7-port FE + 3-port GbE Combo Managed Ethernet Switch

- ▶ GbE fiber port to enhance backbone transmission
- ▶ STP/RSTP/MSTP for network redundancy to ensure network reliability
- ▶ IP40 metal case, -40°C to 75°C operating temperature



DVS-W02W2-E3

IEEE 802.11 a/b/g/n Wireless AP/WDS/Client/Gateway

- ▶ IEEE 802.11n up to 450Mbps data rate
- ▶ Supports 2-port RS-232/422/485 to Ethernet Device Server
- ▶ IP40 metal case, -40°C to 75°C operating temperature



DVS-G0800A

8-port GbE Unmanaged Ethernet Switch

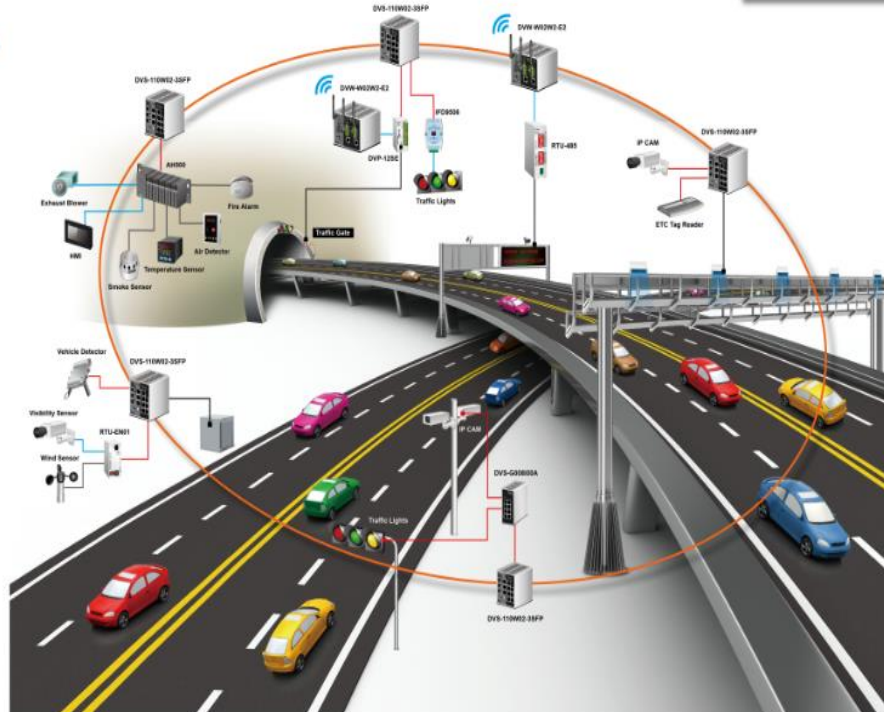
- ▶ Full GbE ports to enhance transmission bandwidth
- ▶ Jumbo frame size up to 9216 Bytes
- ▶ IP40 metal case, -10°C to 60°C operating temperature



IFD9506

Serial-to-Ethernet MODBUS Gateway

- ▶ RS-485 signal isolation protection
- ▶ Supports MODBUS TCP protocol
- ▶ Smart on-line monitoring function



- **Redundant GbE fiber ring**
ONE CHAIN redundant technology features a link-failure recovery time that is under 20 ms for reliable network
- **Remote management**
Flexible installation (3G or Ethernet router), support webpage and APP management
- **Power over Ethernet**
To power IP cameras saving cabling cost

- **New trends**

- Set a platform towards Industrial IoT ➡ Smart manufacturing
- Opportunity for after service (eg. maintenance), leasing, etc. ➡ New business

- **Added value**

- Global connectivity without extra cost ➡ Cost saving
- Delta's exclusive cloud platform ➡ High reliability
- Easy accessibility with PCs or mobile devices ➡ Remote control
- Secure connection of devices over the internet ➡ Security & Data protection

Smarter. Greener. Together.

Thank you very much !

