

# DG-A2/A4

## Industrial DIN-Rail protocol gateways for Smart Grid



### » Overview

As the compact protocol gateway for system integrated application, DG-A2/A4 is designed in conformity with the new IEC 61850 standards. It can be anywhere deployed to be a smart unit to transfer data by its RS232/RS485 serial ports and Ethernet ports. By importing any prespecified IEC 61850 SCL(.icd/.cid) template file and after mapping the data to internal VMD model with the configuration tool - ICE, this unit can be viewed just as the standard IEC 61850 IED from the master station.

With powerful data communication and process function, high reliability, low power consumption, flexible and easy installation advantages, DG-A is the ideal intelligent device choice for all kinds of system integrated applications.

### » Key Features

- Special designing based on ARM Cortex-A8 architecture
- High performance yet ultra low power consumption
- Easy IEC 61850 SCL(CID/ICD) import and configuration process
- Configurable MMS ( IEC 61850-8-1 ) server & client application
- Support GOOSE publish and subscribe
- Built-in SoftPLC calculating task
- Configurable hardware watchdog
- Full functional NTP for time synchronization

Dual mode of RS232/RS485 isolated serial ports  
Support GPRS/3G wireless communication  
Remote diagnosis or maintenance by network  
Compliant to IEC 61850-3, IEEE 1613 standards  
Support protocol IEC-101/103/104,Modbus/RTU,Modbus/TCP

## Product Specifications

### >Features & Benefits

#### -Hardware Parameters

Performance: ARMv7 800MHz Core  
RAM: 512M DDR2-333  
Build-in storage: 512M Nand Flash  
Extra storage: 8G/64G Micro SD(Optional)  
Ethernet: 10/100Base-T  
Serial Ports: RS232/RS485(Isolated)  
Wireless Port: 3G GRPS

#### -Firmware

DNP 3.0 Level-2 over serial port or LAN  
Modbus(RTU/ASCII)/Modbus over serial port and LAN  
IEC 60870-5-101/103/104 salve/master  
IEC 61850 MMS/GOOSE  
SoftPLC calculator  
- Customer specified

#### -Technical Benefits

Easy framework configurable by all-in one integration tools  
Later data binding & mapping technology without needing change SCL modeling file  
Advanced data internal processing functionality

### >Technical Parameters

#### -DG-A2

Console port RS232, RJ45  
Serial ports 2 x RS232/RS485 (Isolated)  
Ethernet 1 x 10/100M RJ45

GPRS Module 1 x 3G Optional  
Build-in storage 512M Nand Flash  
Extra storage N/A  
Hardware Watchdog Configurable  
Time Synchronization NTP  
Power Supply 12-24VDC  
Power Consumption <5W  
Weight 0.5kg  
Dimension (WxHxD) 48x138x86 mm  
Mounting DIN Rail  
Operating Temperature -40 to 85°C

**-DG-A4**

Console port RS232, RJ45  
Serial ports 4 x RS232/RS485 (Isolated)  
Ethernet 2 x 10/100M RJ45  
GPRS Module 1 x 3G Optional  
Build-in storage 512M Nand Flash  
Extra storage 8G/64G Micro SD  
Hardware Watchdog Configurable  
Time Synchronization NTP  
Power Supply 12-24VDC/85-264VAC  
Power Consumption <5W  
Weight 0.5kg  
Dimension (WxHxD) 54x139x118 mm  
Mounting DIN Rail  
Operating Temperature -40 to 85°C

**-Electrical Parameter**

Input: 12~24V DC or 85~264V AC  
Average power consumption: 5W  
Relative humidity : 5%~ 95% (no condensation)  
Electrostatic discharge immunity test: GB/T 17626.2-1998 IEC 61000-4-2-1995 class 4  
Transient immunity: GB/T 17626.4-1998 IEC 61000-4-4-1995 class 4  
Surge immunity: GB/T 17626.5-1998 IEC 61000-4-5-1995 class 4

Power frequency magnetic fields immunity: GB/T 17626.8-1998 IEC 61000-4-8-1995 class 5

Ring waves immunity: GB/T 17626.12-1998 IEC 61000-4-12-1995 class 4

Pulse magnetic field immunity: GB/T17626.9-1998 IEC 61000-4-9-1995 class 5

Damped oscillatory magnetic field immunity: GB/T17626.10-1998 IEC 61000-4-10-1995 class 4

Voltage dips and short interruptions and voltage variations immunity: GB/T 15153.1-1998 IEC 61000-4-11 2004  $\Delta U$ -100%,  $\Delta t = 0.5s$

Insulation resistance:  $>5M\Omega$

Insulating strength: no breakdown when applying 500V and 1500V to the communication ports and power supply ports respectively

Dry heat test: GB/T2423.2-2001 IEC 60068-2-2 75°C, 24 hours

Cold test: GB/T2423.1-2001 IEC 60068-2-1 -25°C, 24 hours

Damp heat: GB/T2423.3-1993 IEC 60068-2-3 +40°C  $\pm 2^\circ\text{C}$ , 93%  $\pm 3\%$ , insulation resistance:  $>1M\Omega$

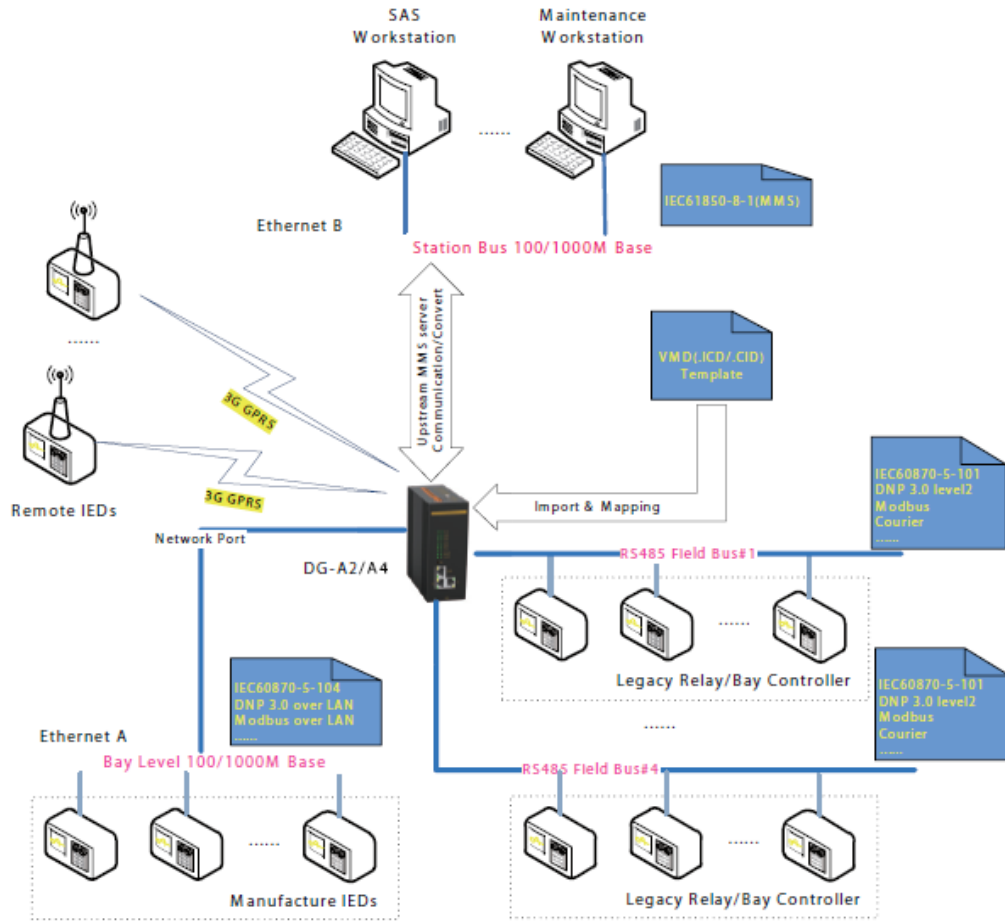
#### **-Approvals**

CE

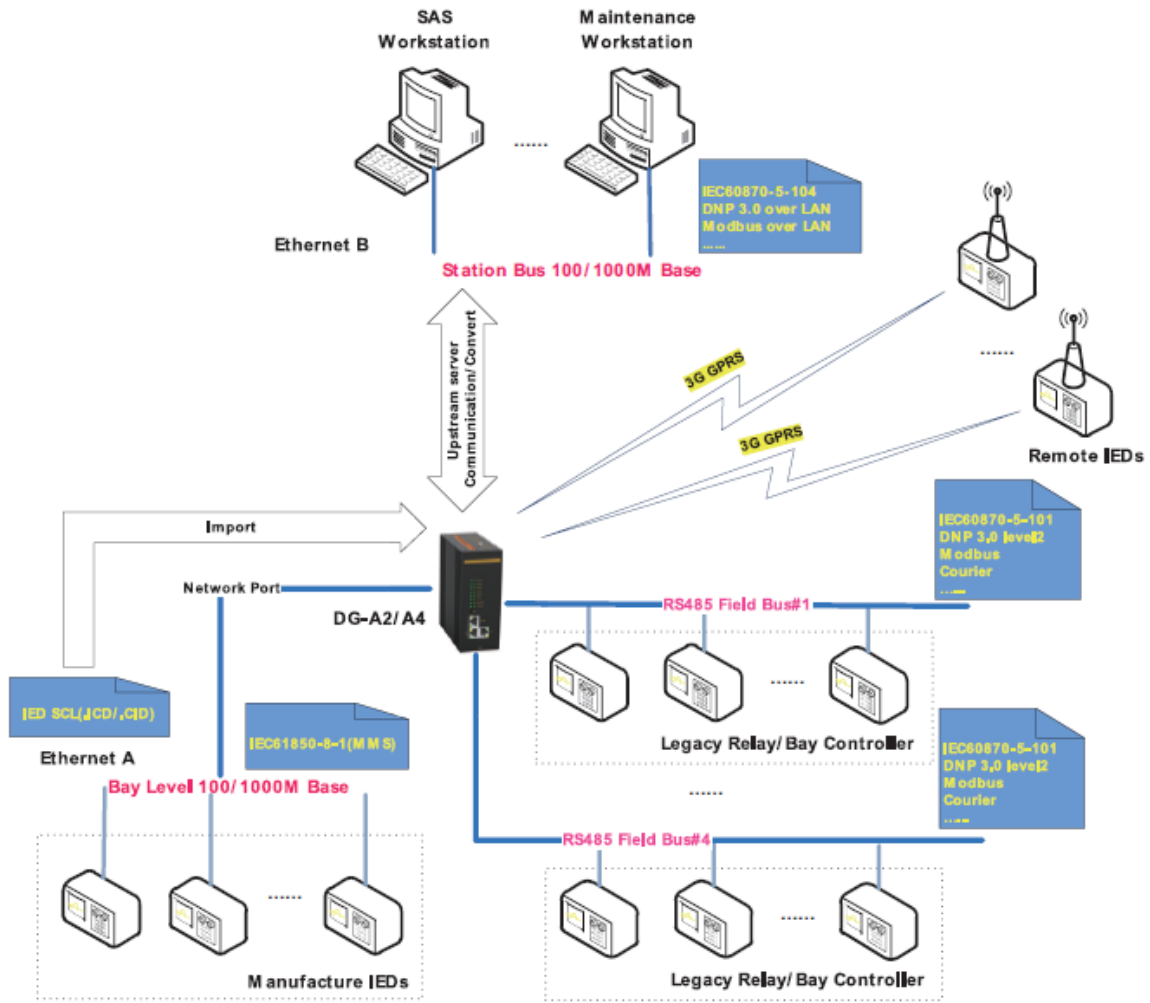
IEC 60950-1, EN 60950-1

## **» Mechanical Drawing**

# Typical Application



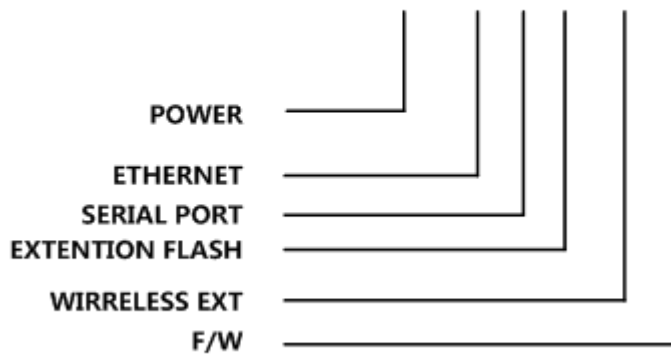
Convert traditional data to IEC 61850 MMS Server



Data concentrating with DG-A2/A4 gateway

» Ordering Information

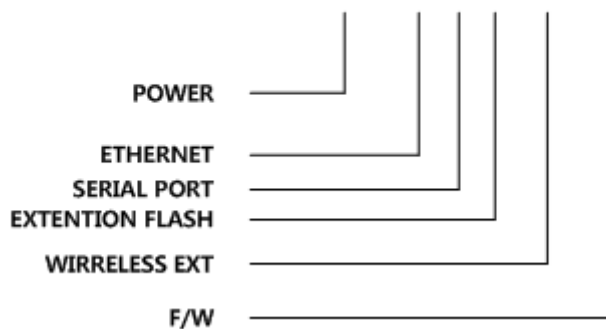
# DGW-A2X-P-100DEG



EQUIPMENT

TYPE	
A2X	DG-A2(DIN Rail)
POWER	
5	12 ~ 24VDC
ETHERNET	
1	1 x 10/100M BASE-T
SERIAL PORT	
0	2 x RS232/RS485 SERIAL PORTS
EXTENTION FLASH STORAGE	
0	N/A
WIRELESS EXT	
0	N/A
1	GPRS/3G
F/W	
00	DEFAULT(IEC 101/104/DNP 3.0/Modbus S/M)
A4	DG-A4(MMS Sever)
A5	DG-A5(MMS Client)
A6	DG-A6(MMS Client/Sever)
C0	DG-C0(COMMON PROTOCOL)
C4	DG-C4(MMS Sever)
C5	DG-C5(MMS Client)
C6	DG-C6(MMS Client/Sever)
P0	DG-P0(PRIVATE PROTOCOL)
P4	DG-P4(MMS Sever)
P5	DG-P5(MMS Client)
P6	DG-P6(MMS Client/Sever)

## DGW-A4X-P-10CDEG



### EQUIPMENT

TYPE	
A4X	DG-A4(DIN Rail)
POWER	
1	85 ~ 264V AC(50/60Hz)
5	12 ~ 24V DC
ETHERNET	
1	2 x 10/100M BASE-T
SERIAL PORT	
0	4 x RS232/RS485 SERIAL PORTS
EXTENTION FLASH STORAGE	

0	N/A
1	8G
3	64G
WIRELESS EXT	
0	N/A
1	GPRS/3G
F/W	
00	DEFAULT(IEC 101/104/DNP 3.0/Modbus S/M)
A4	DG-A4(MMS Sever)
A5	DG-A5(MMS Client)
A6	DG-A6(MMS Client/Sever)
C0	DG-C0(COMMON PROTOCOL)
C4	DG-C4(MMS Sever)
C5	DG-C5(MMS Client)
C6	DG-C6(MMS Client/Sever)
P0	DG-P0(PRIVATE PROTOCOL)
P4	DG-P4(MMS Sever)
P5	DG-P5(MMS Client)
P6	DG-P6(MMS Client/Sever)

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