# 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 Δ U-100%, Δ t = 0.5s

Insulation resistance: >5MΩ

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

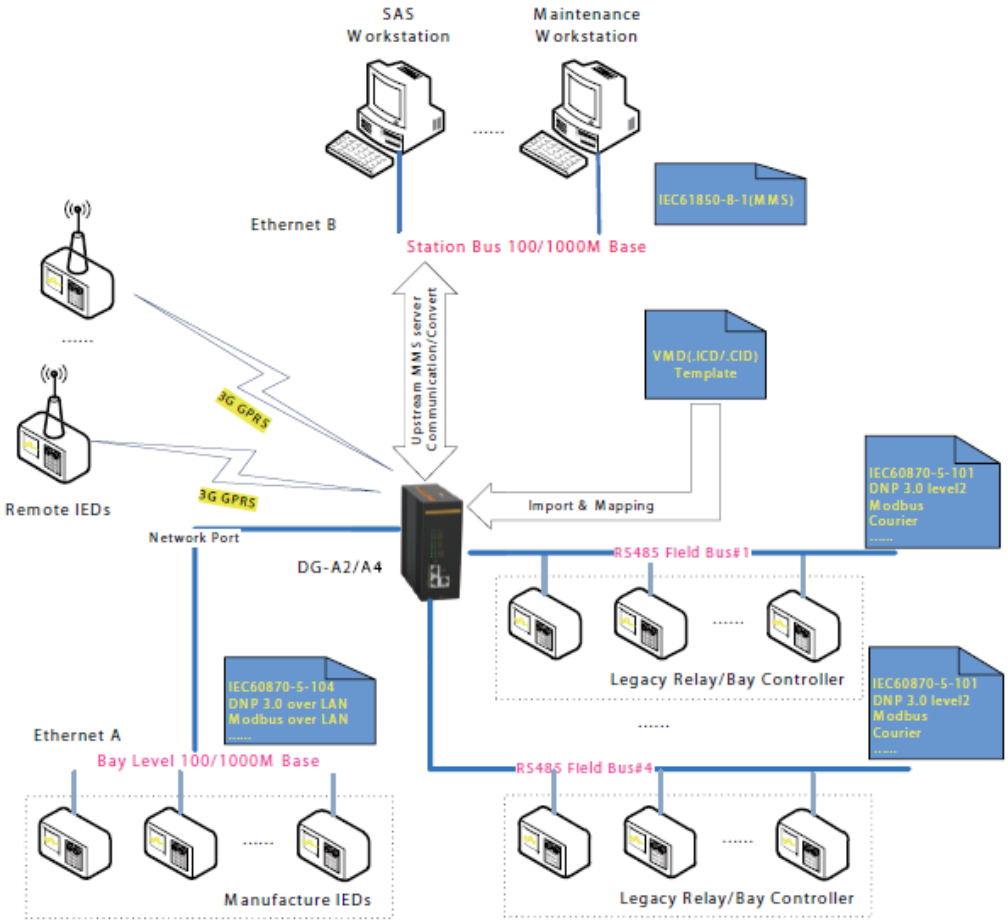
Damp heat: GB/T2423.3-1993 IEC 60068-2-3 +40°C ± 2°C, 93% ± 3%, insulation resistance: >1MΩ

**-Approvals**

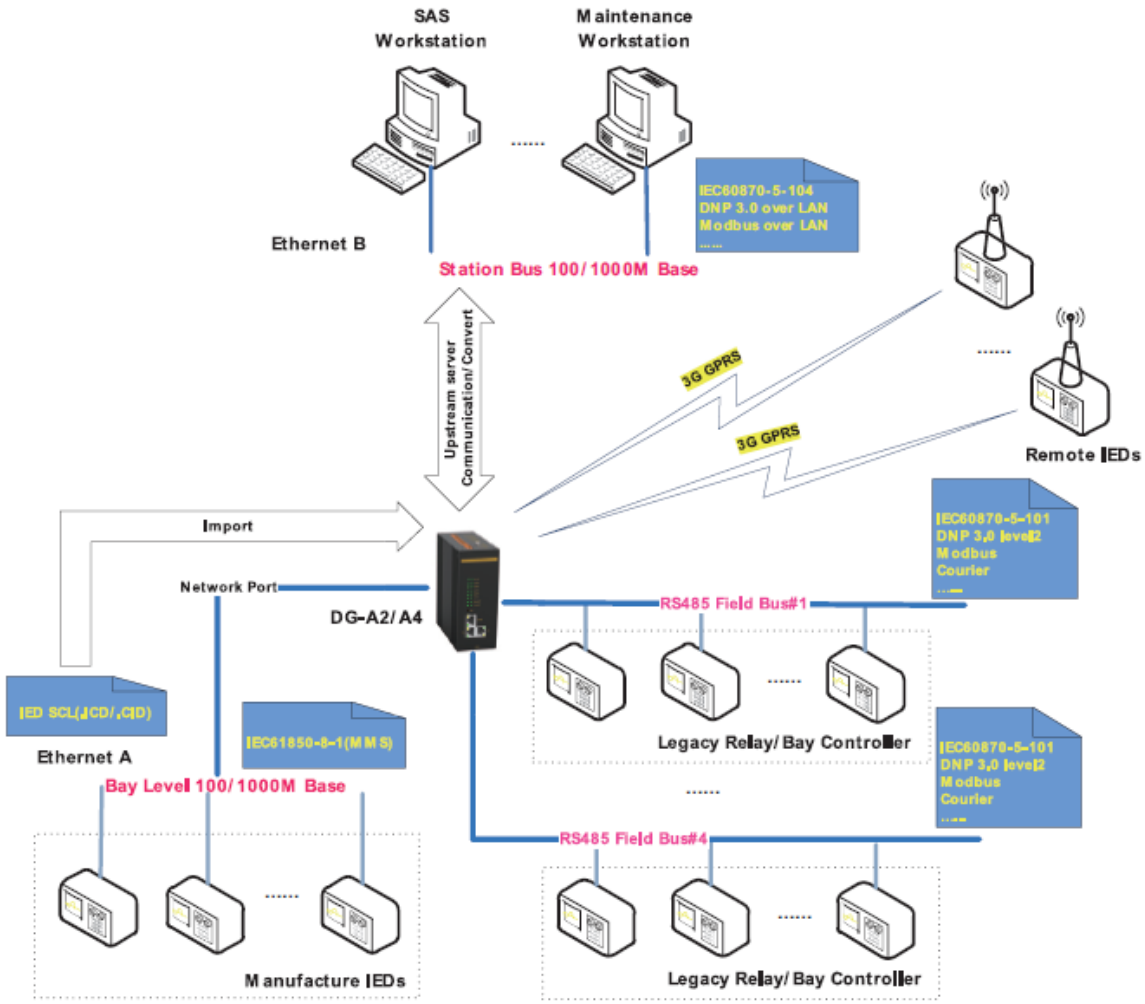
CE

## Mechanical Drawing

# Typical Application




Convert traditional data to IEC 61850 MMS Server




Data concentrating with DG-A2/A4 gateway

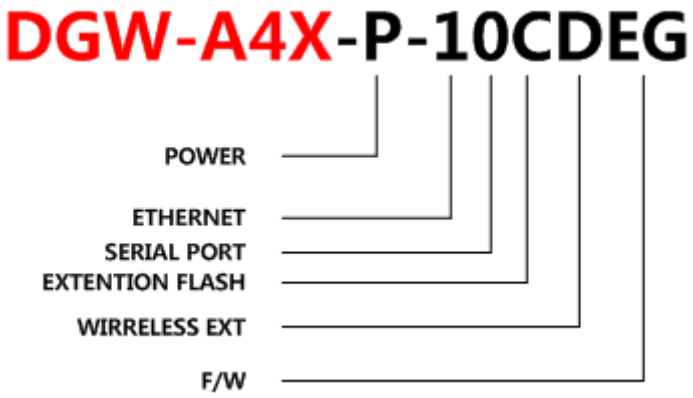
## Ordering Information

**DGW-A2X-P-100DEG**

- POWER
- ETHERNET
- SERIAL PORT
- EXTENTION FLASH
- WIRRELESS EXT
- F/W

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) |




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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