DA-680 Series

Intel® 8th Gen Core™ processor, IEC-61850, 1U rackmount computers with 8 Gigabit Ethernet ports, 8 to 16 serial ports

Features and Benefits

- IEC 61850-3, IEEE 1613, and IEC 60255 compliant for power substation automation systems
- Built-in DDR4 memory socket that supports 32 GB capacity
- Supports 100 to 240 VAC/VDC power inputs (single-power and dual-power models available)

Certifications
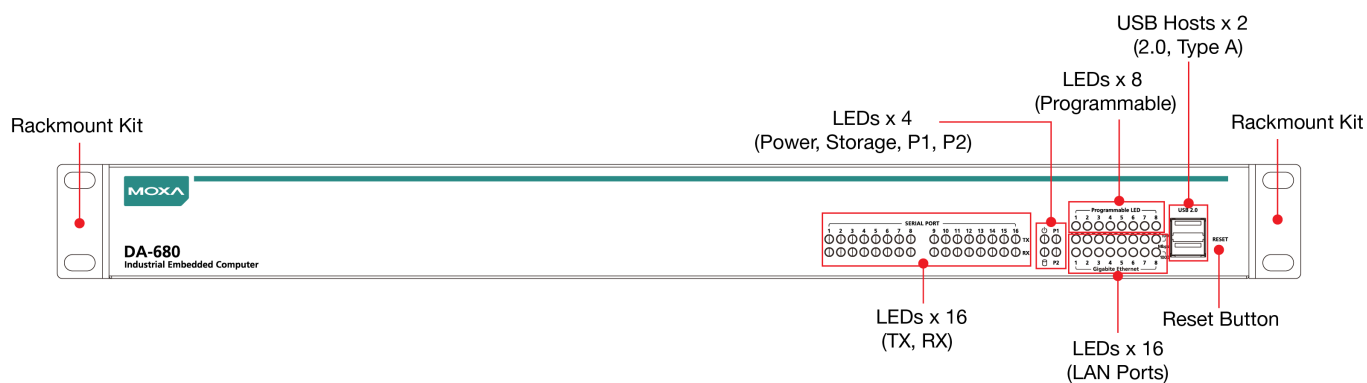
IEC 61850-3 / IEEE 1613   CE   c U L us
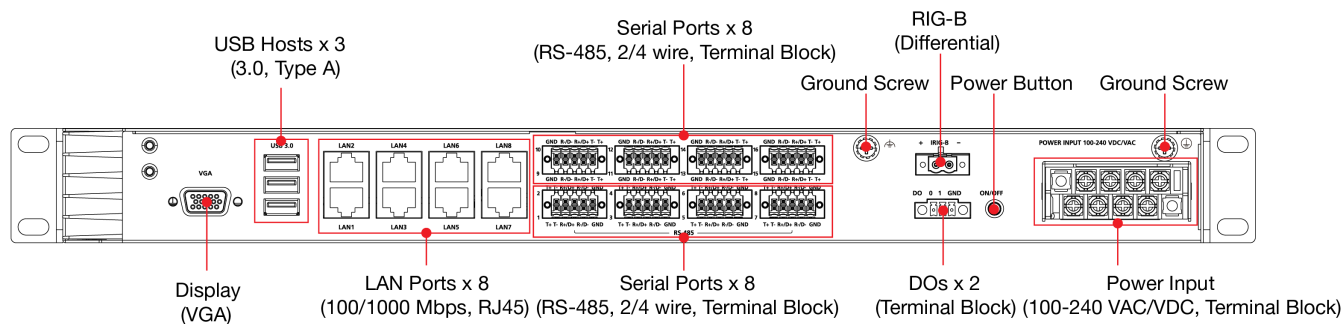
Introduction

The DA-680 computer is built around an Intel® Core™ i3 processor and comes with 8 Gigabit Ethernet ports, 1 VGA port, 8/16 isolated RS-485 serial ports, and 5 USB ports. Additionally, one 2.5" HDD/SSD slot and one mSATA slot are included to enable storage expansion for industrial applications that require large storage space for edge data acquisition. With IEC 61850-3, IEEE 1613, and IEC 60255 compliance, the DA-680 is sure to deliver stable and reliable system operation for power applications.

Appearance

Front View

USB Hosts x 2 (2.0, Type A)
LEDs x 8 (Programmable)
LEDs x 4 (Power, Storage, P1, P2)
Rackmount Kit
Rackmount Kit
LEDs x 16 (TX, RX)
LEDs x 16 (LAN Ports)
Reset Button

Rear View

USB Hosts x 3
(3.0, Type A)

Serial Ports x 8
(RS-485, 2/4 wire, Terminal Block)

RIG-B
(Differential)

Ground Screw   Power Button   Ground Screw

Display
(VGA)

LAN Ports x 8
(100/1000 Mbps, RJ45)

Serial Ports x 8
(RS-485, 2/4 wire, Terminal Block)

DOs x 2
(Terminal Block)

Power Input
(100-240 VAC/VDC, Terminal Block)

Specifications

Computer

CPU	Intel® Core™ i3-8145UE Whiskey Lake processor
System Memory Slot	DDR4 (non-ECC) slots x 1
DRAM	32 GB max
Graphics Controller	Intel® UHD Graphics 620
Storage Slot	2.5-inch HDD/SSD slots x 1 mSATA slots x 1
Supported OS	Windows 10 IoT Enterprise LTSC 2021 Linux SDK Supported: Debian 12 Ubuntu 22.04 LTS & HWE RedHat 9 CentOS 7.9

Computer Interface

USB 2.0	USB 2.0 hosts x 3, type-A connectors 2 ports on the front panel, 1 port inside the computer
USB 3.0	USB 3.0 hosts x 3, type-A connectors 3 ports on the rear panel
Video Output	VGA x 1, DB-15 connector
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 8
Time Synchronization	IRIG-B (terminal block)
TPM	TPM v2.0
Serial Ports	DA-680-I-8-WL3-H/HH: 2-wire RS-485/4-wire RS-485 x 8 (terminal block) DA-680-I-16-WL3-H/HH: 2-wire RS-485/4-wire RS-485 x 16 (terminal block)

Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	24 VDC nominal, open collector to 30 VDC
Isolation	3k VDC

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Serial Interface

Baudrate	50 bps to 115.2 kbps
Connector	Terminal block
Serial Standards	RS-485 2-wire / 4-wire
Isolation	2 kV

Serial Signals

RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

IRIG-B Interface

Input Signal	Differential
Time-code Input	Based On: IRIG standard 200-04 IEEE 1344
Accuracy (Time Synchronization)	±1 µs
Accuracy (Free Running)	±500 ms @ 24 hr

LED Indicators

System	Programmable x 6 Storage x 1 Power x 1 Power Fail x 2 (Power Fail 1/2)
LAN	2 per port (10/100/1000 Mbps)
Serial	2 per port (Tx, Rx)

Power Parameters

Input Current	100 to 240 VAC, 50/60 Hz, 1.05 A (max) 100 to 240 VDC, 0.7 A (max)
Power Button	ON/OFF (rear panel)
Reset Button	Reset button (front panel)

Physical Characteristics

Housing	Metal
Dimensions (without ears)	440 x 335.5 x 44 mm (17.32 x 13.21 x 1.73 in)
Weight	4659.5 g (10.27 lb)
Installation	19-inch rack mounting

Environmental Limits

Operating Temperature	-25 to 55°C (-13 to 131°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

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Standards and Certifications

EMC	EN 55032/35 EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF: 100 A/m at 50 Hz IEC 61000-4-11
Power Substation	IEC 61850-3 IEEE 1613
Protection Relay	IEC 60255
Shock	IEC 61850-3 Edition 2.0, IEC 60068-2-27, IEC 60255-21-2
Safety	UL 62368-1 IEC 62368-1

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	238,154 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	3 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x DA-680 Series computer
Installation Kit	1 x rack-mounting ear
Documentation	1 x quick installation guide 1 x warranty card
Note	This product requires additional modules (sold separately) to function.

Dimensions

Unit: mm (inch)
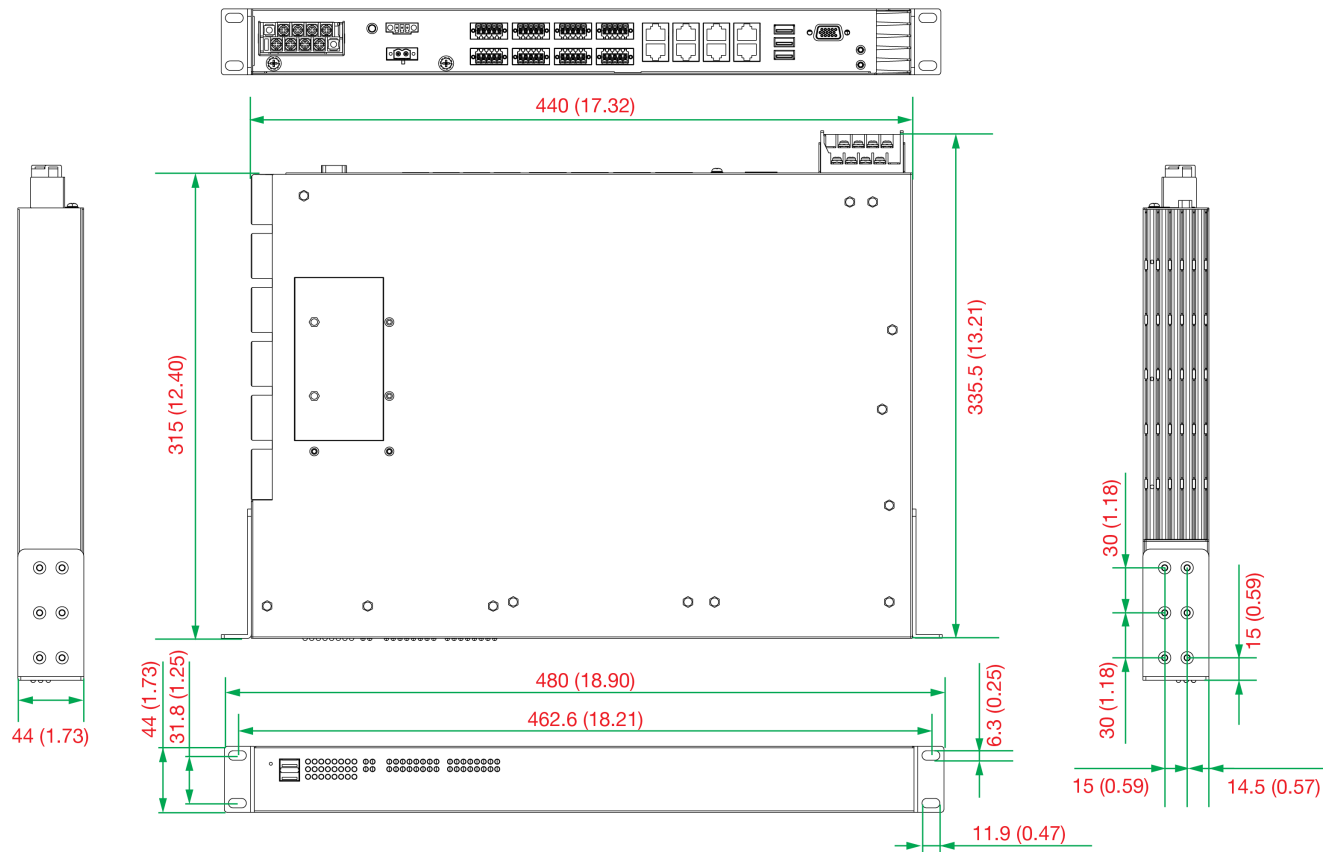
Ordering Information

Model Name	10/100/1000 Mbps Ports (RJ45 Connector)	RS-485 2-Wire/4-Wire (Terminal Block)	CPU	Power Input 100-240 VAC/VDC	Operating Temp.
DA-680-I-8-WL3-HH	8	8	Intel® Core™ i3-8145UE	Dual	-25 to 55°C
DA-680-I-8-WL3-H	8	8	Intel® Core™ i3-8145UE	Single	-25 to 55°C
DA-680-I-16-WL3-HH	8	16	Intel® Core™ i3-8145UE	Dual	-25 to 55°C
DA-680-I-16-WL3-H	8	16	Intel® Core™ i3-8145UE	Single	-25 to 55°C

Accessories (sold separately)

Storage Kits

DA-680 SSD/HDD Kit	DA-680 SSD/HDD Kit

www.moxa.com