Honeywell

Technical Information

ControlEdge PLC Specification

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1. Introduction

This document provides technical information for the Honeywell ControlEdge™ PLC. Product details can be found in the Product Information Note. Detailed planning, installation and configuration information is available in the product user guides.

1.1. ControlEdge PLC Overview

Honeywell's advanced Programmable Logic Controller (PLC) technology improves control performance while offering greater flexibility and lower costs. The new ControlEdge™ PLC improves integration with Experion®, HMIs and third-party devices, and reduces configuration efforts by utilizing the industry-accepted IEC 61131-3 programming languages, as well as remote configuration and firmware updates.

The key features of the ControlEdge PLC include:

- First PLC with HART enabled Redundant/Non-redundant Universal I/O module for greater configuration flexibility
- ISASecure EDSA Level 2 certified cyber security capabilities improved safety of the plant and personnel
- Designed and developed by Honeywell, a global leader in process automation for more than 40 years
- Tightly integrated with Experion, Honeywell's best-in-class Distributed Control System (DCS), Supervisory Control and Data Acquisition (SCADA) system, safety system and Experion Panel PC
- Tight integration with Honeywell's market leading Field Device Manager - FDM
- Native controller redundancy
- Optionally redundant power supplies
- I/O racks of various sizes (1,4, 8 and 12 IO slots options)
- Three variants of power supplies: 51W 24VDC, 58W 110/240AC & 41W 110/240 AC (Extended Temperature)
- Leverages Honeywell's LEAP™ project methodology and Universal I/O for greater configuration flexibility
- Compatible with leading open network standards such as Modbus and OPC UA
- Built-in EtherNet/IP Protocol with both Server and Client, ODVA Certification
- Built-in PROFINET Protocol with PROFINET IO Controller
- Support DLR on EtherNet/IP Protocol Client and PROFINET IO Controller
- Support DNP3 Master and Outstation
- Support Serial Communication Module (2×RS232 ports, 2×RS485 ports) with User Defined Protocol
- Connects to Human-Machine Interface (HMI) through Modbus and OPC UA protocols
- Support MQTT with Sparkplug B with DNS function for remote monitoring and analytics
- Powerful IEC 61131-3 programming environment
- HART function block supporting all HART commands in PLC
- Support Removal and Insertion under Power for CPM and I/O modules
- Support Fail safe state configuration on output signal type
- Simulation support on standalone and on Virtual Engineering Platform
- Support Subsea application MDIS based on OPC UA
- Support Fault Tolerant Ethernet (FTE) network.
- Support communication to EUCN when CPM is working as ELMM. EUCN uses FTE as media.
- Support IEC60870-5-104 Outstation.
- Support recording data locally for standalone or as a backup-data source to a Historian or SCADA.
- Robust support for MasterLogic IO to increase resiliency for high performance applications.

1.2. Document Scope

This document provides specifications for the following components:

- ControlEdge PLC Controller
- ControlEdge PLC IO Modules
- ControlEdge PLC Expansion Processor Module
- ControlEdge PLC Serial Communication Module
- ControlEdge PLC Power Supplies
- ControlEdge PLC Power Status Modules
- ControlEdge PLC Racks
- ControlEdge Remote Termination Panel
- ControlEdge Builder

1.3. Terminology

Terminology	Description
CIP	Common Industrial Protocol
CPM	Control Processor Module
CPU	Control Processor Unit
DLR	Device Level Ring
DNP3	Distributed Network Protocol Version 3
DNS	Domain Name System
ELMM	Enhanced Logic Manager Module
EPM	Expansion Processor Module
ETAP	EtherNet/IP™ Tap
EUCN	Enhanced Universal Control Network
Expansion I/O Rack	I/O Rack with EPM installed
FTE	Fault Tolerant Ethernet
I/O Network	Network between CPM and expansion I/O rack
MQTT	Message Queuing Telemetry Transport
IPsec	Internet Protocol G3
Local I/O Rack	I/O Rack with CPM installed
ODVA	Open Device Vendors Association
OWD	Open Wire Detect
Redundant CPM Rack	Rack with 2 CPMs installed
RSM	Redundant Switch Module
RTP	Remote Terminal Panel
SCADA	Supervisory Control And Data Acquisition
VM	Virtual Machine
PPS	Parameters Per Second
VEP	Virtual Engineering Platform
UIO	Universal Input/output Module
VFD	Variable Frequency Drive

2. Specifications

2.1. Control Processor Module (900CP1-0200) and Ext. Temp (-40 to 70°C) Model (900CP1-0300) and Control Processor Module (900CP2-0100).

The ControlEdge PLC has a rack based modular hardware design with control processor modules that plug onto different rack options depending on system configuration requirement.

2.1.1. Performance and Capability

Item	Specification
Maximum I/O Modules per controller	144[1,2]
Maximum Analog channels per controller	2304[1,2]
Maximum Digital channels per controller	4608[1,2]
Maximum expansion I/O racks for non-redundant controller	11
Maximum expansion I/O racks for redundant controller	12
Command execution time	85µs per 1000 commands in ST
Note: 1. I/O capability, as a soft limit, will decrease depending on the number of used EtherNet/IP connections and PROFINET IO Devices connected. Refer performance calculator tool for details. 2. I/O capability is based on I/O module type selection and combination. For more information, see section 2.5. 3. Only limited for 900 IO modules, not for MasterLogic IO modules.	

2.1.2. Hardware specification and Features

Item	Specification
Processor	Dual Core ARM® Cortex™-A9 Core (32 bit) 667 MHz
User Programming memory, (Flash)	User: 10 MB (Program 5 MB, Data 5 MB). 256 MB (Flash) of (900CP1-0200 and 900CP1-0300). 512MB (Flash) of (900CP2-0100).
SD card support	32GB Class 6 / Class 10 industry standard
Running Memory (RAM)	256MB with Error Correction Code of (900CP1-0200 and 900CP1-0300). 512MB with Error Correction Code of (900CP2-0100).
Controller Redundancy	Supported (Hot Standby)
Real-Time Clock	2 weeks of retention after a power loss
CPU Watchdog	CPU automatically resets if error is detected
Nonvolatile memory data life	20+ years (no battery required)
Real-time clock resolution	1 ms
I/O Scan Time	10 ms – 3000ms (adjustable per control strategy)
Switchover	Internal parameters, variables and outputs are maintained during transition. Switchover time <100 ms
Operating Modes	Run Locked Stop Locked Remote Running Remote Stopped
LED	2 LEDs, three color each, indicate the status and role of the CPM

2.1.3. Datalog Support

Item	Specification
Datalog Media	Flash memory or optional SD Card
Datalog rate	Configurable: 1 second, 5 seconds, 10 seconds, 1 minute, 5 minutes, 10 minutes and1 hour
Datalog Timestamp resolution	1 ms

2.1.4. Communication Capabilities

Item	Specification
Ethernet Ports	4
Network connection	Shielded RJ45 connector, auto-crossover
Network port speed	10/100BaseTx, auto-detecting
Isolation	1500 Volts RMS 1 minute, 60 Hz
Transient Voltage Suppression	600W peak pulse power capability at 10×1000μs waveform, repetition rate:0.01%
Diagnostic LEDs on each port	Yes
Protocols, CPM ports 1 & 2	MODBUS TCP/UDP, OPC UA, HART-IP, CDA Responder, EtherNet/IP Server, EUCN[1], DNP3, MQTT, IEC60870-5-104 Outstation
Protocols, CPM ports 3 & 4	I/O Communication, EtherNet/IP Client, PROFINET
Embedded Firewall[2]	Supported on ports 1&2
IPsec[3]	Supported on ports 1&2
FTE	Supported on ports 1&2
Time Synchronization[4]	SNTP, DNP3

Note:

1. EUCN is available, only when CPM is working as PLC-FTE (formerly ELMM). PLC-FTE is a separate firmware image.
2. For detailed information of Firewall, see ControlEdge PLC and ControlEdge RTU Network and Security Guide.
3. Running on Windows 10 or Windows Server 2016 OS or later version.
4. PLC's time can be synchronized from either NTP/SNTP server or DNP3 Master.

Below table list the relationship between all I/O modules and their related terminal block or RTP.

I/O Module	Terminal Block (Euro)	Terminal Block (Barrier)	RTP	RTP required per module	RTP Cable
900U01-0100	900TEK-0200	900TBK-0200	900RTS-0001	1	900RTC-H2xx 900RTC-L2xx
900A01-0202	900TEK-0200	900TBK-0200	900RTA-L001	1	900RTC-L2xx
900A16-0103	900TCK-0200	N/A	900RTS-0001	2	900RTC-34xx
900B01-0301	900TEK-0200	900TBK-0200	900RTS-0001	1	900RTC-L2xx
900B08-0202	900TCK-0200	N/A	900RTS-0001	1	900RTC-BAxx
900G03-0202	900TER-0200	900TBR-0200	900RTS-0001	1	900RTC-H2xx
900G32-0301	900TCK-0200	N/A	900RTS-0001	2	900RTC-34xx
900G01-0202	900TEK-0200	900TBK-0200	900RTS-0001	1	900RTC-L2xx
900G04-0101	900TCK-0200	N/A	N/A	N/A	N/A
900H03-0202	900TER-0200	900TBR-0200	900RTS-0001	1	900RTC-H2xx
900H32-0302	900TCK-0200	N/A	900RTS-0001	2	900RTC-34xx
900H01-0202	900TER-0200	900TBR-0200	900RTR-H001	1	900RTC-H2xx
900K01-0201	900TEK-0200	900TBK-0200	N/A	N/A	N/A

2.10. Power Supply

2.10.1. 120/240VAC Power Supply (900P01-0501)

Item	Specification
Voltage	90 to 264 V AC, 47 to 63 Hz
Current	1.4 A Max continuous
Inrush Current	40 Amps peak-to-peak for 120 ms at 240 V AC
Input rating	130 VA
Output rating	58W
Fuse	Internal non-replaceable fuse.
Power Supply Hold up time	20milliseconds @ 115V AC, 60HZ maximum Load
Wiring	Screw type terminals, 0.3 mm^2 to 3.3 mm^2 (#12-22AWG)
Test jacks	5 V DC, 24 V DC
Ambient Temperature	T4, 0°C to 60°C

2.10.2. 24VDC Power supply (900P24-0501)

Item	Specification
Voltage	21 to 29V DC
Current	5A Max. continuous
Inrush Current	30A for 3ms @ 29V DC
Input rating	72.5W
Output rating	51W
Fuse	Internal non-replaceable fuse.
Power Supply Hold up time	20 milliseconds @ 24V DC, maximum Load
Wiring	Screw type terminals, 0.3 mm^2 to 3.3 mm^2 (#12-22AWG)
Ambient Temperature	T4, 0°C to 51°C

2.10.1. 120/240VAC Power Supply (900P01-0701)

Item	Specification
Voltage	90 to 264 V AC, 47 to 63 Hz
Current	1.4 A Max continuous
Inrush Current	40 Amps peak-to-peak for 120 ms at 240 V AC
Input rating	130 VA
Output rating	41W
Fuse	Internal non-replaceable fuse.
Power Supply Hold up time	20milliseconds @ 115V AC, 60HZ maximum Load
Wiring	Screw type terminals, 0.3 mm^2 to 3.3 mm^2 (#12-22AWG)
Test jacks	5 V DC, 24 V DC
Ambient Temperature	T4, -40°C to 70°C

2.11. Power Status Module (900PSM-0200)

Item	Specification
Status indication	Green directional indicators using LEDs
Power supply Loading	5V;22mA Max

2.12. ControlEdge Builder Specification

ControlEdge Builder is ControlEdge PLC's configuration tool to design, configure, program, and maintain your PLC project

2.12.1. ControlEdge Builder Capabilities

Item	Specification
IEC 61131-3 Programming	Yes
Controller Simulator	Yes[1]
Programming Languages	Ladder Diagram (LD) Function Block Diagram (FBD) Structured Text (ST) Instruction List (IL) Sequential Function Chart (SFC)
Function Block Libraries[2]	Standard IEC61131-3 Honeywell Control MODBUS OPC UA EtherNet/IP HART Command User Defined Protocol
Communication Medium to PLC	Ethernet
Remote Download of Program	Yes
Online changes[3]	Yes
Remote Reboot	Cold or Warm Reboot
Remote Firmware Upgrade	Yes
Remote Diagnostics	Yes
Task status in Diagnostic Page	Yes

Item	Specification
Note: 1. Controller Simulator runs on a virtual machine; Not supported on ELMM 2. See Online help in ControlEdge Builder 3. For example, if only one I/O module configuration is changed, other I/O modules will not be impacted when downloading the project. Refer online help in ControlEdge Builder for more information.	

2.12.2. ControlEdge Builder Hardware Requirements

Item	Specification
Minimum Processor	Pentium or compatible processor (2 GHz) Recommended: Intel® Core™ i5 equivalent or better
System RAM	Minimum: 1 GB Recommended: 4 GB
Operate System	Windows 7 32-bit or 64-bit with SP1, Windows 10 32-bit or 64-bit
Hard drive	5 GB available memory
DVD-ROM drive	Required
Graphic Card	DirectX 9 capable graphics adapter
Display color settings	True color (32 bit)
Display Resolution	Recommended resolution: 1280 x 800 or above Optimal resolutions: 1920 x 800, 1366 x 768, 1280 x 1024 and 1280 x 800

2.12.3. Project Limits in ControlEdge Builder

The following table lists the limits valid within one project. Please observe the corresponding notes below the table.

Item	Specification
Configurations in the project tree	1
Resources in the project tree	1
Program instances per resource	1000[1]
Tasks per resource	16[2]
Program instances per task	500[1]
Global variables	100000
Local variables per POU	15000
POUs in a project including POUs from libraries	2000
Total no. of functions and FBs of different types per POU	620[1]
Total no. of functions and FBs of same type per POU	1024[1]
Jumps and labels per POU	750[1]
Jumps and returns per POU	20[1]
SFC steps per POU	750
SFC transitions per POU	1024
SFC transition details in the project tree	256
SFC action details in the project tree	350
SFC actions per code worksheet	600
Contacts / coils per POU	3600
Global PG variables per program instance	2000[1, 2]
Note: 1. The actual value of this limit may be higher than the value mentioned here. However, the given value is the limit by manufacturer definition. 2. The actual value of this limit depends on the PLC type (in particular non-ProConOS targets).	

2.12.4. Software Licenses

Model Number	Details
SP-EBLDR1	PLC and RTU builder client license. One required for each computer (physical or virtual) RTU Builder is to be installed on. Can run both online and offline.
SP- CSPLC1	PLC Execution Environment License. One required for each 900CP1-xxxx controller running PLC functionality. At least one license required for PLC Simulator
SP-EMD172	ControlEdge Builder R172, Media and documentation. Delivered as DVD with software and documentation.
SP-EMD172-ESD	ControlEdge Builder R172, Media and documentation. Software and documentation are delivered through software link for faster deliveries.
SP-MAPLC1	ControlEdge Transition Migration tool - Annual Subscription per user
SP-IMDIS1	Subsea MDIS Interface, Site License. One required for each site using MDIS feature.
SP-CELMM1	ELMM on ControlEdge PLC, unit license. One required for each ELMM.
SP-IPROF1	CONTROLEDGE PROFINET Usage License-1 INSTANC

2.13. Controller Simulator Specification

Item	Specification
Supported function	Connect, configure, and debug applications using ControlEdge Builder[1] I/O simulation[2] System diagnostics Upload system event logs Project archive and upload configuration Communication with SCADA, PLC simulator instances or physical ControlEdge PLC and RTU controllers Protocols - Modbus TCP master - Modbus TCP slave - OPC UA server - OPC UA client - DNP3 Master and Outstation
Deployment	Local VM software VEP
Supported VM software[3]	VMware Workstation Player 12.5.8 or higher VMware vCenter Server 6.0.0 or higher
Delivery method[3]	OVA file.
Note: 1. Users can switch configuration on simulator and physical controller without any modification. But some functions are not supported in simulator. 2. No physical IOMs supported on simulator. Any configuration of IOMs will be simulated. 3. VM software is a third-party application, and it should be purchased separately.	

3. Hardware Power Consumption, Heat Dissipation and Weight

3.1. ControlEdge900 I/O Modules

3.1.1. Power Consumption and Heat Dissipation

Item	Module number	Max. Current @5V	Max. Current @24V	Heat Dissipation (W)
Control Processor Module	900CP1-0200	750 mA	0 mA	3.75W
Expansion Processor Module	900SP1-0200	520 mA	0 mA	2.6W
Control Processor Module, Ext. Temp (-40 to 70°C)	900CP1-0300	750 mA	0 mA	3.75W
Expansion Processor Module, Ext. Temp (-40 to 70°C)	900SP1-0300	520 mA	0 mA	2.6W
Serial communications module, 2 x RS232, 2 x RS485, Ext. Temp (-40 to 70°C)	900ES1-0100	400 mA	0 mA	2 W
UIO Module, Ext. Temp (-40 to 70°C)	900U01-0100	380 mA	0 mA	8.5W
Universal AI -RTD, TC, V, 8 Ch	900A01-0202	40 mA	25 mA	0.8W
Analog Input High level,16 Ch	900A16-0103	75 mA	50 mA	2.2W
Analog Output, 0 to 20mA ,4 Ch	900B01-0301	40 mA	200 mA	6.8W
Analog Outputs 0 to 20mA,8 Ch	900B08-0202	225 mA	350 mA	9.4W
Digital Input 120/240 VAC, 16 Ch	900G03-0202	130 mA	0 mA	0.65W
Digital Input 24VDC, 32Ch, Ext. Temp (-40 to 70°C)	900G32-0301	215 mA	0 mA	1.1W
Digital Input, Contact Type, 16 Ch	900G01-0202	130 mA	40 mA	1.76W
Digital Input, 120/240 VAC-125VDC, 16 Ch	900G04-0101	130mA	130 mA	8.3W
Digital Output - 120/240 VAC, 8 Ch	900H03-0202	218 mA	0 mA	1.09W
Digital Output - 24VDC, 32 Ch, Ext. Temp (-40 to 70°C)	900H32-0302	235 mA	0 mA	1.175W
Digital Output, Relay, 8 Ch	900H01-0202	110 mA	100 mA	3W
Pulse/Freq, 4 Ch	900K01-0201	110 mA	250 mA	6.6W
120/240 V AC, 58W Power Supply	900P01-0501	N/A	N/A	25W
120/240 V AC, 41W Power Supply Ext. Temp (-40 to 70°C)	900P01-0701	N/A	N/A	25W
24V DC, 51W Power Supply	900P24-0501	N/A	N/A	51W
Redundant Power Status Module, Ext. Temp (-40 to 70°C)	900PSM-0200	22 mA	0 mA	0.11W
MOXA EDS-308 Ethernet Switch (8 Copper ports)	50008930-001	0 mA	350 mA	8.4W
MOXA EDS-316-MM-SC Ethernet Switch (14 Copper + 2 Multi-Mode ports)	50008930-002	0 mA	380 mA	9.12W
MOXA EDS-316-SS-SC Ethernet Switch (14 Copper + 2 Single-Mode ports)	50008930-003	0 mA	380 mA	9.12W
MOXA EDS-308-SS-SC Ethernet Switch (6 Copper + 2 Single-Mode ports)	50008930-004	0 mA	350 mA	8.4W
MOXA Fiber Optic Convertor IMC-101-M-SC, Multi-mode	50135395-001	0 mA	160 mA	3.84W
MOXA Fiber Optic Convertor IMC-101-S-SC), Single mode	50135395-002	0 mA	160 mA	3.84W

3.1.2. Dimensions and Weight

Item	Module Number	Dimension	Weight
1 I/O Slot Rack[1,2,3]	900R01-0300	137mm H x 150 mm W x 151.7mm D 5.4” H x 5.9” W x 6.0” D	900g
4 I/O slot Rack[1,2,3]	900R04-0300	137mm H x 266.7mm W x 151.7mm D 5.4” Hx 10.5” W x 6.0” D	2104g
8 I/O slot Rack[1,2,3,]	900R08-0300	137mm H x 419.1mm W x 151.7mm D 5.4” H x 16.5” W x 6.0” D	3126g
8 I/O slot Rack with redundant power support[1,2,3]	900R08R-0300	137mm Hx 530.9mm W x 151.7mm D 5.4” H x 20.9” W x 6.0” D	4422g
12 I/O slot Rack[1,2,3,]	900R12-0300	137mm H x 571.5mm W x 151.7mm D 5.4” H x 22.5” W x 6.0” D	4072g
12 I/O slot Rack with redundant power support[1,2,3]	900R12R-0300	137mm H x 683.3mm W x 151.7mm D 5.4” H x 26.9” W x 6.0” D	5252g
Redundant CPM Rack[1,2,3]	900RR0-0300	137mm H x 261.6mm W x 151.7mm D 5.4” H x 10.3” W x 6.0” D	1751g
CPM, ControlEdge 900	900CP1-0300	137mm H x 38.1mm W 5.4" H x 1.5" W	320g
EPM, ControlEdge 900	900SP1-0300	137mm H x 38.1mm W 5.4" H x 1.5" W	320g
4 port serial communications module, 2 x RS232, 2 x RS485	900ES1-0100	137mm H x 35.6mm W 5.4" H x 1.4" W	350g
Universal IO Module	900U01-0100	137mm H x 38.1mm W 5.4” H x 1.5” W	190g
Universal AI -RTD, TC, V, 8 Ch	900A01-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	210g
Analog Input hi level, 16 Ch	900A16-0103	137mm H x 35.6mm W 5.4” H x 1.4” W	397g
Analog Output, 0 to 20mA, 4 Ch	900B01-0301	137mm H x 35.6mm W 5.4” H x 1.4” W	408g
Analog Outputs 0 to 20mA, 8 Ch	900B08-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	400g
Digital Input 120/240 VAC, 16 Ch	900G03-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	210g
Digital Input 24VDC, 32 Ch	900G32-0301	137mm H x 35.6mm W 5.4” H x 1.4” W	175g
Digital Input, Contact type, 16 Ch	900G01-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	354g
Digital Input, 120/240 VAC-125VDC, 16 Ch	900G04-0101	137mm H x 35.6mm W 5.4” H x 1.4” W	400g
Digital Output - 120/240 VAC, 8 Ch	900H03-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	230g
Digital Output – 24VDC, 32 Ch	900H32-0302	137mm H x 35.6mm W 5.4” H x 1.4” W	180g
Digital Output, Relays, 8 Ch	900H01-0202	137mm H x 35.6mm W 5.4” H x 1.4” W	425g
Pulse/Freq, (4chan)	900K01-0201	137mm H x 35.6mm W 5.4” H x 1.4" W	360g
Power Supply 120/240VAC, 58W	900P01-0501	137mm H x 72.6mm W 5.4” H x 2.86” W	820g

List of Extended Temperature Module numbers

Description	Model Number	Values
Racks		
Redundant CPM Rack (Assembly)	900RR0-0300	Extended Operating Temperature (-40°C to 70°C)
1 I/O Slot Rack – Non-Redundant Power (Assembly)	900R01-0300	
4 I/O Slot Rack – Non-Redundant Power (Assembly)	900R04-0300	
8 I/O Slot Rack – Non-Redundant Power (Assembly)	900R08-0300	
12 I/O Slot Rack – Non-Redundant Power (Assembly)	900R12-0300	
8 I/O Slot Rack – Redundant Power (Assembly)	900R08R-0300	
12 I/O Slot Rack – Redundant Power (Assembly)	900R12R-0300	
Control Processor Module		
Control Processor Module	900CP1-0300	Extended Operating Temperature (-40°C to 70°C)
Expansion Processor Module		
Expansion Processor Module	900SP1-0300	Extended Operating Temperature (-40°C to 70°C)
4 port serial communications module, 2 x RS232, 2 x RS485	900ES1-0100	
IO Module		
Universal IO Module	900U01-0100	Extended Operating Temperature (-40°C to 70°C)
Digital Input 24VDC, 32Ch	900G32-0301	
Digital Output,24VDC, 32 Ch	900H32-0302	
Power Supply		
Redundant Power Status Module	900PSM-0200	Extended Operating Temperature (-40°C to 70°C)
Power supply AC-DC-NON SIL 41W	900P01-0701	

6. Standards and Approvals (ControlEdge 900 I/O Modules)

Item	Specification	
CE Conformity	This product is in conformity with the protection requirements of the following European Council Directives: 2014/35/EU, the Low Voltage Directive, and 2014/30/EU, the EMC Directive. Conformity of this product with any other "CE Mark" Directive(s) shall not be assumed .	
	LVD Directive:	
	Title	Number
	Safety requirements for electrical equipment for measurement, control, and laboratory use –Part 1: General requirements	EN 61010-1
	EMC directive:	
	Title	Number
	Programmable controllers- Part 2: Equipment requirements and Tests	IEC 61131-2
	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements	EN 61326-1
	Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement	CISPR 11
	Electromagnetic compatibility (EMC) – Part 3-2: Limits –Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	IEC 61000-3-2
	Electromagnetic compatibility (EMC) – Part 3-3: Limits –Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	IEC 61000-3-3
	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test	IEC 61000-4-2
	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test	IEC 61000-4-3
	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test	IEC 61000-4-4
	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test	IEC 61000-4-5
	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields	IEC61000-4-6
	Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test	IEC61000-4-8
	Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests	IEC61000-4-11
	Electromagnetic compatibility (EMC) – Part 4-18: Testing and measurement techniques – Damped Oscillatory wave immunity test	IEC61000-4-18 (equivalent ANSI/IEEE C37.90.1)

Item	Specification	
c UL us (General purpose safety)	Compliant with EN61010-1, ANSI/UL 61010-1 and CAN/CSA-C22.2 No. 61010-1-12	
RCM	Electromagnetic compatibility (EMC) – Part 6.3: Generic standards – Emission standard for residential, commercial and light-industrial environments	AS/NZS 61000.6.3
	Electromagnetic compatibility (EMC) – Part 6.4: Generic standards – Emission standard for industrial environments	AS/NZS 61000.6.4
CSA[1]	Non-incentive Electrical Equipment for use in Hazardous Locations	CAN/CSA C22.2 No. 213
	Electrical and Electronic Test, Measuring and Process Control Equipment	CAN/CSA-C22.2 No. 61010-1-12
	General requirements — Canadian Electrical Code, Part II	CAN/CSA-C22.2 No. 0-10
	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements	UL 61010-1
	Non-incentive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (classified) Locations	UL 12.12.01
ATEX	Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements	EN IEC60079-0
	Electrical apparatus for explosive gas atmospheres Construction, test and marking of type of protection “e” electrical apparatus	EN 60079-7
	Electrical apparatus for explosive gas atmospheres Construction, test and marking of type of protection “n” electrical apparatus	EN IEC60079-15
ISA Secure Level 2 [2]	ISASecure™ Embedded Device Security Assurance Program Version 2.0.0 Level 2	ISA 99
EAC	Technical Regulations of the Eurasian Customs Union conformity	
ABS	ABS RULES FOR BUILDING AND CLASSING STEEL VESSELS	19-HS1910403-PDA
BV	Bureau Veritas Rules for Classification of Steel Ships	NR467 C1 R11 58869/A0 BV
LR	Lloyd’s Register Type Approval System Test Specification Number 1	LR2003627TA
DNV	DNV GL rules for classification – Ships, offshore units, and high speed and light craft	TAA00002TA, Rev3
KR	Korean Register Type Approval Certificate.	SHI41089-AC001
IACS	E10 Test Specification for Type Approval IACS UR-E10 rev7	

Item	Specification	
RoHS	Directive 2011/65/EU	
RoHS China	The Administrative Measures for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products	
ODVA	ODVA composite Conformance Test (CT)	CT 14

Note:
1. For All standard's issue date and revision refer corresponding Certificates.
2. All certifications are not applicable for MOXA devices.
3. ISA99 Security L2 is applicable for ControlEdge PLC R160

Approval Rating for standard Temperature (0 to 60° C)

Hazardous Location Approvals	Approval Rating
CSA	Class I, Division 2, Groups A, B, C & D T*
ATEX	II 3 G Ex ec nC IIC T* Gc (for 900H01) II 3 G Ex ec IIC T* Gc (for other modules)
Temperature class (T*)	**Module Number**
T3	900G03, 900G04
T4	900H03, 900P01, 900P24, 900SP1-0200, 900CP1-0200, 900B01, 900B08.
T5	900H32-01XX, 900G32-01XX, 900G01, 900H01, 900A16, 900K01
T6	900A01

Note:
Classification of maximum surface temperatures for Group II electrical equipment are:

Temperature class	Maximum surface temperature ℃
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Approval Rating for Extended Temperature (-40 to 70° C)

Hazardous Location Approvals	**Approval Rating**
CSA	Class I, Division 2, Groups A, B, C & D T*
Temperature class (T*)	**Module Number**
T4	900U01-0100, 900G32-0301, 900H32-0302, 900ES1-0100, 900SP1-0300, 900CP1-0300, 900PSM-0200, 900P01-0701

Note:

Classification of maximum surface temperatures for Group II electrical equipment are:

Temperature class	Maximum surface temperature ℃
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Note: Racks do not have any Temperature code, System/Racks will consider T code based on the modules used.

7. Module Number List

7.1. ControlEdge 900 I/O Modules

Item	Model	Description
		Racks
1	900RR0-0300	Redundant CPM Rack (Assembly), Ext. Temp (-40 to 70°C)
2	900R01-0300	1 I/O Slot Rack – Non-Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
3	900R04-0300	4 I/O Slot Rack – Non-Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
4	900R08-0300	8 I/O Slot Rack – Non-Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
5	900R12-0300	12 I/O Slot Rack – Non-Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
6	900R08R-0300	8 I/O Slot Rack – Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
7	900R12R-0300	12 I/O Slot Rack – Redundant Power (Assembly), Ext. Temp (-40 to 70°C)
		Control Processor Module
8	900CP1-0200	Control Processor Module v1
9	900CP1-0300	Control Processor Module, Ext. Temp (-40 to 70°C)
10	900CP2-0100	Control Processor Module v2
		Expansion Processor Module
10	900SP1-0200	Expansion Processor Module
11	900SP1-0300	Expansion Processor Module, Ext. Temp (-40 to 70°C)
12	900ES1-0100	4 port serial communications module, 2 x RS232, 2 x RS485, Ext. Temp (-40 to 70°C)
		IO Module
13	900U01-0100	Universal IO Module, Ext. Temp (-40 to 70°C)
14	900A01-0202	Universal AI, RTD, TC, V, 8 Ch
15	900A16-0103	Analog Input high level (16 channel)
16	900B01-0301	Analog Output, 0 to 20mA, (4 channel)
17	900B08-0202	Analog Outputs 0 to 20mA (8 channel, 5 modules/rack)
18	900G03-0202	Digital Input 120/240 VAC, 16 Ch
19	900G32-0301	Digital Input 24VDC, 32Ch, Ext. Temp (-40 to 70°C)
20	900G01-0202	Digital Input, Contact type, (16 channel)
21	900G04-0101	Digital Input, 120/240 VAC-125VDC, (16 channel Isolated)
22	900H03-0202	Digital Output, 120/240 VAC, 8 Ch
23	900H32-0302	Digital Output,24VDC, 32 Ch, Ext. Temp (-40 to 70°C)
24	900H01-0202	Digital Output, Relays (8 channel)
25	900K01-0201	Pulse/Freq (4 channel)
		Power Supply
26	900P01-0501	120/240 V AC, 58 W Power Supply
27	900P24-0501	24 V DC, 51W Power Supply
28	900P01-0701	AC-DC-NON SIL 41W Power supply, Ext. Temp (-40 to 70°C)
29	900PSM-0200	Redundant Power Status Module, Ext. Temp (-40 to 70°C)
		Terminal Blocks
30	900TEK-0200	TB Housing, Black 20 Position Euro style
31	900TER-0200	TB Housing, Red 20 Position Euro style
32	900TCK-0200	TB Housing, Black 36 Position Euro style
33	900TBR-0200	High Voltage Terminal Block (Barrier Style)