



EN KO

Electronic Control Systems



ABOUT US

Establishment & Brief History

ENKO Electronics is an LLC, established in 1982 as an engineering company in order to design and manufacture dedicated electronic control systems for industrial machinery. The company is based in Izmir, a 5000 year old city on the west coastal region of Turkey.

The company moved to its current facilities in the the Ataturk Industrial Zone in 1992. Since then, ENKO recorded a consistent and healthy growth both in sales and production capacity. Several additions were made to the initial factory building in order to keep up with the increasing demand and increase efficiency in our processes.

Today, ENKO has over 120 employees, which over 20 of them are positioned in the ENKO R&D Center, and customer satisfaction is of utmost importance to each and every team member.

Company Description & Mission

The company sets its mission to achieve intelligent solutions in industrial control systems with both dedicated units for OEM customers and robust universal solutions for all.

In order to achieve this goal, ENKO set its priority to have a fully equipped R&D with the necessary test equipment such as an in-house EMC pre-compliance test lab and other engineering resources. The company management still allocates a significant amount of its profits for its R&D department and today, ENKO works with a valuable design team consisting of hardware, software and test engineers.

To meet rigorous customer requirements, ENKO also employs a well-established Industrial Design team equipped with complete CAD design tools for final modelling.

ENKO's production facilities are furnished with the latest technology production machinery, where radial, axial and SMD components are assembled in full automation. Our board handling systems utilize latest electronic production technology for the most demanding electronic systems production. In-line test and inspection machines can achieve a high standard of reliable production and final quality control.

Quality Policy

Our main objective is;

To meet the requirements and the expectations of our customers through high quality products and service; of our team members by providing a good working environment and continual education and the society through environmentally-friendly production in compliance with the relevant laws and legislation.

To fulfil the requirements of our quality system in respect to ISO9001:2015 and ISO13485:2016, 93/42/EEC Directive for Medical Devices; and to achieve minimum production costs by continual improvements in our system and technology; to increase our competitiveness by achieving our goals on target and in a timely manner.

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CCS-S

Controller for Air Compressors

Product Description:

The CCS-S series air compressor control panels offer a smart and compact solution for both screw and piston compressors. The 1.44" TFT color LCD screen provides clear and understandable system information to users. Equipped with advanced hardware and software technology, the panel maximizes safety by automatically stopping the machine in case of any malfunction.

With its learnable software technology, the panel optimizes parameters to ensure maximum energy savings and enhance device efficiency. Additionally, software updates, parameter uploads, and language options can be quickly and easily managed via the USB communication port. Parameter backup and an editable second language option make it suitable for international use.

The CCS-S features advanced security capabilities such as temperature-dependent fan control and 3-level password protection. Furthermore, six maintenance timers allow you to manage maintenance processes more effectively.

The 32-alarm log offers continuous monitoring and quick response options.

Its compact dimensions and easy installation make the panel suitable for use in any industrial environment. With an IP54 front protection rating and robust construction, it delivers long-lasting performance even in harsh conditions. Compliance with international standards such as EN61000 and IEC60255 guarantee safety and durability.

These features demonstrate that the CCS-S series panels not only offer an efficient and reliable solution but also excel in energy savings, ease of maintenance, and security.

With its compact design and flexible usage options, the CCS-S remains a preferred control unit for industrial compressor applications.

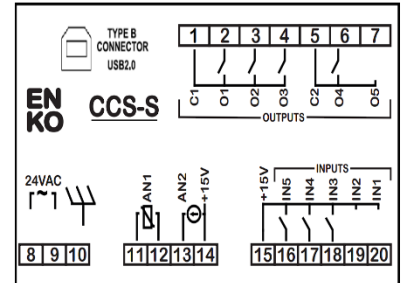
Main Features

- ✓ The smallest compressor control panel on the market,
- ✓ Editable second language option.
- ✓ Remote start functions via digital input.
- ✓ 6 maintenance timers
- ✓ Ability to change operating functions and contact
- ✓ Types for all inputs and outputs.
- ✓ 32 alarm logs
- ✓ Temperature-Dependent fan control
- ✓ Preheat function.
- ✓ Pressure drops prevention function.
- ✓ Oil freeze prevention function.
- ✓ Automatic activation function when power is cut off.
- ✓ Front panel with IP65 protection rating, silicone rubber keypad, and sealing gasket

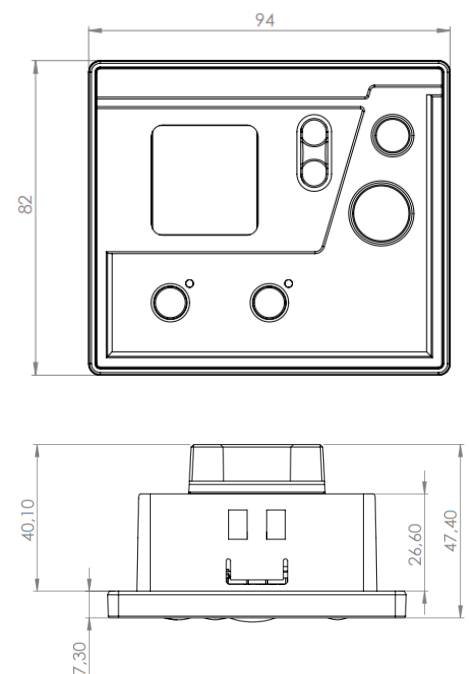
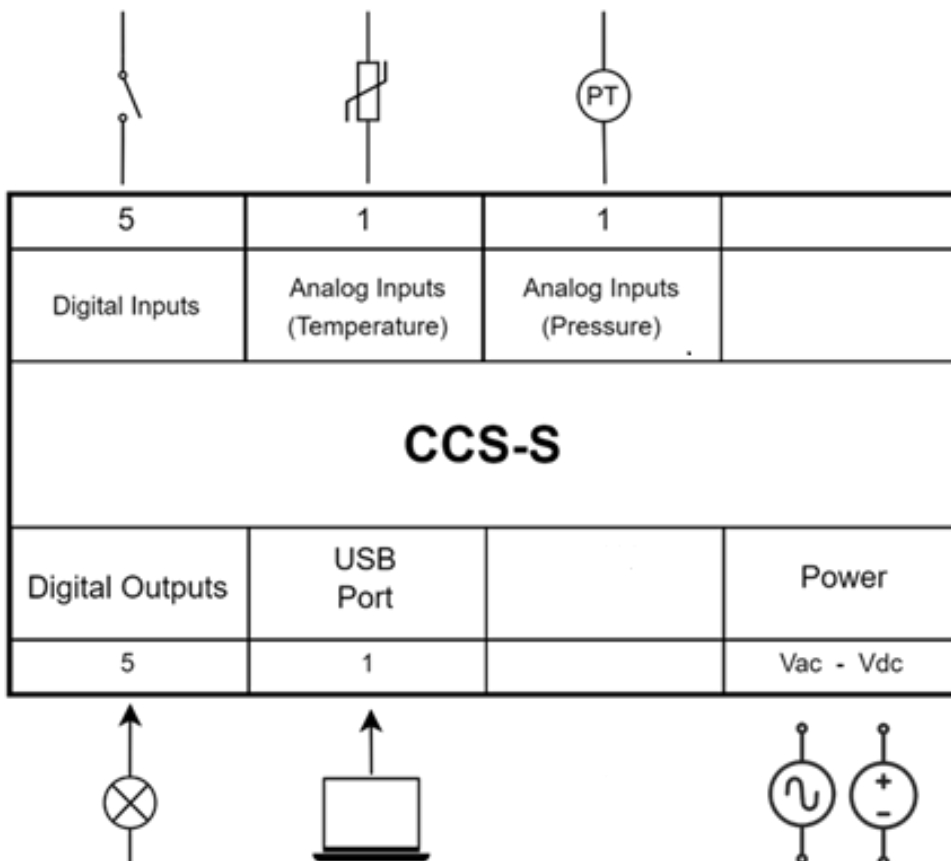
Hardware

- ✓ 1.44" Graphic Color Lcd
- ✓ 10-24Vac (13-30Vdc)
- ✓ 5 Digital Inputs
- ✓ 5 Digital Outputs (5A)
- ✓ 1 Temperature Input (KTY,NTC)
- ✓ 1 Pressure Input (4-20mA)
- ✓ USB 2.0 Type B

Technical Specifications	Value	Description
Input supply voltage:	10 - 24 Vac	The device can be powered from AC or DC isolated power sources.
	13 - 30 Vdc	
Input supply frequency:	45Hz to 75Hz	Suitable for 50Hz and 60Hz
Display:	1.44" LCD Color graphic	TFT type with high resolution,
Keypad:	Silicone rubber	UV resistant keypad and enclosure
Digital inputs:	5 configurable inputs	All inputs are configurable.
Analogue inputs:	2 analog inputs	1 Temperature (NTC, KTY)
		1 Pressure (4-20mA)
Digital outputs:	5 digital outputs	5A 250Vac
Communication ports:	USB2.0 Type-B	Parameter configuration (standard hardware)
Operating temperature:	-10°C +60°C	Wide Operating range
Storage temperature:	-25°C +85°C	
Operating humidity:	10%RH to 97%RH	Non-condensing
EMC compatibility:	EN61000-6-2	Class-A EMC emissions and immunity compatibility
	EN61000-6-4	
Safety:	CATIII, 300V	UL508, UL94 flammability
Vibration & shock:	MIL-STD810G	Transportation
Protection class:	IP54	From front side (with gasket)
	IP20	From back side
Overall dimensions:	94 x 82 x 50	Measurements are in mm
Panel cutout:	79 x 66	
Mounting type:	Panel mounting	With screw type retention clamps
Weight:	140gr average	Approximate weight



Connection Diagram and System Configuration:



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CCS-3200

Controller for Air Compressors

Product Description:

CCS-3200 Automatic Compressor Control Devices are designed for perfect flexibility and full control of screw or piston type air compressors with utmost safety.

The device features a 2x16 character backlit LCD, providing easy and quick setup and efficient information display. It has extensive built-in menu pages where operational features can be configured for any application.

CCS-3200 control devices possess a unique built-in "Parallel Operation" and "Equal Aging" algorithm that can configure any number of compressor groups to operate based on "POWER saving," "EQUAL AGING," "FAILURE BACKUP" modes, as well as CAPACITY-based priority programs and DEMAND-based backup algorithms, without the need for a master controller.

The built-in USB port allows system configuration using the license-free PC-Tools S/W package. With additional communication modules that can be integrated later, the system gains SCADA connectivity, frequency inverter control, and multiple operation features.

All parameters necessary to directly control a compressor are available in the system menu of the CCS-3200 control module and can be easily adjusted.

CCS-3200 ensures the compressor operates within defined limits and with the correct phase sequence by measuring 3-phase voltage and frequency.

The CCS-3200 control panel is designed as a highly durable, compact device resistant to mechanical impacts. To provide IP65 protection from the front, a special sealing rubber gasket is provided behind the frame. The keypad, designed with UV-resistant silicone-rubber technology, offers a good tactile feel compared to standard Lexan-type membrane keypads and has a very long lifespan. It features screw-type mounting sockets for easy field servicing.

Main Features

- ✓ Multi-language selection
- ✓ Extensive built-in parallel operation algorithm
- ✓ Additional communication module for:
 - Multiple Operation,
 - Frequency inverter control,
 - SCADA or Modem connection
- ✓ Remote start functions via digital input.
- ✓ 6 maintenance timers
- ✓ Temperature-Dependent fan control
- ✓ Preheat function.
- ✓ Pressure drops prevention function.
- ✓ Oil freeze prevention function.
- ✓ Automatic activation function when power is cut off.
- ✓ Dryer control functions
- ✓ Second temperature-dependent error function
- ✓ Dynamic Encryption technology
- ✓ Phase Sequence
- ✓ Motor PTC input

Hardware

- ✓ 2x16 Character Backlit LCD
- ✓ 10-24Vac (13-30Vdc)
- ✓ 8 Digital Inputs
- ✓ 6 Digital Outputs (6A)
- ✓ 2 Temperature Inputs (NTC, KTY, PT1000)
- ✓ 2 Pressure Inputs (4-20mA)
- ✓ 3-Ph Voltage Measurement Input
- ✓ USB 2.0 Type B
- ✓ CAN BUS (Optional on Order)

Technical Specification:

Keypad and Terminals:

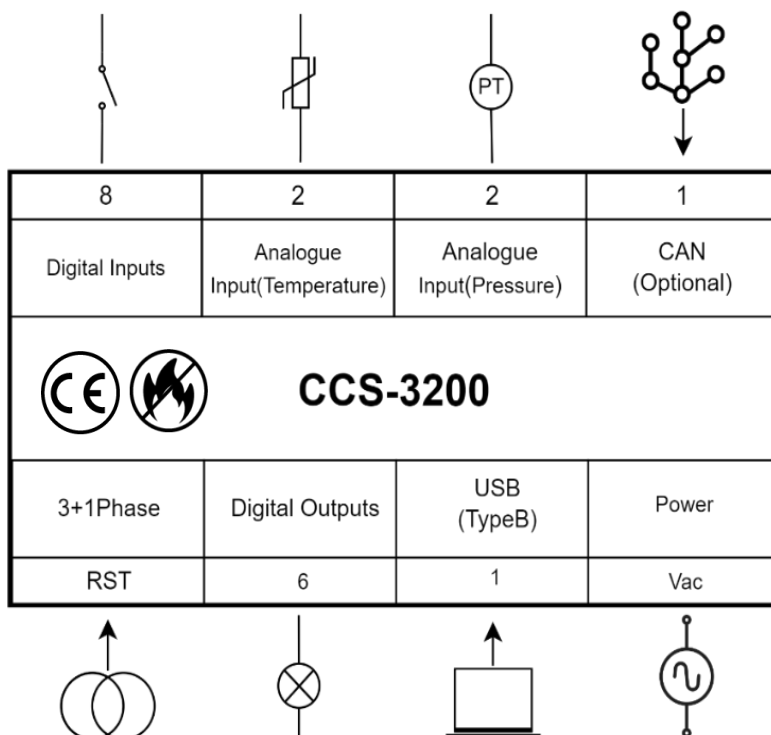
Technical Specifications	Value	Specifications
Input supply voltage:	10Vac to 24Vac	The device can be powered from AC or DC isolated power sources
	13Vdc to 30Vdc	
Input supply frequency:	45Hz to 75Hz	Suitable for 50Hz and 60Hz grid systems
Display:	2x16 Character	Backlit LCD
Keypad:	Silicone rubber	UV-resistant keypad and enclosure
AC Voltage Measurement:	3-phase AC	Up to 540Vac ph-ph, TRUE rms phase direction detection
Phase sequence detector	3-ph	
Digital Inputs:	8 configurable	All inputs are configurable
Analog Inputs:	4 analog inputs	2 Temperature sensors (NTC, KTY, Pt1000)
		2 Pressure sensors (4-20mA).
Digital outputs:	6 digital outputs	6A 250Vac each.
Communication ports:	USB2.0 Type-B	Parameter configuration and firmware update
	2x RS485 Mod BUS	With additional expansion module for frequency drive or Scada
	CAN Bus (CAN open)	For parallel connection, an additional module or choice of CCS3200C Model on order
Operating Temperature:	-10°C to +60°C	Wide Operating range
Storage Temperature:	-25°C to +85°C	
Operating Humidity:	10%RH to 97%RH	Non-condensing
EMC compliance:	EN61000-6-2	Class-A EMC emissions and immunity compatibility
	EN61000-6-4	
Safety:	CATIII, 300V	UL508, UL94 flammability
Vibration & Shock:	MIL810G	Transportation
Protection class:	IP54	From the front (with gasket)
	IP20	From the back
Overall Dimensions:	170 x 133 x 60	Dimensions are in millimeters
Panel Cut-out:	148 x 112	
Mounting Type:	Panel mounting	With screw type retention clamps
Weight:	550g	Approximate Weight



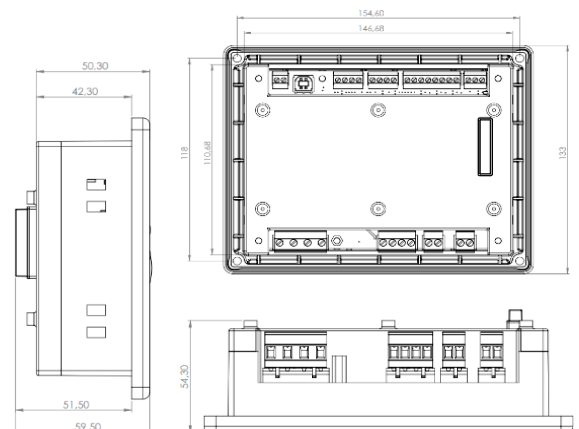
Compatibility:

The CCS-3200 compressor control panels have been tested for radiated and conducted RFI interference according to N61000-6-4 Class-A and comply with CE regulations. Immunity has been tested against EN61000-6-2. Vibration: EN600068-6-2, Dielectric strength: IEC255, Safety: UL508.

Connection Diagram and System Configuration:



CCS-3200 Dimensions (mm)



CCS3200 expansion unit options



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CCS-M

Controller for Air Compressors

Product Description:

CCS-M Automatic Compressor Control Modules are designed for complete control of screw type or reciprocating type air compressors with excellent flexibility and safety.

The control module has an integrated 2.8" color graphic high-resolution TFT display unit, where all system variables and operational information are displayed in both graphical and alpha-numeric format. The unit has extensive built-in menu pages where operational characteristics can be configured for any application.

CCS-M control panels have a unique built-in "Parallel Running" and "Equal Aging" algorithm, which can configure any number of compressor groups to be operated based on "POWER saving", "EQUAL Aging", "FAULT Backup" modes, as well as CAPACITY based priority schedules and DEMAND based backup algorithms. CAN Bus option is used to connect the required number of control modules in parallel, without the need for a master controller.

Built-in USB port allows system configuration, using license-free PC-Tools S/W package. For SCADA network connection, optional RS485 port can be added with Mod Bus protocol. For more demanding

applications, add-on communication modules can be used to further extend the performance.

Thanks to its superior fault recording system, it shows the last 50 faults with date and time stamp and all values in the fault status.

CCS-M control module is designed for direct start with Star-Delta installation or to interface directly with an inverter. All required parameters are available in system menu and can be set easily. With on-board digital and analogue i/o ports, the unit can be wired for any application in the industry. The unit also measures 3-phase mains supply voltage together with motor current to calculate the instantaneous drive load and with built-in comprehensive power management algorithm, highly critical fleet management information is provided for optimum utilization performance of the compressors.

All CCS series controllers comply with EN61000 EMC emissions and Immunity standards at Class-B level. Front panel ESD protection is provided at 8KV to ensure safe operation in static electric loaded environment. CCS-M is designed to operate in over a wide temperature and humidity range, making these modules ideal control devices for harsh environments.

Main Features

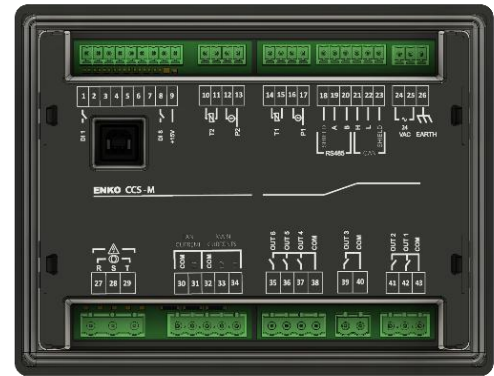
- ✓ Real-time clock for accurate tracking
- ✓ Scheduled operation programming
- ✓ Thermal function via CT
- ✓ Pressure drops prevention control
- ✓ Real-time recording of 50 critical fault/alarm values
- ✓ 12+1 language support
- ✓ Power calculation and monitoring
- ✓ Motor PTC input
- ✓ Phase sequence protection
- ✓ Advanced built-in parallel operation algorithm with CAN bus communication
- ✓ 6 maintenance timers
- ✓ Temperature-Dependent fan control
- ✓ Preheat and Oil freeze prevention
- ✓ Dryer control functions
- ✓ Secondary temp-dependent error
- ✓ Pressure drops preventions function

Hardware

- ✓ 2.8" Color Graphic Display
- ✓ 8 Digital Inputs and 6 Outputs (6A)
- ✓ 2 Temperature Inputs (NTC, KTY, PT1000)
- ✓ 2 Pressure Inputs (4-20mA)
- ✓ 3-Ph Voltage Measurement Input
- ✓ 2-Ph Motor 1Ph, Fan Current Input
- ✓ CAN BUS
- ✓ RS485 Modbus (Inverter or Scada)
- ✓ USB 2.0 Type B

Technical Specification	Value	Description
Input Supply Voltage:	10Vac to 24Vac	The device can be powered from AC or DC isolated power sources.
	20Vdc to 50Vdc	
Input Supply Frequency:	45Hz to 75Hz	Suitable for 50Hz and 60Hz utility systems
Display:	2.8" LCD Color	High-resolution, high-brightness TFT type.
Keypad:	Silicone Rubber	UV-resistant keypad and enclosure
AC Voltage Measurement:	3- Phase	Up to 540Vac ph-ph, TRUE rms
Phase sequence detector	3-ph	Phase direction detection
AC Current Measurement:	2-Phase Main Motor	Motor current reading with power calculation and monitoring.
	1-Phase Fan Motor	
Digital Inputs:	8- Digital Inputs	Configurable inputs.
Analog Inputs:	4- Analog Inputs	2 Temperature (NTC, KTY, Pt100/1000)
		2 Pressure (4-20mA)
Digital Outputs:	6- Digital Outputs	6 Outputs, 5A 250Vac each.
Communication Ports:	USB2.0 Type-B	Configuration software connection.
	RS485 Mod BUS	For modem, frequency inverter, and SCADA
	CAN Bus Port	For multi-unit operation.
Operating Temperature:	-20°C to +60°C	Wide operating range.
Storage Temperature:	-25°C to +85°C	
Operating Humidity:	10%RH to 97%RH	Non-condensing.
EMC Compliance:	EN61000-6-2 EN61000-6-4	Class-A EMC emissions and immunity compatibility
Safety Compliance:	CATIII, 300V	UL508, UL94 flammability
Vibration & Shock:	MIL810G	Transportation
Protection Rating:	IP54	From the front (with gasket)
	IP20	From the back
Overall Dimensions:	165 x 129 x 45	Dimensions are in millimeters
Panel Cutout:	151 x 113	
Mounting Type:	Panel Mount	With screw type retention clamps
Weight:	180gr	Approximate weight.

Figure 1: CCS-M Back side



Compliance:

CCS-M series compressor control panels are tested and compliant to CE regulations for emitted and conducted RFI interference, according to EN61000-6-4 class-A. Immunity is tested against EN61000-6-2. Vibration: EN60068-6-2 Dielectric strength: IEC255, Flammability: UL94, Safety: UL508

Connection Diagram and System Configuration:

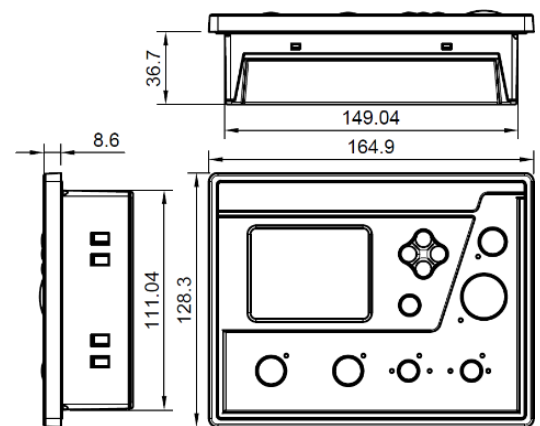
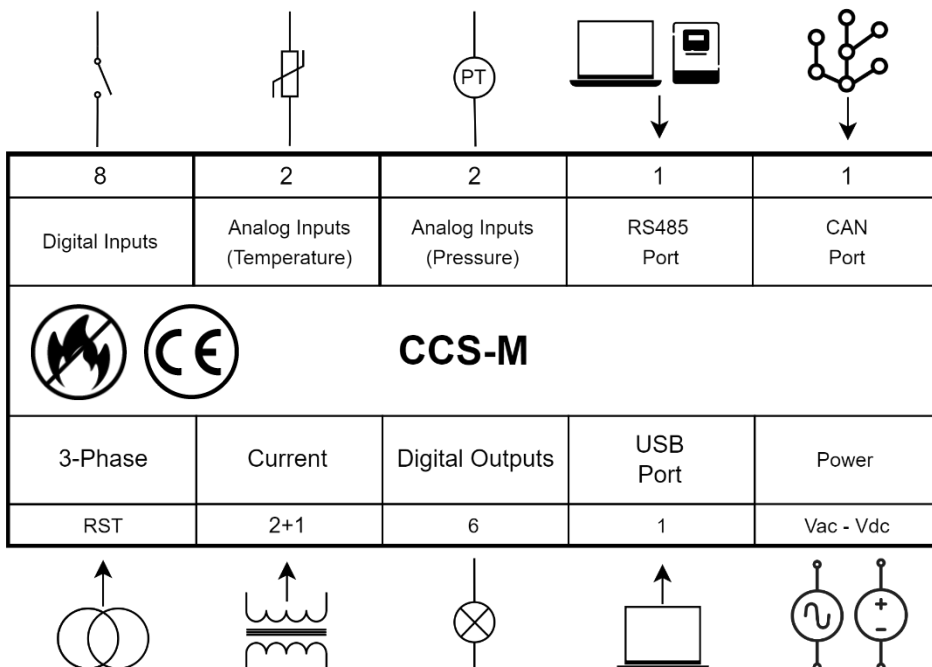


Figure 2: CCS-M Dimensions

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CCS-4.2

Controller for Air Compressors

Product Description:

CCS-4.2 Automatic Compressor Control Devices are designed for complete control of screw type or piston type air compressors with excellent flexibility and safety.

The 128x64 graphical LCD provides easy and quick setup and effective information display. The device has comprehensive built-in menu pages where operational features can be configured for any application.

The optional ethernet port allows system configuration using the license-free PC-Tools S/W package

The CCS-4.2 control module ensures that all parameters necessary for directly controlling a compressor are available in the system menu and can be easily adjusted.

CCS 4.2 has an ethernet option and sends fault and maintenance/service notifications via email to a designated email address. The SCADA software on the PC can transfer information with CCS 4.2 using the Modbus TCP protocol over ethernet. The Modbus TCP protocol allows simultaneous connection of up to 5 users

CS 4.2 has RS485 and RS232 communication ports. Through the RS485 communication port, it communicates with motor speed control devices of different brands, adjusting the motor speed according to air demand and saving energy.

All CCS series control devices comply with EN61000 EMC emission and immunity standards at Class B level. Front panel ESD protection is provided at 8kV to ensure safe operation in static electricity-charged environments.

CCS-4.2 is designed to operate over a wide range of temperature and humidity, making these modules ideal control devices for harsh environments.



Main Features

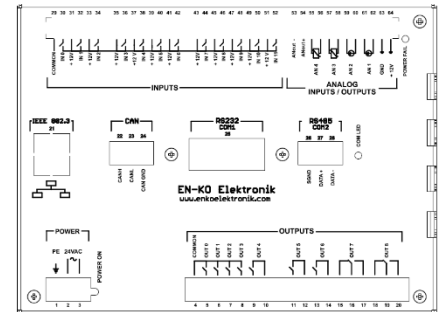
- ✓ Multi-language support,
- ✓ Time stamped alarm logging for the last 25 events,
- ✓ Real-time clock for precise operation tracking
- ✓ Scheduled operation programming feature (weekly and 28 point)
- ✓ Build-in Frequency inverter drive
- ✓ 6 maintenance timers
- ✓ Temperature-Dependent fan control
- ✓ Second temperature-dependent error function
- ✓ Modbus TCP/IP communication port (optional)
- ✓ E-mail notification for maintenance and alarm
- ✓ Pc and SCADA interface for remote management

Hardware

- ✓ 128x64 LCD graphic display
- ✓ 12 Digital Inputs
- ✓ 9 Outputs (7x6A,2x10A)
- ✓ 2 Temperature Inputs (NTC, KTY, PT1000)
- ✓ 2 Pressure Inputs (4-20mA)
- ✓ 1 analog PID output (4-20/0-5Vdc)
- ✓ CAN BUS and RS232
- ✓ RS485 Modbus (Inverter or Scada)
- ✓ Ethernet Modbus TCP/IP (Optional on Order)

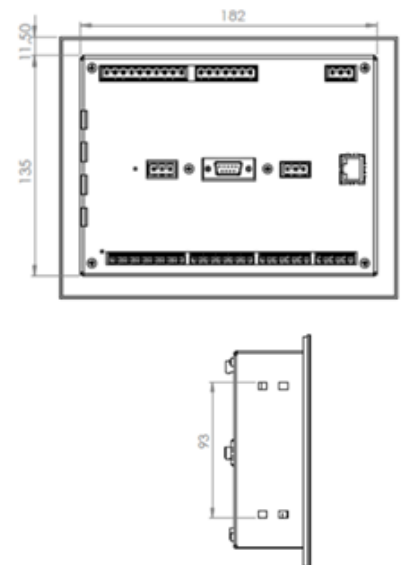
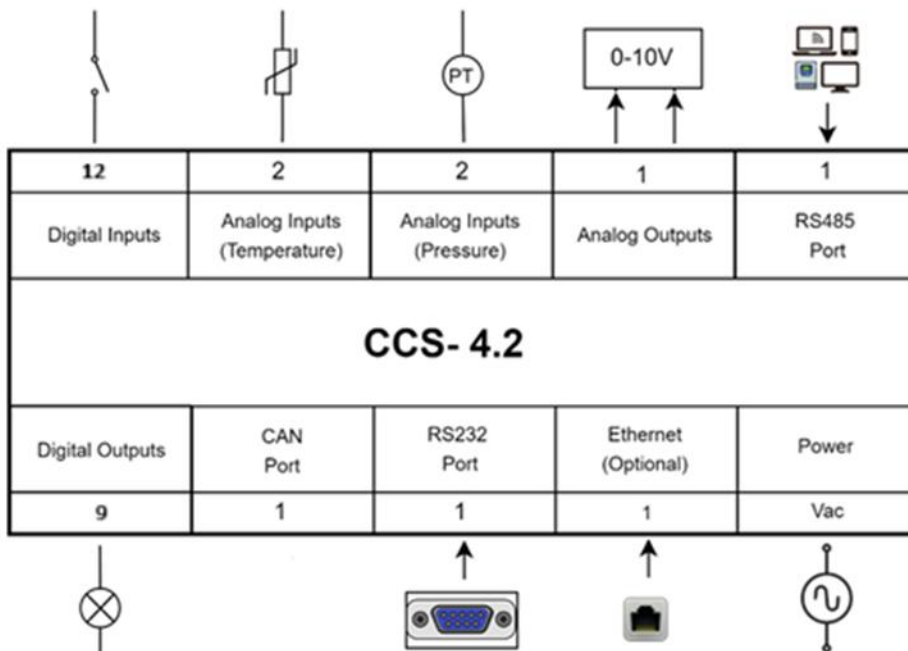
Technical Specifications	Value	Description
Input supply voltage:	10Vac to 24Vac	The device can be powered from AC or DC isolated power sources.
	13Vdc to 30Vdc	
Input Supply Frequency:	45Hz to 75Hz	Suitable for 50Hz and 60Hz utility systems
Display:	128x64 pixel	Graphic LCD
Keypad:	Lexan type membrane	
Digital Inputs:	12 inputs	All inputs are configurable
Analog Inputs	4 analog Inputs	2 Temperature (NTC, KTY, Pt1000)
		2 Pressure (4-20mA)
Dijital Outputs:	9 digital Outputs:	OUT0-6 6A - OUT7-8 10A Resist at 35Vdc or 250 Vac
Analog Outputs:	1 analog Outputs	Selectable 4-20mA or 0-5Vdc
Communication ports:	Ethernet	Modbus TCP/IP (Optional on Order)
	RS485/ RS232	Mod BUS for SCADA and Frequency Driver
	CAN Bus (CAN on)	Communication port
Operating Temperature:	-10°C to +60°C	Wide operating range.
Storage Temperature:	-25°C to +85°C	
Operating Humidity:	10%RH to 97%RH	Non-condensing
EMC compliance:	EN61000-6-2	Class-A EMC emissions and immunity compatibility
	EN61000-6-4	
Safety Compliance:	CATIII, 300V	UL508, EN61010-1
Vibration & Shock:	MIL810G	Transportation
Protection class:	IP54	From the front side
	IP20	From the back
Overall Dimensions:	207 x 160 x 58	Dimensions are in millimeters
Panel Cutout:	182 x 135	
Mounting Type:	Panel mounting	With screw type retention clamps
Weight:	550 gr	Approximate Weight

Figure 1: CCS-4.2 Front View



Compliance:
 CCS-4.2 series compressor control panels are tested and compliant to CE regulations for emitted and conducted RFI interference, according to EN61000-6-4 class-A. Immunity is tested against EN61000-6-2. Vibration: EN60068-6-2 Dielectric strength: IEC255, Flammability: UL94, Safety: UL508

Connection Diagram and System Configuration:



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CCS-L

Controller for Air Compressors

Product Description:

CCS-L Automatic Compressor Control Modules are designed for complete control of screw-type or piston-type air compressors with excellent flexibility and safety.

This control module features an integrated 4.3" color graphic high-resolution TFT display unit, where all system variables and operational information are displayed in both graphic and alphanumeric formats.

The CCS-L control module is designed for use in both diesel engine applications and electric motor star-delta or frequency inverter applications. All required parameters are available in the system menu and can be easily set. Featuring digital and analog input/output ports, the unit can be connected to any application in the industry.

CCS-L control panels are equipped with a unique built-in "Parallel Operation" and "Equal Aging" algorithm that can configure any number of compressor groups to operate based on modes such as "POWER saving," "EQUAL AGING," "FAILURE BACKUP," as well as capacity-based priority programs and demand-based backup algorithms. The CAN Bus option is used to connect the necessary number of control modules in parallel without the need for a master

controller.

The Built-in USB port allows system configuration using the license-free PC-Tools S/W package. An optional RS485 port can be added for SCADA network connectivity via the Modbus protocol. For more demanding applications, add-on communication modules can be used to further enhance performance.

This unit, used in the industry, measures the three-phase main supply voltage along with motor current to calculate the instantaneous drive load. With its built-in comprehensive power management algorithm, it provides highly critical fleet management information for the best utilization performance of compressors

All CCS series control devices comply with EN61000 EMC emission and immunity standards at Class B level

The firmware can be updated remotely, and all operational data can be accessed and managed from the OEM network, greatly facilitating service management



Main Features

- ✓ Build-in diesel compressor application
- ✓ Trend analysis features for the past 5 days
- ✓ Real-time recording of 50 critical fault/alarm values
- ✓ Build-in Frequency driver function (communication or analog output)
- ✓ Advanced built-in parallel operation algorithm with CAN bus communication
- ✓ Power calculation and monitoring
- ✓ Multiple language support
- ✓ E-mail notification for maintenance and alarm
- ✓ Scheduled operation programming feature
- ✓ Thermal function via CT
- ✓ Pressure drops prevention control
- ✓ Motor PTC input
- ✓ Phase sequence protection
- ✓ Preheat and Oil freeze prevention
- ✓ Dryer control functions
- ✓ Pressure drops preventions function
- ✓ 6 maintenance timers
- ✓ Remote start functions
- ✓ Temperature-Dependent fan control

Hardware

- ✓ 4.3" Color graphic display,
- ✓ 8 Digital Inputs
- ✓ 8 Outputs (5A)
- ✓ 2 x temperature sense inputs (NTC, KTY, Pt100, Pt1000)
- ✓ 1-pressure sensor inputs (4-20mA)
- ✓ 2 configurable analog inputs Temperature or Pressure
- ✓ 2 analog PID output (4-20/0-5Vdc)
- ✓ 3-Ph Voltage Measurement Input
- ✓ 2-Ph Motor, 1Ph Fan Current Input
- ✓ CAN bus communication
- ✓ Ethernet Modbus TCP/IP
- ✓ 2 RS485 Modbus (Inverter / Scada)
- ✓ USB 2.0 Type B

Technical Specifications	Value	Description
Input supply voltage:	10Vac to 35Vac	The device can be powered from AC or DC isolated power sources.
	20Vdc to 50Vdc	
Input supply frequency:	45Hz to 75Hz	Suitable for 50Hz and 60Hz
Display:	4.3" LCD Colour graphic	TFT type with high resolution
Keypad:	Silicone rubber	UV resistant keypad and enclosure
AC Voltage Measurement:	3-phase AC supply	Up to 540Vac ph-ph, TRUE rms
AC current measurement:	2-phase main motor	Motor current reading with power calculation and monitoring
	1-phase fan motor	
Phase sequence detector:	3-phase sequence	Phase direction detection
Digital inputs:	8 configurable inputs	All inputs are configurable
Analogue inputs:	3 analogue inputs	2 Temperature (NTC, KTY, Pt100/1000)
	2 analogue inputs	1 Pressure (4-20mA)
Digital outputs:	8 digital outputs	5A 250Vac each.
Analogue outputs:	2 analogue outputs	Analogue outputs 0-10V
Communication ports:	USB2.0 Type-C	Configuration software connection.
	2 RS485 Mod BUS	SCADA and Modem port
	CAN Bus	For multi-unit operation.
Operating temperature:	-20°C to +60°C	Wide operating range
Storage temperature:	-25°C to +85°C	
Operating humidity:	10%RH to 97%RH	Non-condensing
EMC compatibility:	EN61000-6-2 EN61000-6-4	Class-A EMC emissions and immunity compatibility
Safety:	CATIII, 300V	UL508, UL94 flammability
Vibration & shock:	MIL810G	Transportation
Protection class:	IP65	From front side (with gasket)
	IP20	From back side
Overall dimensions:	204 x 157 x 58	Dimensions are in millimeters
Panel cutout:	180 x 133	
Mounting type:	Panel mounting	With screw type retention clamps
Weight:	550gr	Approximate weight

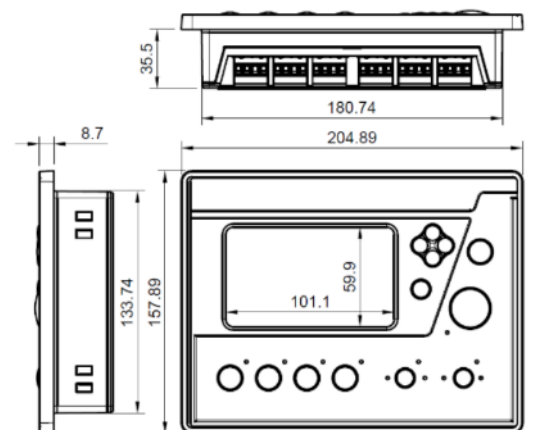
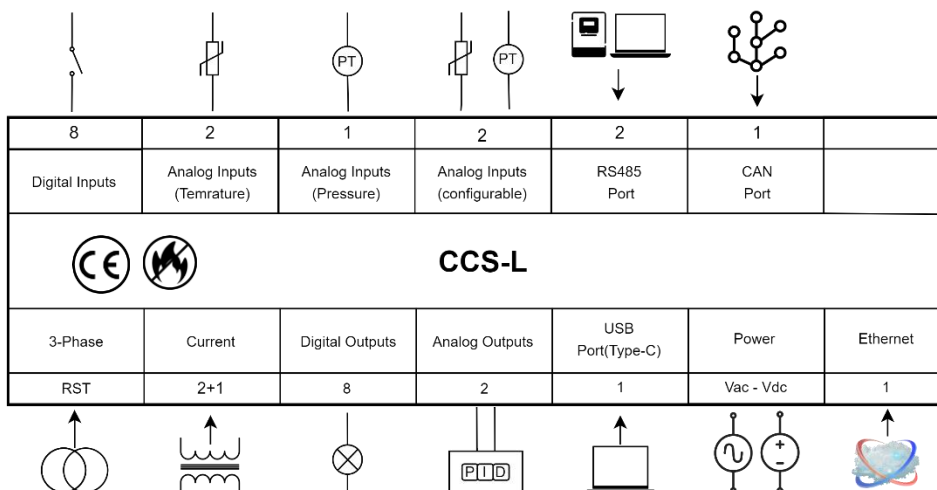


Figure 1: CCS-L Front side view

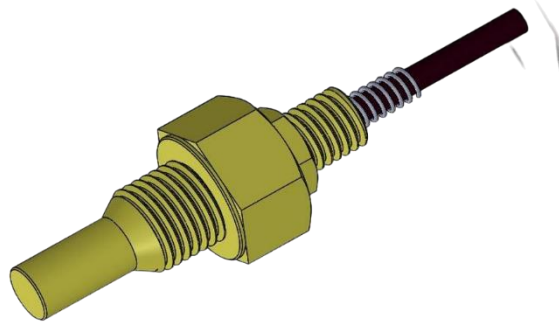
Compliance:

CCS-L series compressor control panels are tested and compliant to CE regulations for emitted and conducted RFI interference, according to EN61000-6-4 class-A. Immunity is tested against EN61000-6-2. Vibration: EN60068-6-2. Dielectric strength: IEC255, Flammability: UL94, Safety: UL508

Connection Diagram and System Configuration:



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Enko Temperature Sensor

Product Description:

Temperature measurement is essential for the safe and efficient operation of screw air compressors. To achieve this, a specially designed NTC-type sensor is used, offering high precision and reliable performance.

It comes with a 3-meter AWG24 twin cable and is easily installed using a durable brass fitting.

The sensor is fully compatible with ENKO CCS model compressor panels.

With a resistance of 10KΩ at 25°C and a ±1% tolerance, the sensor ensures accurate temperature monitoring, allowing the compressor to respond swiftly to temperature changes.

Its wide operating range of -40°C to 105°C makes it suitable for use in diverse environmental conditions.

The sensor features insulation that withstands voltages up to 1500 V AC, offering strong protection against electrical hazards.

Its IP68 rating ensures excellent resistance to water and dust, providing durability even in demanding environments.

Designed for both reliability and ease of use, the NTC sensor contributes significantly to the overall performance and longevity of screw air compressors.

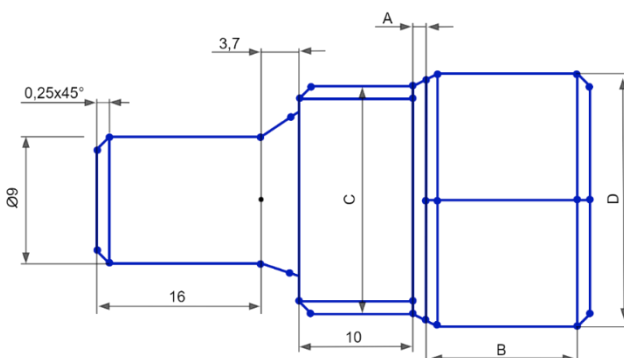
Main Features

- ✓ Resistance Value (No Load at 25°C): 10KΩ
- ✓ Tolerance (25°C): ± 1%
- ✓ Operating Temperature Range: -40°C to 105°C
- ✓ Insulation Resistance: 1500 V AC
- ✓ Protection Class: IP68
- ✓ Insulation Type: Single
- ✓

Hardware

- ✓ NTC 10K
- ✓ 3 Meter Cable

We have four types of temperature sensors. Please specify the order number to the drawings below.



Order Code	A (mm)	B (mm)	C (mm)	D (mm)
9009-014-0003	1 ± 0.1	10 ± 0.2	G 3/8"	19
9009-014-0004	1 ± 0.1	10 ± 0.2	G 1/4"	19
9009-014-0005	1 ± 0.1	10 ± 0.2	G 1/2"	24
9009-014-0006	1 ± 0.1	10 ± 0.2	G 3/4"	28

**EN
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EPT420 Enko Pressure Transmitter

Product Description:

The EPT 420 is a high-precision pressure transmitter designed for air compressors and various industrial applications. With its 4-20 mA output signal, it ensures reliable data transmission. Its compact and robust design allows for easy installation, making it ideal for industrial use.

This device is widely used in pneumatic and hydraulic systems for pressure measurement and control, machine equipment for pressure monitoring, climate control systems for performance optimization, water supply and treatment processes for

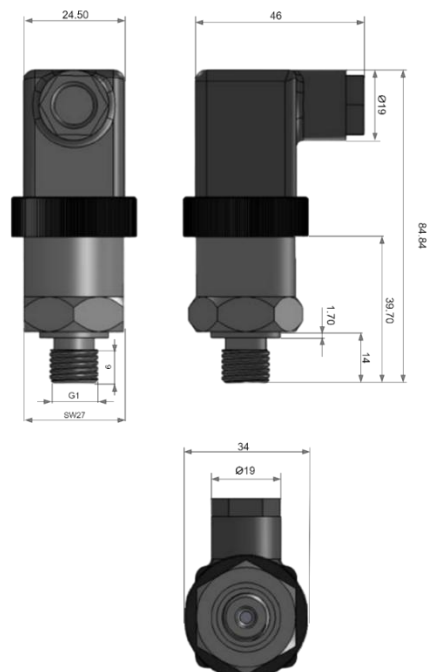
pressure regulation, and automation applications for data tracking.

The EPT 420 offers safe and stable operation with electromagnetic compatibility (EMC) and reverse polarity protection. Its wide measurement range of 0...16 bar ensures compatibility with various industrial applications. With resistance to electromagnetic interference and protection against incorrect wiring, it provides long-lasting and reliable performance.

Main Features

- ✓ For Air Compressor applications
- ✓ Excellent long-term operation
- ✓ Standard diaphragm
- ✓ Stainless steel body construction
- ✓ EMC and Reverse Polarity Protection

Technical Specifications	Description
Measurement Range	0...16 Bar
Output Signal	4...20mA
Mechanical Connection	G1/4
Supply Voltage	+9...30 VDC
Sensitivity	0,01
Protection Class	IP65
Operating Temperature	-20 °C +85 °C
Body	Stainless Steel Body, Brass
Weight	140 gr





CTH Enko Current Transformer

Product Description:

The CT series current transformers by ENKO Control Systems offer high-precision measurement and electrical isolation for a wide range of AC current monitoring applications.

Designed with primary and secondary insulation and a robust through-core structure, these transformers ensure safe and accurate signal acquisition in compact installations.

Each model features a flame-retardant enclosure (UL94-V0), high insulation resistance, and stable performance under variable environmental conditions.

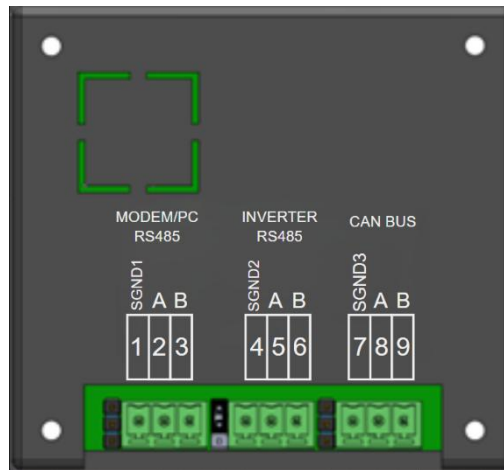
Whether monitoring small control currents or high-capacity loads, the CTL and CTH series provide reliable performance with minimal phase shift, making them ideal for integration in power electronics, automation, and industrial energy management systems.

Common Technical Specifications

- ✓ Rated Voltage Level: 0.66 / 0.72 kV
- ✓ Operating Frequency: 50 / 60 Hz
- ✓ Operating Temperature (−40°C~+85°C)
- ✓ Relative Humidity:(@40±2°C): ≤ 90%
- ✓ Insulation Voltage: (1 min): 3 kV / 1 min
- ✓ Insulation Voltage: (1 min): 3 kV / 1 min
- ✓ Flame Retardant Rating: UL94-V0
- ✓ Insulation Resistance: ≥ 500 MΩ
- ✓ Cable Gauge: 24 AWG
(22 AWG for 200A and 400A models)

Model No	Primary Current (A)	Secondary Current (mA)	Transformation Ratio	Load Resistance	Phase Shift	Accuracy Class	Measuring Current Range	Dimensions: (mm)
CTH 20/100	20	100	200/1	0Ω	≤30'	0.5	0~20A	42 x 16 x 30
CTH 40/100	40	100	400/1	0Ω	≤30'	0.5	0~45A	42 x 16 x 30
CTH 60/100	60	100	600/1	0Ω	≤30'	0.5	0~60A	44 x 20 x 30
CTH 80/100	80	100	800/1	0Ω	≤30'	0.5	0~90A	44 x 20 x 30
CTH 100/100	100	100	1000/1	0Ω	≤10'	0.2	0~110A	44 x 20 x 30
CTH 200/100	200	100	2000/1	10Ω	≤5'	0.1	0~200A	48 x 25 x 53
CTH 400/100	400	100	4000/1	20Ω	≤5'	0.1	0~400A	69 x 26 x 63
CTH 5/20	5	20	250/1	0Ω	≤30'	0.5	0~10A	42 x 16 x 30
CTH 10/20	10	20	500/1	0Ω	≤30'	0.5	0~20A	42 x 16 x 30
CTH 20/20	10	20	500/1	0Ω	≤30'	0.5	0~20A	42 x 16 x 30

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PiggyBack Enko Expansion Unit

Product Description:

The Piggyback Expansion Module mounts directly to the back of the CCS-3200 Compressor Control Panel, providing additional communication ports.

Each model features a flame-retardant enclosure (UL94-V0), high insulation resistance, and stable performance under variable environmental conditions.

All communication ports on the Piggyback are isolated. This ensures safer and more efficient operation of the connected devices.

Main Features

- ✓ Easy Assembly
- ✓ Operating Temperature (-20°C~+70°C)
- ✓ Relative Humidity:(@40±2°C): ≤ 90%
- ✓ Flame Retardant Rating: UL94-V0
- ✓ 2 RS485 Modbus
- ✓ 1 Canbus

Order Selection Table

Order Code	Name	Multiple Operation CANBUS	Frequency Inverter RS485	IOT
9119-001-1501	PiggyBack-Inverter+CAN+IOT	+	+	+
9119-001-1502	PiggyBack-Inverter		+	
9119-001-1503	PiggyBack-CAN	+		
9119-001-1504	PiggyBack-Inverter+CAN	+	+	

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