

Economizer ECH-SRTCB-DC Install Guide



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Installation Instructions

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SAFETY CONSIDERATIONS

Installation of this accessory can be hazardous due to system pressures, electrical components and equipment, and equipment locations (such as a roof or elevated surface). Only trained qualified installers and service technicians should install, start-up, and service this equipment.

When installing this accessory, observe precautions in the literature and on any labels attached to the equipment and all other safety precautions may apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling and installing the accessory.

It is important to recognize safety information. This is the safetyalert symbol \triangle . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing roof top units.

CAUTION

Failure to follow this caution may result in personal injury and damage to the unit. Cover the duct opening as a precaution so objects cannot fall into the return duct opening. Be sure to remove the cover when installation is complete.

Read these instructions completely before attempting to install the Accessory Ultra Low Leak Economizer.

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death. Before performing service or maintenance operations on the unit, always turn off main power switch to unit and install lock(s) and lockout tag(s). Unit may have more than one power switch. Ensure electrical service to rooftop unit agrees with voltage and amperage listed on the unit rating plate.

GENERAL

The Economizer system utilizes the latest technology available for integrating the use of free cooling with mechanical cooling for packaged rooftop units. The code compliant Siemens control system optimizes energy consumption, zone comfort, and equipment cycling by operating the compressors when the outdoor-air is below temp or enthalpy setpoint, integrating the compressor with outdoor air when free cooling is available, compressor when and locking out the outdoor-air Demand control ventilation is temperature is too cold. supported.

This Economizer can be used with 1, 2, 3 or multiple speed indoor fan motor units.

The Economizer system utilizes gear-drive technology with a direct-mount spring return actuator that will close upon loss of power. The Economizer system comes standard with fault detection and diagnostics (FDD), an outdoor air sensor, and mixed air temperature sensor (also called supply air temperature sensor). Outdoor enthalpy, indoor (return) dry bulb or enthalpy, and CO2 sensors are available for field installation. See Table 5 for sensor usage.

Standard integrated barometric relief dampers provide natural building pressurization control. An optional power exhaust system is available for applications requiring even greater exhaust capabilities. The power exhaust set point is adjustable at the Economizer controller.

Unpack and inspect economizer contents from carton. Contact MicroMetl immediately if any parts are missing or damaged.

IMPORTANT NOTE: The Siemens controller can be programmed using the buttons on the front face of the controller, or a phone app can be used. The phone app can be downloaded on Android or Apple(ISO 15.0 or later required) devices and can be found by searching "Climatix". The controller phone app requires the use of a WLAN stick which is available through MicroMetl or Siemens. Using the WLAN stick/phone app allows for many options including using GPS to set controller defaults to the installed climate zone, and copying the controller setting from one unit to the next, and others. WLAN stick can be removed and used on other units after programming.

IMPORTANT: These economizers meet all economizer damper requirements as specified in ASHRAE 90.1, IECC and California's Title 24. Economizer must be installed square to avoid damper leakage or damper binding. Squareness tolerance is ± 1/32 inch.

IMPORTANT: Read these instructions completely before attempting to install accessory economizer.



Installation Video QR Code





Manual Programming Video QR Code

Table 1 - Carrier Usage Chart

CARRIER MODEL NUMBER	ECONOMIZER PART NUMBER
Small Cabinet EcoBlue units with Unit	Control Board (UCB) & Vane Axial Fan
48/50GC/GEJC 04-06 48/50FC/FE 04-07 50GCQ/GEQ 04-06 50FCQ/FEQ 04-07	ECH-SRT12CB-DC*S
Small Cabinet Legacy units wi	th Central Terminal Board (CTB)
48/50HC, LC, 04-06 48/50TC 04-07 50TCQ 04-07 50HCQ 04-06 50KCQ04-06 48/50KC 04-06	ECH-SRT12CB-DC*S
Large	Cabinet
50HCQ/GCQ/GEQ 07-09 50TCQ/FCQ/FEQ 08-12 48/050HC/GC/GE 07-12 48/50LC 07 48/50TC/FC/FE 08-14	ECH-SRT34CB-DC*S

Table 2 - Bryant Usage Chart

BRYANT MODEL NUMBER	ECONOMIZER PART NUMBER
Small Cabinet Axiom-Fan units with Un	it Control Board (UCB) & Vane Axial Fan
549/551/581K 551/581L 04-06 547/559/582K 547/559/582L 04-07	ECH-SRT12CB-DC*S
Small Cabinet Legacy units wi	th Central Terminal Board (CTB)
581J/551J 04-06 549J/547J/559J/582J 04-06 548J/580J/558J 04-07	ECH-SRT12CB-DC*S
Large	Cabinet
549J/K/L 07-09 581/551J/K/L 07-12 547/548J/K/L 08-12 559/580/582/558J/K/L 08-14	ECH-SRT34CB-DC*S

Table 3 - ICP Usage Chart

ICP MODEL NUMBER	ECONOMIZER PART NUMBER
Small Cabinet X-Vane units with Unit	Control Board (UCB) & Vane Axial Fan
RGW/RAW/RAG/RGG/RHG/RHW 036-060 RGV/RAV/RAF/RGF/RHF/RHV 036-072	ECH-SRT12CB-DC*S
Small Cabinet Legacy units with	th Central Terminal Board (CTB)
RGH/RAH 036-060	
RGS/RAS 036-072	
RHS 036-072	ECH-SRT12CB-DC*S
RHX/RHH 036-060	
RGX/RAX 036-060	
Large	Cabinet
RGH/RAH/RGG/RGW/RAW/RAG 072-120	
RAS/RGS 089-119	
RHS/RHF/RHV 090.120	ECH-SKI34CB-DC S
RGF/RAF/RGV/RAV 090-150	

Climatix App Video QR Code



Table 4 - Package Contents

ECONOMIZER PART NUMBER	QTY	CONTENTS	
	1	Economizer Damper Assembly with Actuator	
	1	Siemens 9901-3534 Controller with Attached Harness*	
ECH-SRT12CB-DC*S ECH-SRT34CB-DC*S	1	9901-1619 Mixed Air Temp Sensor*	
	1	9901-1619/3535 Outside Air Temp Sensor*	
	1	Hood Assembly with Top and 2 Sides	
	1	Hood Divider	
	1	Aluminum Filter	
	1	Hardware Bag (Tapped to OA damper blades)*	

* Shipped in control bag for field installation CBOX-CSRT15B-DC*

Table 5 - Economizer Sensor Usage

	ECONOMIZER WITH OUTDOOR AIR SENSOR			
APPLICATION	Accessories Required			
Outdoor Air Dry Bulb	9901-1619 outdoor air dry bulb sensor is field installed on "DCDS" economizer.			
Single Enthalpy	9901-3535 outdoor air enthalpy sensor is field installed on "DCES" economizers			
Mixed Air Sensor	9901-1619 provided with economizer and field installed in blower compartment.			
Differential Dry Bulb or Enthalpy	KIT-3534-DIFFADB (Dry Bulb), KIT-3534-DIFFENT (Enthalpy) this will have to be order separately*			

* Includes 9901-1619/3535 sensor and wiring harness

NOTES:

1 - The controller's wiring harness is designed specifically for EcoBlue, Axiom-Fan, X- Vane units with the Unit Control Board (UCB). If your unit has the older CTB (Central Terminal Board) or Centrifugal Supply Blower then you must purchase a different harness (MicroMetl P/N 9962-2020). The harness that is factory attached to the Siemens controller must be removed and the 9962-2020 harness attached per the QR Code scan. SEE Figure 29 for wiring diagram.

2 - If you have a 48/50JC 04-07 unit with System VU, these controls will not work properly. Please let your distributor know that you will need a ECH-SRT12CB-D0DB-4 economizer.
3 - If you have a 48/50LC 07-14 unit, these controls will not work properly. Please let your distributor know that you will need a ECH-SRT**CB-D2*H economizer.



ACCESSORIES LIST - The Economizer system has several field-installed accessories available to optimize performance. Refer to Table 6 for authorized parts and power exhaust descriptions.

Table 6 — Economizer Field-Installed Accessories

DESCRIPTION	PART NUMBER
208/230v 1PH Centrifugal Power Exhaust for Small Cabinet	PCE-SRT12CA-D-1*H
208/230v 3PH Centrifugal Power Exhaust for Small Cabinet	PCE-SRT12CA-D-2*H
460v 3PH Centrifugal Power Exhaust for Small Cabinet	PCE-SRT12CA-D-4*H
208/230v 3PH Centrifugal Power Exhaust for Large Cabinet	PCE-SRT34CA-D-2*1 PCE-SRT34CA-D-2*2 PCE-SRT34CA-D-2*3
460v 3PH Centrifugal Power Exhaust for Large Cabinet	PCE-SRT34CA-D-4*1 PCE-SRT34CA-D-4*2 PCE-SRT34CA-D-4*3
Hinged Access Door	ECH-SRT12CA-HDOOR ECH-SRT34CA-HDOOR

*Use L for modulating using Lenze (Bacnet compatible), V for constant volume, T for third party controls.

NOTE: ECH-SRT can't use 4" factory filter kits CRFLTTRK00(2/3/4/5/6)A00*

Compliance — Economizers meet California Energy

Commission Title 24 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls.

Economizers meet ASHRAE 90.1 damper leakage requirements and Fault Detection and Diagnostic requirements.

Economizers meet IECC damper leakage and Fault Detection and Diagnostic requirements.

Note: *IECC* requires differential return air sensor, which must be ordered separately.

See accessory KIT-3534-DIFFADB for DryBulb or

KIT-3534-DIFFENT for Enthalpy.

Outside air, return air, and relief dampers are AMCA rated.



Figure 3 - Typical Indoor Fan Motor Access Panel Locations

INSTALLATION

Step 1: Turn off power supply(s) and install lockout tag.

Step 2: Remove the existing unit filter access panel and discard. Raise the panel and swing the bottom outward. The panel is now disengaged from the track and can be removed. See **Figure 1**. Remove the horizontal panel on unit. See **Figure 1**.





Figure 1 - Typical Access Panel Locations

Step 3: Remove the indoor coil access panel discard. See **Figure 1.**

Step 4: Place the economizer into R/A section of unit.

See **Figure 2.** No fasteners are needed, economizer is sitting on R/A cover in unit.



Figure 2 - Economizer Installed in R/A Section

Step 5: Remove the indoor blower access panel and the panel(s) covering the unit control box. See **Figure 3**.



Step 6: Remove and save the 12-pin jumper plug from the unit economizer harness – located in the upper left corner of the unit. Insert the economizer plug into the unit wiring harness. See **Figure 4.**

Note: The 12-pin jumper plug should be saved for future use, in the event that the economizer is ever removed. The jumper plug is not needed as long as the economizer is installed.

Step 7: Screw OA sensor provided in parts bag with economizer directly through pre-punched holes located on economizer.

Step 8: In parts bag provided with economizer is the 9901-3534 Siemens controller (Siemens POL224.00) The economizer harness is attached to the controller. Screw the controller directly to the control box through pre-punched holes in control box to the left side of the UCB. See **Figure 5.**

Parts Bag



ATTENTION:

1 - The controller's wiring harness is designed specifically for EcoBlue, Axiom-Fan and X-Vane units with the Unit Control Board (UCB). If your unit has the older Central Terminal Board (CTB) or Centrifugal Supply Blower then you must purchase a different harness (MicroMetl P/N 9962-2020). The harness that is factory attached to the Siemens controller must be removed and the 9962-2020 harness.

2 - If you have a 48/50JC 04-07 unit with System VU, these controls will not work properly. Please let your distributor know that you will need a ECH-SRT12CB-D0DB-4 economizer.

NOTE: For units:

48/50 DJ/HJ/LJ/TF/TF/TJ/TJQ/TM 004-014, GJ 006-012, GJD/GJE/ GJF 006-012, HE/HEQ 0003-006, HJQ/LJQ/QJ/TFQ 004-012, HM 007, LJD 008-014, LJE 008-012 548C 036-150, 549/551B 036-150, 549/551C 024-060, 558/580/581 C/D/F 036-150 PAE/PAH/PAS/PGE/PGH/PGS/PHE/PHH/PHS 090-150

The main harness of economizer control DC*S will have to be replace by 9962-2061 for Siemens Controller. (This harness needs to be order separate)

Fig. 4 - Connect Economizer Harness to Unit PL6 Economizer Harness



12-Pin Male Plug from Siemens controller to UCB Male Plug from UCB connected to female plug from Siemens controller



Figure 5 – Mount Controller Assembly in Unit Control Box next to Units with a UCB (Some control box configurations may differ)



Step 9: Unplug the 12-pin male ECON plug currently connected to the top left plug on the Unit Control Board (UCB) and attach the 12-pin male plug labeled ECON from the Siemens controller to the UCB board port labeled ECON. See Figure 6 &7.

Step 10: Connect the 12-pin male ECON plug removed from UCB to the 12-pin female plug labeled ECON-A from the Siemens controller harness. See Figure 5 & 7.

Step 11: Route the 4 sensor wires (orange, brown, violet, and pink) into the blower section as shown in Figure 8. Step 12: Install the Mixed Air Sensor in the blower section.

a. 9901-1619 sensor which is a probe that includes a bottom mounting plate with 2 mounting holes, see Figure 9 & 10. Attach the orange wire from the harness to the green wire on the sensor and the brown wire to the red wire.

4 Sensor Wires





Figure 8 – Route 4 Sensor Wires to Indoor Blower Section

Figure 9 – Install the 9901-1619 Mixed Air Sensor. (6" Probe) 9901-1619

Mixed Air Sensor

Indoor

Blower Section



Figure 6 – Unplug ECON plug from Unit



Economizer 12-Pin Male Plug ECON

UCB 12-Pin Female Plug

RTU UCB 12-Pin Male Plug



Economizer 12-Pin Female Plug ECON-A

Figure 7 – Plug 12 Pin ECON plug into removed Unit Control Board (UCB) 12 Pin Plug and Connect 12-Pin Controller Plug to **Unit Control Board**

Indoor Blower



Step 13: Connect the pink and violet wires from the 4-wire harness to the pink and violet terminals in the wire bundle in the indoor blower section. See *Figure 11.*

Step 14: If using differential return sensor or DCV sensor install it now. See installation details later in the instructions, and the wiring diagram for further information.

Step 15: After powering controller, program the Siemens POL224.00 controller per the instructions to follow. After all settings have been made, re-install the unit control box panel.

Economizer performance charts are on the right. See base unit installation manual to make adjustments to meet building ventilation requirements.

Step 16: For easier setup and configuration use the Siemens Climatix app on your phone or tablet (I-PHONES require ISO 15.0 or later). You will need to purchase a Siemens WLAN Stick (P/N 9901-5057 from Micrometl or P/N POL903.00 from Siemens). Once you have the WLAN Stick and have downloaded the Siemens app **"Climatix"**, you will be able to set up your economizer following the configurations on your device. The default username is Administrator and the default password is OneBT. Plug the WLAN Stick into the controller as shown in *Figure 12*. If you would like to set up multiple economizers with the same configurations, you can easily do that using the WLAN Stick and the saved information you have on your device.

Step 17: If you do not have a WLAN Stick then you can set up the economizer, using the keypad on the Siemens controller. See I/O Configurations that need to be verified and updated.



Figure 12 – WLAN Stick installed in the Siemens Controller



Figure 10 – Mount and connect Mixed Air Sensor 9901-1619



Figure 11 - Connect Pink and Violet Wires



Step 18: Attach O/A panel as shown in **Figure 13**, use sheet metal screws no longer than #10-16 5/16" – 11 needed. Economizer is still sitting on R/A cover in unit, no fasteners needed.

Step 19: Lift economizer so I.D. of economizer matches I.D. of economizer cut out in panel. See **Figure 14.**

Step 20: Once aligned use #10 sheet metal screws no longer then 5/16" to attach economizer to O/A panel.

Step 21: After economizer is attached make sure return section of economizer fits snug and square in horizontal section of the RTU. See **Figure 14.**

DO NOT USE SCREWS ON R/A SECTION, THIS WILL MAKE IT DIFFICULT TO REMOVE ONCE DUCT IS INSTALLED.



Figure 15 – Attach Economizer to O/A Panel

Step 22: If needed, attach filler panel. Slide under RTU top flange then drop down until bottom mount holes align with top holes on O/A panel. Use #10-16 5/16" sheet metal screws. See **Figure 15**.

Step 23: Attach R/A black off panel as shown in **Figure 17.** Use #10-16 5/16" sheet metal screws. Grommet must be installed before duct work is installed.







Figure 14 – Attach O/A Panel



Step 24: Relief is field installed on R/A duct work. Use #10-16 5/16" sheet metal screws. Make sure its watertight.





Figure 16 – Filler Panel Not Used for Chassis 1

Install on duct work.
Duct work not shown





Figure 17 – Attach R/A Blank Off Panel



Wiring Diagram Supplement For Installing Siemens POL224.00 Economizer on Unit with Vane Axial Indoor Fan (with Unit Control Board HK50AA055 or HK50AA058)





Wiring Diagram Supplement For Installing Siemens POL224.00 Economizer on Unit with Central Terminal Board





FEATURES

- 2-10Vdc with signal inversion
- Economizer applications
- 4-20mA applications



987-105 GMA 151.1PRHEEM GCA161.1P

Description	Label		Description	Function
Inverse Acting		C	Direct-Acting	Input Signal Inversion
Inverse-Acting Feedback			Direct-Acting Feedback	Feedback Signal Inversion
				Not In Use

Description	Label		Description	Function	
Counterclockwise	Ú		Ĉ	Clockwise	Rotary angle direction
Active	•		0	Off	Self-adaptation to mechanical range
2-10 Vdc	2-10		0-10	010 Vdc	Positioning control signal 2-10 or 0-10
Offset 0-5V Span 2-30V	ADJ		0-10	010 Vdc	Positioning signal. Turn on or off capability to adjust offset/span.



DEMAND CONTROL VENTILATION

Refer to economizer wiring diagram and DCV instructions if demand control ventilation (CO2 sensor) is used. CO2 sensor will wire into the AUXAI connection at the Siemens controller. If a field installed CO2 sensor is connected to the economizer controller, a demand controlled ventilation strategy will operate automatically. As the CO2 level in the space increases above the setpoint (on the economizer controller), the minimum position of the dampers will be increased proportionally, until the Maximum Ventilation setting is reached. As the space CO2 level decreases because of the increase in fresh air, the outdoor damper will follow the higher demand condition from the DCV mode or from the free cooling mode.

INSTALLING DIFFERENTIAL RETURN AIR SENSOR

The KIt-3534-DIFFADB – Differential Drv Bulb return sensor kit must be field mounted in the system's return duct work. The kit includes a wiring harness, that connects the economizer harness in the return chamber of the unit, to the provided 9901-1619 sensor.

The KIT-3534-DIFFENT - Differential Enthalpy return sensor kit must be field mounted in the system's return duct work. The kit includes a wiring harness, that connects the economizer harness in the return chamber of the unit, to the provided 9901-3535 sensor.

option, see California Tittle 24 setting requirements by region.

12-Pin Female Plug from Economizer

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PL6 Plug

12-Pin Male

Plug in Unit

9901-1619

Differential Return ensor. Field Mounted in Return Duct

PNK **.**

VIO ₩ RED ~~~2 BLK ≪3 WHT

GRN

YEL ≪5

REF

PNK **((**12

GRY -{{\}

BRN -{{₄

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CALIFORNIA'S TITLE 24 HIGH TEMPERATURE LIMIT SETTINGS

California's Title 24 code requires a high temperature limit setting for all dry bulb outside air economizer change over. The temperatures vary by the region within California. See Table 7 for high limit settings.

Table 7 – California Title 24 Regional High Limit Dry Bulb Temperature Settings

DEVICE TYPE*	CLIMATE ZONES	REQUIRED HIGH LIMIT (ECONOMIZER OFF WHEN):
		DESCRIPTION
	1, 3, 5, 11-16	OAT exceeds 75°F
FIXED DRY BULB	2, 4, 10	OAT exceeds 73°F
	6, 8, 9	OAT exceeds 71°F
	7	OAT exceeds 69°F
	1, 3, 5, 11-16	OAT exceeds RA Temp.
DIFFERENTIAL DRY BULB	2, 4, 10	OAT exceeds -2°F
	6, 8, 9	OAT exceeds -4°F
	7	OAT exceeds -4°F
FIXED ENTHALPY† + FIXED DRY BULB	ALL	OAT exceeds 28 Btu/lb of dry air or OAT exceeds 75°F

* Only the high limit control devices listed are allowed to be used and at the setpoints listed. Others When using the differential return enthalpy or dry bulb temperature such as Dew Point, Fixed Enthalpy, Electronic Enthalpy, and Differential Enthalpy Controls, may not be used in any climate zone for compliance with Section 140.4(e)1 unless approval for use is provided by the Energy Commission Executive Director

> + At altitudes substantially different than sea level, the Fixed Enthalpy limit value shall be set to the enthalpy value at 75°F and 50% relative humidity. As an example, at approximately 6,000 foot elevation, the fixed enthalpy limit is approximately 30.7 Btu/lb.





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K11

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K12

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≪³ PL6 Plug

12-Pin Male



 \triangle Do not use sensors in areas with possible acid fumes or chemical vapors that can corrode sensor metal parts or with volatile or explosive gases.



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"Make sure your app is updated to the most recent version"

If multiple operators: Make sure to name your Wifi Stick differently from other to prevent cross connection. If configuring more than one unit make sure you close the app before connecting to the next logic.

Manual Programming Video QR Code







Siemens Quick StartUp Guide



Siemens Quick APP StartUp Guide pdf

Siemens Quick StartUp Guide pdf

Interface Overview

Powering the Economizer Controller

Connect a 24 Vac external power supply source to the following terminals to power the Economizer Controller.



LED Indication



No.	Description
1	Free Cooling LED
2	Sensor LED
3	DAC LED

LED Indication

Status	Free Cooling LED	Sensor LED	DAC LED	
Commissioning mode	Yellow Blinking	Yellow Blinking	Yellow Blinking	
Power start-up	Yellow On	Yellow On	Yellow On	
Free cooling is running	Green On	-	-	
Free cooling is available but not running	Green Blinking	-	-	
Not economizing when it should	Red Blinking	-	-	
Economizing when it should not	Red On	-	-	
Sensors working ok	-	Green On	-	

Status	Free Cooling LED	Sensor LED	DAC LED
Humidity sensor error	-	Yellow On	-
CO ₂ sensor error	-	LED Off	-
Air temperature failure/fault	-	Red On	-
Excess outdoor air	-	Red Blinking	-
Damper working ok	-	-	Green On
Damper stalled	-	-	Red On
Damper slippage	-	-	Red Blinking
Actuator alarm is reported	-	-	Fast Red Blinking
Terminal ACT-FB is configured but no available feedback signal (under- range or over-range)	-	-	LED Off

NOTICE					
!	If different faulty events occur at the same time, sensor/DAC LED lights up following the priority below: Red (Fast Blinking) -> Red (On, Steady) -> Red (Blinking) -> Yellow -> Off -> Green. For example, if there is a humidity sensor error and air temperature failure at the same time, the sensor LED turns red rather than yellow.				

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After the Economizer controller enters the running state, it may take one minute for peripheral devices to complete initialization. Before that, LED indication might be unstable.

User Interface



No.	Description
1	One-line LCD. After a period of inactivity, the controller displays the default HMI screen (free cooling status, '1FREECOOL YES' or '1FREECOOL NO')
2	Operation button (Up button) - Move to the previous value, step or category
3	Operation button (Down button)- Move to the next value, step or category

Menu Structure

Menus are displayed in the Economizer Controller as per categories. There are eight first-level menus, each of which is represented by a number at the beginning of the line on the LCD. Pressing Enter + Up or Down can toggle between different first-level menus.

Submenus follow the numbered first-level menus closely. Pressing Up or Down can toggle between different submenus.

At the end of the line, the LCD displays the value of the current submenu (if any). If the value is editable, pressing Enter enters the Edit mode. The value is then highlighted for change. After making a change by pressing Up or Down, press Enter to confirm the change and exit the Edit mode.



No. Description Number representing the first-level menu of Status Display. Different 1 numbers represent different menus: • 1: Status Display 2: Basic Settings • 3: Advanced Settings • 4: Alarms • 5: Enter Configuration State and Reset • 6: I/O Config • 7: Testing • 8: Enter Running State • 2 Submenu* 3 Value of the current submenu*

* See Setup and Configuration [\rightarrow 32] for detailed submenus together with possible values or ranges.

	Up Down
	Enter

* Pressing Enter + Up or Down can toggle between different first-level menus.

Functions

Free Cooling Economizing

Free cooling uses unconditioned outside air to cool the space directly. The Economizer Controller enables or disables free cooling after it judges which control mode is active. It also uses hysteresis to ensure a smooth switchover.

Depending on the sensors that are used, there are four different control modes. In different control modes, the assessed conditions are different.

Control Mode	Used Sensors	Enable Free Cooling?			
Control Mode 1 - Fixed Dry-bulb	OA (outside air) temperature sensor and MA	The outside-air dry-bulb temperature is compared with the set temperature shutoff setpoint (2TEMP OFF).			
	(Mixed Air) temperature sensor	If the outside-air dry-bulb temperature is below the temperature shutoff setpoint, the outside air is used to meet all or part of the cooling demand.			
Control Mode 2 - Differential Dry-bulb (Dual	OA temperature sensor, RA (Return Air)	The outside-air dry-bulb temperature is compared with the return-air dry-bulb temperature.			
Dry- Bulbs)	temperature sensor and MA temperature	If both OAT and RAT are higher than the temperature high limitation (2THL), free cooling is prohibited.			
	sensor	If OAT or RAT is lower than the temperature high limitation and the outside-air dry-bulb temperature is lower than the return-air dry- bulb temperature, the outside air is used to meet all or part of the cooling demand.			
Control Mode 3 - Combination Fixed Enthalpy	OA temperature and humidity sensor, and MA	The outside-air dry-bulb temperature and enthalpy are compared with the set temperature and enthalpy shutoff setpoints.			
and Fixed Dry- bulb Control	temperature sensor	If the outside-air enthalpy is lower than the set enthalpy shutoff setpoint (2ENTH OFF), and the outside-air dry bulb temperature is lower than the temperature shutoff setpoint, the outside air can be used for economizing.			
Control Mode 4 - Combination of Differential	OA temperature and humidity sensor, RA	The outside-air dry-bulb temperature and enthalpy are compared with the temperature shutoff setpoint and return-air enthalpy.			
Enthalpy and Fixed Dry-bulb	temperature and humidity sensor, and MA	If both OA enthalpy and RA enthalpy are higher than the enthalpy high limitation (2EHL), free cooling is prohibited.			
	temperature sensor	If OA enthalpy or RA enthalpy is lower than the enthalpy high limitation, outside-air enthalpy is lower than the return-air enthalpy, and the outside-air dry-bulb temperature is lower than the set temperature shutoff setpoint, then outside air can be used for economizing.			

Default hysteresis setting

Hysteresis setting (DB) between OAT and temperature shutoff setpoint defaults to 2 °F (non-changeable).

The temperature shutoff setpoint decides when to disable free cooling when the outside air temperature increases. However, once free cooling is disabled after the increased temperature is higher than the temperature shutoff setpoint, the hysteresis setting decides when to enable free cooling. When the temperature decreases and drops 2 °F (hysteresis setting) below the temperature shutoff setpoint, free cooling is enabled.



Damper modulation during free cooling

Once outside air is suitable for free cooling, the controller modulates the damper based on MAT (mixed air temperature) or OAT (outside air temperature), depending on whether you configured the related parameter in the Climatix mobile application. If not, MAT modulating is used by default. **Note:** MAT temperature may be obtained by an MAT, LAT (default) or automatically.

If MAT is used when free cooling is enabled, MAT setpoint ('3MAT SET', configurable under Advanced Settings [\rightarrow 36]) is used for MAT modulating. When MAT falls below the anti-freeze setpoint (3FRZ PROT), the damper either fully closes or opens to the minimum position ('3FREEZE POS', configurable under Advanced Settings [\rightarrow 36]).

- If MAT is lower than MAT setpoint, the damper is modulated to maintain MAT setpoint, towards fully closes or opens to the minimum position based on occupancy status if MAT continues dropping.
- If MAT is in the range [MAT setpoint, (MAT setpoint + neutral zone band (1 °F by default, non-changeable))], the damper position remains no change.
- If MAT is higher than (MAT setpoint + neutral zone band), the damper opens towards fully open.
- If MAT is 10 °F higher than MAT setpoint, the damper fully opens to 100%.

If OAT is used when there is a cooling demand, the damper can be opened to different positions depending on different outside air temperatures:

- If outside air is higher than 50 °F but lower than the temperature shutoff setpoint, the damper is fully open.
- If outside air is higher than OAT lockout setpoint but lower than 50 °F, linear modulation is applied when only Cooling Stage 1 input (Y1I) is ON. Result of the following formula indicates the damper's open position:

```
((OAT - OAT Lockout Setpoint) / (50 - OAT Lockout Setpoint)) * (80% - MIN POS) + MIN POS
```

Note: After the Controller receives the second cooling demand, the damper fully opens regardless of the modulating logic. After fan delay time (2FAN DLY) runs out, mechanical cooling turns on.

Location-based Shutoff Setpoints

The Economizer Controller can get location-based temperature and enthalpy shutoff setpoints automatically if it is connected to the Climatix Mobile application. Once a WLAN stick is plugged, the Economizer Controller can establish network connection with the Climatix Mobile application. The temperature and enthalpy shutoff setpoints obtained via the phone or tablet's GPS functionality can then be synchronized to the Economizer Controller.

Cooling Stage Operation

The Economizer Controller accepts inputs for 1-, 2- and 3-stage cooling inputs, and reroutes to the RTU through the relay connection Y1, Y2 and AUX1/AUX2.

The operation of the cooling stages is determined by the availability of Free Cooling provided by the economizer operation mode. See Cooling Stage I/O Logic tables [\rightarrow 20].

Based on the use of Free Cooling, the operating modes are as follows:

- Y1 is Stage 1 Cooling Demand.
- Y2 is Stage 2 Cooling Demand.
- Y3 is Stage 3 Cooling Demand.
- Free Cooling is always the first cooling stage.
- Cooling Stage 1 call from the Commercial Thermostat (Y1) energizes the Y1 input to the Economizer Controller.
- Cooling Stage 2 call from the Commercial Thermostat (Y2) energizes the Y2 input to the Economizer Controller.

Economizer condition met	Y1	Y2	Cooling Stage 1	Cooling Stage 2
No	On	On	On	On
No	On	Off	On	Off
No	Off	Off	Off	Off
Yes	On	On	On ¹⁾	On/Off ²⁾
Yes	On	Off	Off	Off
Yes	Off	Off	Off	Off

• Cooling Stage 3 call from the Commercial Thermostat energizes the AUX1/AUX2 input to the Economizer Controller.

Table 1: 1- and 2-Stage Cooling I/O Logic

- ¹ If Y2-Input is called too, the controller increases fan speed to Speed High and starts fan delay (2FAN DLY) time. After the delay time runs out, the controller starts Y1-Output.
- ² If Y1O is **ON** for more than a set time (15 minutes by default, changeable via Parameter '3STG3 DLY)', Y2I cooling demand remains **ON**, and OAT is lower than MAT setpoint (3MAT SET), then Relay 2 is **OFF** to disable Cooling Stage 2. If the OAT is higher than the MAT setpoint, then Relay 2 energizes to allow Y2 pass-through to enable Cooling Stage 2.

Economizer condition met	Y1	Y2	Y3	Cooling Stage 1	Cooling Stage 2	Cooling Stage 3	
No	On	On	On	On	On	On	
No	On	On	Off	On	On	Off	
No	On	Off	Off	On	Off	Off	
No	Off	Off	Off	Off Off		Off	
Yes	On	On	On	On ¹⁾ On ²⁾		On/Off ⁴⁾	
Yes	On	On	Off	On ¹⁾	On/Off ³⁾	Off	
Yes	On	Off	Off	Off	Off	Off	
Yes	Off	Off	Off	Off	Off	Off	

- ¹ If Y2-Input is called too, the controller increases fan speed to Speed High and starts fan delay (2FAN DLY) time. After the delay time runs out, the controller starts Y1-Output.
- ² If Y3-Input is called too, the controller increases fan speed to Speed High and starts fan delay (2FAN DLY) time. After the delay time runs out, the controller starts Y2-Output.
- ³ If Y1O is **ON** for more than a set time (15 minutes by default, changeable via Parameter '3STG3 DLY)', Y2I cooling demand remains **ON**, and OAT is lower than MAT setpoint (3MAT SET), then Relay 2 is **OFF** to disable Cooling Stage 2. If the OAT is higher than the MAT setpoint, then Relay 2 energizes to allow Y2 pass-through to enable Cooling Stage 2.
- ⁴ If Y2O is **ON** for more than a set time (15 minutes by default, changeable via Parameter '3STG3 DLY)', Y3I cooling demand remains **ON**, and OAT is lower than MAT setpoint (3MAT SET), then Relay 3 is **OFF** to disable Cooling Stage 3. If the OAT is higher than the MAT setpoint, then Relay 3 energizes to allow Y3 pass-through to enable Cooling Stage 3.

The Economizer Controller tolerates thermostat wiring mismatch (e.g. Thermostat Y1 -> Economizer Y2-In, Thermostat Y2 -> Economizer Y1-In). It doesn't recognize if signal comes from Y1-In or Y2-In but calculates the number of received signals and decides the number of cooling/heating demands based on the received signal number. The handling logic is Stage =Y1I + Y2I + Y3I.

Multi-Speed Fan Support

The Economizer Controller supports connection to 2- and 3-speed fans. When the unit is equipped with a multi-speed fan, the damper responds to multiple fan speeds via multiple minimum positions (MIN POS) to keep minimum airflow.

A multi-speed fan is not controlled by the Economizer Controller but an external logic board.

Y1	Y2	Spd L ¹⁾	Spd H ²⁾	PosL ³⁾	PosH ⁴⁾
х	-	х	-	х	-
х	х	-	х	-	x

Table 3: Damper MIN POS for 2-Speed Fan (Cooling, No W1 or O/B)

Y1	Y2	W1 (Heating)	OB = B (Heating)	Spd L ¹⁾	Spd H ²⁾	PosL ³⁾	PosH ⁴⁾
х	-	-	x	х	-	-	x
х	х	-	х	-	х	-	х
-	-	x	-	-	x	-	x

Table 4: Damper MIN POS for 2-Speed Fan (Heating, With W1 or O/B)

- 1 Spd L = Low Speed (Fan)
- 3 PosL = Damper MIN POS for Low-Speed Fan
- 2 Spd H = High Speed (Fan)
- 4 PosH = Damper MIN POS for High-Speed Fan

Y1	Y2	Y3	Spd L ¹⁾	Spd M ²⁾	Spd H ³⁾	PosL ⁴⁾	PosM ⁵⁾	PosH ⁶⁾
x	-	-	х	-	-	х	-	-
x	х	-	-	х	-	-	х	-
x	х	х	-	-	х	-	-	х

Table 5: Damper MIN POS for 3-Speed Fan (Cooling, No W1 or O/B)

Y1	Y2	Y3	W1 (Heating)	OB = B (Heating)	Spd L ¹⁾	Spd M ²⁾	Spd H ³⁾	PosL	PosM ⁵⁾	PosH 6)
х	-	-	-	х	х	-	-	-	-	х
х	х	-	-	х	-	х	-	-	-	х
х	х	х	-	х	-	-	х	-	-	х
-	-	-	x	-	-	-	х	-	-	х

Table 6: Damper MIN POS for 3-Speed Fan (Heating, With W1 or O/B)

1 Spd L = Low Speed (Fan)

- 4 PosL = Damper MIN POS for Low-Speed Fan
- 2 Spd M = Medium Speed (Fan)
- 5 PosM = Damper MIN POS for Medium-Speed Fan
- 3 Spd H = High Speed (Fan)
- 6 PosH = Damper MIN POS for High-Speed Fan

If a single-speed fan connects to the Controller, the fan speed is Spd H. The damper position is PosH.

	1-stage Cooling ²⁾	2-stage Cooling ²⁾	3-stage Cooling ²⁾
1-speed Fan ¹⁾	Spd H ³⁾ (regardless of cooling demand, OCC=Yes)	Spd H ³⁾ (regardless of cooling demand, OCC=Yes)	Spd H ³⁾ (regardless of cooling demand, OCC=Yes)
2-speed Fan ¹⁾	Spd L ⁴⁾ (0 or 1 cooling demand) Spd H ³⁾ (2 cooling demands)	Spd L ⁴⁾ (0 or 1 cooling demand) Spd H ³⁾ (2 cooling demands)	Spd L ⁴⁾ (0 or 1 cooling demand) Spd H ³⁾ (2 or 3 cooling demands)
3-speed Fan ¹⁾	Spd L ⁴⁾ (0 or 1 cooling demand) Spd H ³⁾ (2 cooling demands)	Spd L ⁴⁾ (0 or 1 cooling demand) Spd H ³⁾ (2 cooling demands)	Spd L ⁴⁾ (0 or 1 cooling demand) Spd M ⁵⁾ (2 cooling demands) Spd H ³⁾ (3 cooling demands)

Table 7: Different Fan Speeds with Different Configured Outputs

- 1 Configured by '6FAN'.
- 4 Spd L = Low Speed (Fan)
- 2 Configured by Y1O, Y2O or Y3O. 5 Spd M = Medium Speed (Fan)
- 3 Spd H = High Speed (Fan)

If a variable-speed fan is configured, the fan speed control logic is the same with 3-speed fan.

	1-stage Cooling ²⁾	2-stage Cooling ²⁾	3-stage Cooling ²⁾
1-speed Fan ¹⁾	PosH ³⁾ (regardless of cooling demand, OCC=Yes)	PosH ³⁾ (regardless of cooling demand, OCC=Yes)	PosH ³⁾ (regardless of cooling demand, OCC=Yes)
2-speed Fan ¹⁾	PosH ³⁾ (regardless of cooling demand, OCC=Yes)	PosL ⁴⁾ (0 or 1 cooling demand) PosH ³⁾ (2 cooling demands)	PosL ⁴⁾ (0 or 1 cooling demand) PosH ³⁾ (2 or 3 cooling demands)
3-speed Fan ¹⁾	PosH ³⁾ (regardless of cooling demand, OCC=Yes)	PosL ⁴⁾ (0 or 1 cooling demand) PosH ³⁾ (2 cooling demands)	PosL ⁴⁾ (0 or 1 cooling demand) PosM ⁵⁾ (2 cooling demands) PosH ³⁾ (3 cooling demands)

Table 8: Different Damper Minimum Positions with Different Configured Outputs

1 Configured by '6FAN'.

4 PosL = Damper MIN POS for Low-Speed Fan.

2 Configured by Y1O, Y2O or Y3O. 5 PosM = Damper MIN POS for Medium-Speed Fan.

3 PosH = Damper MIN POS for High-Speed Fan.

If DCV (demand control ventilation) is enabled, each fan speed corresponds to two damper position ventilation setpoints (VENT MIN, VENT MAX), e.g., PosL corresponds to 2VENTMIN L... 2VENTMAX L.

	1-stage Cooling ²⁾	2-stage Cooling ²⁾	3-stage Cooling ²⁾
1-speed Fan ¹⁾	2VENTMIN H to 2VENTMAX H (regardless of cooling demand, OCC=Yes)	2VENTMIN H to 2VENTMAX H (regardless of cooling demand, OCC=Yes)	2VENTMIN H to 2VENTMAX H (regardless of cooling demand, OCC=Yes)
2-speed Fan ¹⁾	2VENTMIN H to 2VENTMAX H (regardless of cooling demand, OCC=Yes)	2VENTMIN L to 2VENTMAX L (0 or 1 cooling demand) 2VENTMIN H to 2VENTMAX H (2 cooling demands)	2VENTMIN L to 2VENTMAX L (0 or 1 cooling demand) 2VENTMIN H to 2VENTMAX H (2 or 3 cooling demands)
3-speed Fan ¹⁾	2VENTMIN H to 2VENTMAX H (regardless of cooling demand, OCC=Yes)	2VENTMIN L to 2VENTMAX L (0 or 1 cooling demand) 2VENTMIN H to 2VENTMAX H (2 cooling demands)	2VENTMIN L to 2VENTMAX L (0 or 1 cooling demand) 2VENTMIN M to 2VENTMAX M (2 cooling demands) 2VENTMIN H to 2VENTMAX H (3 cooling demands)

Table 9: Different Damper Position Setting with Different Configured Outputs (DCV is Enabled)

1 Configured by '6FAN'.

2 Configured by Y1O, Y2O or Y3O.

If CO₂ sensor is connected but DCV is disabled, each fan speed corresponds to one minimum damper position ventilation setpoint.

	1-stage Cooling ²⁾	2-stage Cooling ²⁾	3-stage Cooling ²⁾
1-speed Fan ¹⁾	2VENTMIN H (regardless of cooling demand, OCC=Yes)	2VENTMIN H (regardless of cooling demand, OCC=Yes)	2VENTMIN H (regardless of cooling demand, OCC=Yes)
2-speed Fan ¹⁾	2VENTMIN H (regardless of cooling demand, OCC=Yes)	2VENTMIN L (0 or 1 cooling demand) 2VENTMIN H (2 cooling demands)	2VENTMIN L (0 or 1 cooling demand) 2VENTMIN H (2 or 3 cooling demands)
3-speed Fan ¹⁾	2VENTMIN H (regardless of cooling demand, OCC=Yes)	2VENTMIN L (0 or 1 cooling demand) 2VENTMIN H (2 cooling demands)	2VENTMIN L (0 or 1 cooling demand) 2VENTMIN M (2 cooling demands) 2VENTMIN H (3 cooling demands)

Table 10: Different Damper Position Setting with Different Configured Outputs (DCV is Disabled, CO_2 sensor is connected)

Variable-Speed Fan Support

Once a variable-speed fan is configured with the Economizer Controller via terminal VFD 0-10 and the Fan Configuration in Climatix Mobile or '6FAN' in the inbuilt menu is configured as 'VFD FAN', the controller can control the fan speed following the logic below:

000	Y1	Y2	Y3	6FAN	VFD Speed	Spd L ¹⁾	Spd M ²⁾	Spd H ³⁾	Pos L ⁴⁾	Pos M ⁵⁾	Pos H ⁶⁾	DO ⁷⁾
Yes	x	-	-	VFD FAN	60%	х	-	-	х	-	-	On
Yes	х	х	-	VFD FAN	80%	-	х	-	-	х	-	On
Yes	х	х	х	VFD FAN	100%	-	-	х	-	-	х	On
Yes	-	-	-	VFD FAN	60%	х	-	-	х	-	-	On
No	х	-	-	VFD FAN	60%	х	-	-	-	-	-	On
No	х	х	-	VFD FAN	80%	-	х	-	-	-	-	On
No	х	х	х	VFD FAN	100%	-	-	х	-	-	-	On
No	-	-	-	VFD FAN	60% ⁸⁾	х	-	-	-	-	-	Off

Table 11: Variable-Speed Fan Control Logic During 3-Stage Cooling

000	Y1	Y2	Y3	W1 (Heating)	O/B = B (Heating)	6FAN	VFD Speed	Spd L ¹⁾	Spd M ²⁾	Spd H ³⁾	Pos L ⁴⁾	Pos M ⁵⁾	Pos H ⁶⁾	DO ⁷⁾
Yes	х	-	-	-	х	VFD FAN	60%	х	-	-	-	-	х	On
Yes	х	х	-	-	х	VFD FAN	80%	-	х	-	-	-	х	On
Yes	х	х	х	-	x	VFD FAN	100%	-	-	х	-	-	х	On
Yes	-	-	-	x	-	VFD FAN	100%	х	-	-	-	-	х	On
No	х	-	-	-	x	VFD FAN	60%	х	-	-	-	-	-	On
No	х	х	-	-	x	VFD FAN	80%	-	х	-	-	-	-	On
No	х	х	х	-	x	VFD FAN	100%	-	-	х	-	-	-	On
No	-	-	-	х	-	VFD FAN	100%	х	-	-	-	-	-	On

Table 12: Variable-Speed Fan Control Logic During 3-Stage Heating

- 1 Spd L = Low Speed (Fan)
- 4 Pos L = Damper MIN POS for Low-Speed Fan
- 2 Spd M = Medium Speed (Fan)
- 5 Pos M = Damper MIN POS for Medium-Speed Fan
- 3 Spd H = High Speed (Fan)
- 6 Pos H = Damper MIN POS for High-Speed Fan
- 7 Optional. Meaningful only if '6AUX1-O' or '6AUX2-O' is configured as 'SUP FAN'.
- 8 Adjustable later on if there is any customer request.

See I/O Configuration [\rightarrow 38] for configurations of '6FAN', '6AUX1-O' and '6AUX2-O'.

Cooling Delay via Increasing Fan Speed

If there is cooling demand while outside air is suitable for economizing, the Economizer Controller tries to increase fan speed to maximize the use of outside air first. If the cooling demand is not reached within a set time, mechanical cooling will be enabled.

Typical Field Application

Prerequisites:

- Outside air is suitable for economizing and free cooling is ON.
- Fan connected to the controller supports multiple speeds. Cooling delay function doesn't work if only a one-speed fan is connected to the controller.
- If it is a 2-speed fan and there are two cooling demand inputs/outputs, Y1-Input is called, the controller sets fan speed to Speed Low. Damper is fully open (100%).
 - If Y2-Input is called too, the controller increases fan speed to Speed High and starts fan delay (2FAN DLY) time. After the delay time runs out, the controller starts Y1-Output.
 - If the cooling demand is not reached after Y1-Output is ON within '3STG3 DLY' time and OAT is higher than MAT setpoint (3MAT SET), the controller starts Y2-Output.
- 2. If it is a 3-speed fan, Y1-Input is called, the controller sets fan speed to Speed Low. Damper is fully open (100%).
 - If Y2-Input is called too, the controller increases fan speed to Speed Medium and starts '2FAN DLY' time. After the delay time runs out, the controller starts Y1-Output.
 - If Y3-Input is called too, the controller increases fan speed to Speed High and starts '2FAN DLY' time. After the delay time runs out, the controller starts Y2-Output.
 - If the cooling demand is not reached after Y2-Output is ON within '3STG3 DLY' time and OAT is higher than MAT setpoint, the controller starts Y3-Output.
- 3. If a variable-speed fan is configured, cooling delay functions the same with 3-speed fan.

NOTICE				
!	See more information about '2FAN DLY' and '3STG3 DLY' in Setup and Configuration [\rightarrow 32]. The default time is 5 and 15 minutes respectively.			

Demand Control Ventilation (DCV)

The controller modulates the outside air damper based on the CO_2 level through the ppm value selected between the range of 500 and 2000 ppm. The measured CO_2 concentration value is compared with the set DCV setpoint. If the measured CO_2 concentration value is below the DCV setpoint, keep the damper to the minimum position. Otherwise, enable DCV.

Once DCV is enabled, the DCV PID starts to run to control the indoor CO₂ concentration value towards the DCV setpoint. The damper opens to the maximum position.

DCV is disabled if the controller receives no occupancy signal.

Setup and Configuration

Before setup and configuration, it is recommended to obtain some location-based values such as shutoff points or utilize the location services in the Climatix mobile application.

Set up and configure the Economizer Controller before putting it into usage. This can be accomplished by using the Climatix Mobile app or the inbuilt display. After sensor, compressor, thermostat or actuator is connected to the Economizer Controller, values/statuses are displayed in the Operating section of the Climatix Mobile application and on the LCD. You can manually change basic and advanced settings, configure I/Os and test the damper operation and any configured outputs by modifying the corresponding parameter values in the local device or Climatix mobile application. Following chapters describe a complete list of all parameters that you can find on the LCD display. Refer to it during your setup and configuration process. Note that parameters and display menus may display differently/dynamically if different applications are configured.

Not all operations are available on the local POL224.00. For example, you can only obtain shutoff setpoints and perform CFM commissioning via the Climatix mobile application. Setup and configuration on the local device are only recommended if operations from the Climatix mobile application are unavailable. Check the Climatix mobile application for all operations that can be performed from the mobile application end.

By connecting the RS485 port to a PC, all parameters are also readable or writable from PC tools such as Modbus Poll.exe via Modbus and Yabe.exe via MSTP (Bps 38400 (default), Bps 9600, Bps 19200, Bps 115200). Note that an external End of Line (EOL) element is required to achieve Baud Rate 115200 at a maximum cable length of 4000ft (1.2km).

Parameter	Description	Value
1FREECOOL	Indicates if the system can use outdoor air for free cooling.	YES
1ECON ENAB	Indicates if outdoor air is being used for the 1st stage of cooling.	NO
10CCUPIED	Indicates if the space is occupied. If you choose 'ALWAYS' for '6OCC ' when configuring I/Os, the parameter value is 'YES'; if you keep the default selection 'T-STAT' for '6OCC ' and the controller receives 24V signal from OCC input, the value is 'YES'. Otherwise, the value is 'NO'.	
1Y1-IN	Y1-In call from thermostat for Cooling Stage 1	ON
1Y1-OUT	Y1-Out signal to compressor for Cooling Stage 1	OFF
1Y2-IN	Y2-In call from thermostat for Cooling Stage 2	
1Y2-OUT	Y2-Out signal to compressor for Cooling Stage 2 Dynamic item . Appears only if Y2-Out terminal is configured.	
1AUX1-I	Aux1-In signal Dynamic item . Appears only if Aux1-In terminal is configured.	

Status Display

Parameter	Description	Value
1AUX1-O	Aux1-Out signal	
	Dynamic item . Appears only if Aux1-Out terminal is configured.	
1AUX2-I	Aux2-In signal	
	Dynamic item . Appears only if Aux2-In terminal is configured.	
1AUX2-O	Aux2-Out signal	
	Dynamic item . Appears only if Aux2-Out terminal is configured.	
1COMP STAGE	Indicates compressor current stage.	Off
		1
		2
		3
1HEAT ENAB	Indicates if heating is enabled.	YES
1MIX AIR LOW	Indicates if the anti-freeze protection function is enabled for a mixed air temperature sensor. If air temperature (obtained by an MAT, LAT (default) or automatically) is lower than the anti-freeze protection setpoint (3FRZ PROT), the parameter value is 'YES'. Otherwise, it is 'NO'.	NO
1MAT PRES	Indicates the present value of the mixed air temperature (MAT) sensor.	The corresponding detected value is
	Dynamic item . Appears only if 'MAT' or 'AUTO' is selected for '3DIF T LOC' under Advanced Settings [\rightarrow 36].	displayed on the LCD.
1LAT PRES	Indicates the present value of the leaving air temperature (LAT) sensor.	
	Dynamic item . Appears only if 'LAT' or 'AUTO' is selected for '3DIF T LOC'.	
10AT PRES	Indicates the present value of the outdoor air temperature (OAT) sensor.	
	Dynamic item . Appears only if an OAT sensor is configured.	
10AH PRES	Indicates the present value of the outdoor air relative humidity (OAH) sensor.	
	Dynamic item . Appears only if an OAH sensor is configured.	
1RAT PRES	Indicates the present value of the return air temperature (RAT) sensor.	
	Dynamic item . Appears only if an RAT sensor is configured.	
1RAH PRES	Indicates the present value of the return air relative humidity (RAH) sensor.	
	Dynamic item . Appears only if an RAH sensor is configured.	
1CO2 PRES	Indicates the present value of the CO ₂ sensor.	
	Dynamic item . Appears only if a CO ₂ sensor is configured.	
1DCV STATUS	Indicates the demand control ventilation (DCV) status.	ON
	Dynamic item . Appears only if a CO ₂ sensor is configured.	OFF
	the DCV setpoint and OFF if below the DCV setpoint.	
1FAN SPD LV	Indicates the current fan speed status (low, medium or high). If a	
	If a variable-speed fan is configured, the fan speed control logic is the same with 3-speed fan.	H
	Dynamic item . Appears only if '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN' under I/O Configuration [\rightarrow 38].	

Parameter	Description	Value
1VFD SPD	Indicates the current VFD fan speed. Dynamic item . Appears only if '6FAN' is configured as 'VFD FAN'.	60% 80% 100%
1ACT OUT	Indicates current position of damper actuator in V.	The corresponding
1ACT FB	Indicates feedback signal of damper actuator in V.	detected value is displayed on the LCD.
1ACT POS	Indicates current position of damper actuator in % Open.	
1ACT CNT	Indicates number of times actuator has cycled (1 cycle = 180 degrees of movement in any direction). Resettable via HMI item ' 8ACT CNT RESET' under Enter Running State [\rightarrow 41].	
1EQUIP	Indicates the equipment type. If 'HP(O)' or 'HP(B)' is chosen for '6AUX1-I', the parameter value is 'HP(O)' or 'HP(B)' respectively. If neither is chosen, the value is 'CON RTU'.	HP(O) HP(B) CON RTU
10AT LOCK	Indicates status of the OAT cooling lockout function.	NO LCKOUT OVRD
1INS	Indicates the installation date of the Economizer Controller. If the installation date is incorrect, press Enter to change and confirm month, date and year.	-

Basic Settings

Note: Editable in 1TOP LEVEL. Do not have to use '5ENTER CONFIG?' to change values.

Parameter	Description	Range	Default
2TEMP OFF	Temperature shutoff setpoint. Automatically obtainable if a smartphone or tablet is connected to the network, a WLAN stick is plugged into the Economizer Controller and the mobile application is installed on the phone or tablet. You can also manually define this setpoint.	4880 °F; increment by 1	63 F
2ENTH OFF	Enthalpy shutoff setpoint. Automatically obtainable if a smartphone or tablet is connected to the network, a WLAN stick is plugged into the Economizer Controller and the mobile application is installed on the phone or tablet. You can also manually define this setpoint. Dynamic item . Appears only if an OAH sensor is configured.	2230 Btu/lbm; increment by 1	28 Btu/lbm
2DCV	Demand control ventilation setpoint. Automatically obtainable if a smartphone or tablet is connected to the network, a WLAN stick is plugged into the Economizer Controller and the mobile application is installed on the phone or tablet. You can also manually define this setpoint. Dynamic item . Appears only if a CO ₂ sensor is configured.	5002000PPM; increment by 100	1100PPM
2FAN L ACT	Damper minimum position when fan runs at a low speed. Dynamic item . Appears only if '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN' under I/O Configuration $[\rightarrow 38]$.	210V; increment by 0.1	3.6V
2FAN M ACT	Damper minimum position when fan runs at a medium speed. Dynamic item . Appears only if '6FAN' is configured as '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	3.2V
2FAN H ACT	Damper minimum position when fan runs at a high speed. Dynamic item . Appears only if '6FAN' is configured as '1SPEED', '2SPEED', '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	2.8V
2VENTMAX L	DCV maximum position when fan runs at a low speed. Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	3.6V
2VENTMAX M	DCV maximum position when fan runs at a medium speed. Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	3.2V
2VENTMAX H	DCV maximum position when fan runs at a high speed. Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '1SPEED', '2SPEED', '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	2.8V
2VENTMIN L	DCV minimum position when fan runs at a low speed. Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	3.1V
2VENTMIN M	DCV minimum position when fan runs at a medium speed. Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '3SPEED' or 'VFD FAN'.	210V; increment by 0.1	2.7V

Parameter	Description	Range	Default
2VENTMIN H	DCV minimum position when fan runs at a high speed.	210V;	2.3V
	Dynamic item . Appears only if a CO ₂ sensor is configured and '6FAN' is configured as '1SPEED', '2SPEED', '3SPEED' or 'VFD FAN'.	increment by 0.1	
CFM COMM	Air Flow Chart. CFM commissioning can only be initiated from the mobile application. When CFM commissioning is in progress, the local device reads 'CFM COMM'.	-	-
2DEGREES	Temperature unit (°F or °C)	-	۴
2FAN	Fan CFM	100 50,000CFM; increment by 100	5000CFM
	EPV outside air temperature setnoint		3.0 E
ZERV SET	Dynamic item . Appears only if 'ERV' is selected for '6AUX1-O' or '6AUX2-O'.	increment by 1	52 F
2EX1 L	 Exhaust Fan 1 low-speed parameter setting. Dynamic item. Appears only if: Exhaust Fan 1 is configured. '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	65%
2EX1 M	 Exhaust Fan 1 medium-speed parameter setting Dynamic item. Appears only if: Exhaust Fan 1 is configured. '6FAN' is configured as '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	60%
2EX1 H	 Exhaust Fan 1 high-speed parameter setting Dynamic item. Appears only if: Exhaust Fan 1 is configured. '6FAN' is configured as '1SPEED', '2SPEED', '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	50%
2EX2 L	 Exhaust Fan 2 low-speed parameter setting. Dynamic item. Appears only if: Exhaust Fan 2 is configured. '6FAN' is configured as '2SPEED', '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	80%
2EX2 M	 Exhaust Fan 2 medium-speed parameter setting Dynamic item. Appears only if: Exhaust Fan 2 is configured. '6FAN' is configured as '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	78%
2EX2 H	 Exhaust Fan 2 high-speed parameter setting Dynamic item. Appears only if: Exhaust Fan 2 is configured. '6FAN' is configured as '1SPEED', '2SPEED', '3SPEED' or 'VFD FAN'. 	0100%; increment by 1	75%
2THL	Temperature high limitation Dynamic item . Appears only if an RAT sensor is configured.	80100 °F; increment by 1	83 °F
2EHL	Enthalpy high limitation Dynamic item . Appears only if an RAH sensor is configured.	3050 BTU/Lbm; increment by 1	33 BTU/Lbm
2FAN DLY	Cooling delay via increasing fan speed	030 min; increment by 1	5 min

Advanced Settings

Parameter	Description	Value/Range	Default
3FREEZE POS	Anti-freeze protection damper position (closed or minimum) when the Controller is under MAT-based anti-freeze protection.	CLO MIN	CLO
3STG3 DLY	Highest stage cooling delay time	0240m; increment by 5	15m
3SD ACT POS	Damper position during shutdown (open or closed)	CLO OPN	CLO
3DIF T LOC	 MAT sensor location: Choose 'MAT' if the sensor is installed before the DX (Direct Expansion) coil. Choose 'LAT' if the sensor is installed after the DX coil. Choose 'AUTO' to let the Economizer Controller automatically detect the location. 	MAT LAT AUTO	LAT
3LAT LOW	Low limit of leaving air temperature (For 4LLA ALARM) Dynamic item . Appears only if 'LAT' or 'AUTO' is selected for '3DIF T LOC'.	3565 °F; increment by 1	45 F
3LAT HIGH	High limit of leaving air temperature (For 4HLA ALARM) Dynamic item . Appears only if 'LAT' or 'AUTO' is selected for '3DIF T LOC'.	70158 °F; increment by 1	80 F
30AT CAL	OAT sensor calibration	-2.52.5 °F;	0 F
3RAT CAL	RAT sensor calibrationincrement b Dynamic item . Appears only if an RAT sensor is configured.increment b		
30AH CAL	OAH sensor calibration -1010%; Dynamic item . Appears only if an OAH sensor is increment by configured.		0%
3RAH CAL	RAH sensor calibration Dynamic item . Appears only if an RAH sensor is configured.		
3MAT CAL	L MAT or LAT sensor calibration -2.52.5 °F; increment by 0.5		0 F
3MAT SET	Setpoint of MAT or LAT sensor 3870 °F; 53 1 increment by 1 53 1		53 F
3FRZ PROT	Anti-freeze protection setpoint of MAT sensor 3555 °F; increment by 1		45 F
3ACT TOLR	Actuator tolerance setpoint between output (in percentage)015%;and feedback (in percentage).increment by 1		8%
30AT LOCK	OAT lockout setpoint for the OAT cooling lockout function45 incre		32 F
30AT LCKOVRD	When OAT LOCKOUT is enabled, choose to override the cooling lockout function or not.	YES NO	NO
3OAT LCKODLY Indicates the overridden time if 'YES' is selected for '3OAT LCKOVRD'.		0300 min; increment by 1	45 min

Alarms

Parameter	Description	
NO ALARM	No alarm is activated.	
4MAT SEN ALARM	MAT/LAT sensor has failed, gone out of range or become disconnected.	
4CO2 SEN ALARM	CO ₂ sensor has failed, gone out of range or become disconnected.	
4OAT SEN ALARM	OAT sensor has failed, gone out of range or become disconnected.	
4OAH SEN ALARM	OAH sensor has failed, gone out of range or become disconnected.	
4RAT SEN ALARM	RAT sensor has failed, gone out of range or become disconnected.	
4RAH SEN ALARM	RAH sensor has failed, gone out of range or become disconnected.	
4FREEZE ALARM	Anti-freeze notification when MAT sensor is below anti-freeze protection setpoint. Note: MAT temperature may be obtained by an MAT, LAT (default) or automatically.	
4RTU SHUTDOWN	Notification of Shutdown Active when 'SHUTDWN' is chosen for '6AUX1-I' or '6AUX2-I'.	
4ACTUATOR ALARM	Actuator output has failed, or the gap between the actuator output (in percentage) and feedback (in percentage) is bigger than the actuator tolerance setpoint (3ACT TOLR).	
4ACT UNDER V	Voltage received by the actuator is below expected range (2-10 Vdc).	
4ACT OVER V	Voltage received by the actuator is above expected range (2-10 Vdc).	
4ACT STALLED	Damper actuator stopped before achieving commanded position.	
4ACT SLIPPING	Damper actuator slips after reaching commanded position.	
4NOT ECON	Not Economizing when it should	
4ECON SHOULDNT	Economizing when it should not	
4EXCESS OA	Excess outdoor air. Outside air intake is significantly higher than it should be	
4LLA ALARM	Leaving air temperature is lower than the low limit (3LAT LOW).	
4HLA ALARM	Leaving air temperature is higher than the high limit (3LAT HIGH).	

All alarms are dynamic items. An alarm appears only if a related symptom mentioned above is detected.

An alarm activation triggers a general alarm, then the configured system alarm output (AUX1-O or AUX2-O) is activated. If there is no alarm, 'NO ALARM' is displayed on the HMI.

Enter Configuration State and Restart

Parameter	Description
5CONFIG STATE	Change to Configuration State. Press Enter to confirm the change.
5ENTER CONFIG?	Confirm the change to Configuration State.
5RESTART	Restart the Economizer Controller. Press Enter to confirm the restart.
5CONF RESTART?	Confirm the restart.

I/O Configuration

Parameter	Description	Value	Default
6OCC	Configures if occupancy status receives signal from the connected thermostat or is displayed as 'ALWAYS' in the Economizer Controller.	T-STAT ALWAYS	T-STAT
6AUX1-I	 Auxiliary DI-1. Configurable as: None Cooling stage 3 (Y3) from thermostat Heat Conventional (W1) from thermostat Heat pump (reversing valve O) Heat pump (reversing valve B) Pre-occupancy signal from thermostat Shutdown signal from RTU 	NONE SHUTDWN PREOCC HP(B) HP(O) W1 Y3 IN	W1
6AUX2-I	 Auxiliary DI-2. Configurable as: None Cooling stage 3 (Y3) from thermostat Heat stage 1 (W1) from thermostat Heat pump (reversing valve O) Heat pump (reversing valve B) Pre-occupancy signal from thermostat Shutdown signal from RTU Note: Whichever is chosen for '6AUX1-I' doesn't appear in the list of '6AUX2-I'. 	NONE SHUTDWN PREOCC HP(B) HP(O) W1 Y3 IN	NONE
6OAT SIG	Configures signal type of OAT sensor.	NTC10K 0-10V	NTC10K
6RAT SIG	Configures signal type of RAT sensor.	NONE 0-10V NTC10K	NONE
60AH SIG	Configures signal type of OAH sensor.	0-10V	NONE
6RAH SIG	Configures signal type of RAH sensor.	NONE 4-20mA	
6MAT SIG	Configures signal type of MAT or LAT sensor. NTC10K 0-10V		NTC10K
6AUX-AI1	Auxiliary Al-1. Configurable as: NONE • CO2 sensor PRESSURE • Static pressure (temporarily for CFM commissioning) sensor CO2 • None None		NONE
6X-AI1 SIG	Configures CO ₂ sensor type. Dynamic item . Appears only if 'CO2' is selected for '6AUX-AI1'.	0-10V 2-10V 0-5V	0-10V
6CO2 Rng L	Configures the low limit of CO ₂ measuring range. Dynamic item . Appears only if 'CO2' is selected for '6AUX-AI1'.	0500; increment by 10	0
6C02 Rng H	P. Rng H Configures the high limit of CO2 measuring range. Dynamic item. Appears only if 'CO2' is selected for '6AUX-AI1'.		2000

Parameter	Description	Value	Default
6AUX-AI2	Choose 'ACT FB' if feedback signal is available from the connected damper actuator. Otherwise, choose 'NONE'.	ACT FB NONE	ACT FB
6AUX-AO	Choose 'VFD' if a VFD (Variable Frequency Drive) is connected to the Economizer. Otherwise, choose 'NONE'.	NONE VFD	NONE
6Y2O	Choose 'COOL 2' if Cooling Stage 2 is available (another compressor is connected to the Economizer). Otherwise, choose 'NONE'.	COOL 2 NONE	COOL 2
6AUX1-O	 Auxiliary DO-1. Configurable as: None Cooling stage 3 output Exhaust fan (1 or 2) Variable speed supply fan Alarm output to thermostat (Title 24) ERV 	NONE ERV ALARM SUP FAN EXHAUST Y3O	EXHAUST
6AUX2-O	 Auxiliary DO-2. Configurable as: None Cooling stage 3 output Exhaust fan (1 or 2) Variable speed supply fan Alarm output to thermostat (Title 24) ERV Note: Of all but Exhaust Fan, whichever is chosen for '6AUX1-O' doesn't appear in the list of '6AUX2-O'. 	NONE ERV ALARM SUP FAN EXHAUST Y3O	ALARM
6FAN	Configures fan speeds of the variable speed supply fan.	1SPEED 2SPEED 3SPEED VFD FAN	2SPEED
6RS485	Switch between MSTP and Modbus subordinate.	MSTP MODBUSSLV	MSTP

Test

Parameter	Description
7DAMPER MIN POS	Press Enter to test if the Economizer Controller can drive damper to minimum position.
7DAMPER CLOSE	Press Enter to test if the Economizer Controller can drive damper to 100% Closed.
7DAMPER OPEN	Press Enter to test if the Economizer Controller can drive damper to 100% Open.
7DAMPER ALL	Press Enter to perform all the above tests and then drive damper to 100% Closed.
7DAMPER	Press Enter to test if the Economizer Controller can drive damper to the selected voltage.
7Y1O	Press Enter to test if the Economizer Controller can turn on or off the first stage of cooling (close or open relay Y1O).
7Y2O	Press Enter to test if the Economizer Controller can turn on or off the second stage of cooling (close or open relay Y2O).
7AUX1-O	Press Enter to test AUX1-O connection (close or open relay AUX1-O).
7AUX2-O	Press Enter to test AUX2-O connection (close or open relay AUX2-O).
7AUX AO	Press Enter to test if the Economizer Controller can set the AUX AO (VFD0-10) to the selected voltage.

Enter Running State

Parameter	Description	
8RUN STATE	Change to Running State. Press Enter to confirm the change.	
8ENTER RUN?	Confirm the change to Running State.	
8FACTORY DEF	Perform factory resetting. Press Enter to confirm the reset.	
8DEF CONFIRM?	Confirm the factory resetting.	
8ACT CNT RESET	Damper count reset	
8VER x.x.x	Firmware version information such as 0.1.10.	

Troubleshooting

Symptom	Reason	Solution
The Economizer Controller/ Mechanical Cooling is not operating	No input power	Use a multi-meter to check if there is 24 Vac +/- 25% (18 Vac - 30 Vac) at the POWER terminals. If there is no voltage or if the voltage is significantly low, check the transformer output voltage at the RTU. If 24 volts is not present at the transformer secondary side, check the primary line voltage to the transformer. If the line voltage is not present at the transformer primary side, check the primary power to the RTU, fuses, circuit breaker, and so on.
	Brownout	If voltage is below 17 Volts, the Economizer Controller may be in Brownout Protection mode. This mode disables all of the relay outputs. When the power is 19 Vac or higher, the Economizer Controller and RTU operate normally.
	Y1/Y2 signal is missing from the thermostat	Mechanical Cooling doesn't run until there is cooling demand (Y1/Y2 Active). Check the wiring from Y1I and Y2I terminals to the commercial thermostat. 24V should be present between Y1I /Y2I andY1O/Y2O respectively.
	24 Vac∼ and 24 Vac [⊥] are incorrectly wired	24 Vac power supply has polarity when all devices are powered by the same 24 Vac transformer; reversing polarity may cause a short circuit that can damage the system. Follow the transformer polarity mark, check the wring of 24V~ (or G or 24V+) and ensure that they are tied to the same polar of 24 Vac power supply; while checking the wiring of \perp (or G0 or 24V- or COM) and ensure that they are all tied to another polar of 24 Vac power supply.
Free Cooling LED is solid RED	Sensor, damper or the whole working system may not work properly	Check sensor, damper or the whole working system following the detailed alarm information.
Free Cooling LED is blinking RED	Not economizing when it should	Check the whole Economizer working system such as sensor, damper and thermostat.
Sensor LED is solid RED	MAT/LAT sensor error	Check the MA sensor, it must be either a Type II NTC 10K or 0-10Vdc sensor.
	Outside Air (OA)/Return Air (RA) sensor error	 Check the wiring and signal of OA sensor. If in Differential (DIFF) mode, check the RA sensor too. The following sensor signals are valid: Type II NTC 10K or 0-10Vdc temperature 0-10Vdc or 4-20 mA humidity
	Air temperature failure/fault	Check the air temperature sensor signal. The valid signal must be Type II NTC 10K or 0-10Vdc.
Sensor LED is blinking RED	Excess outdoor air	Check the whole Economizer working system such as sensor, damper and thermostat.
Sensor LED is yellow	Humidity sensor error	Check humidity sensor connection, sensor signal (under range or over range) and sensor signal type.
Sensor LED is OFF	CO ₂ sensor error	Check CO_2 sensor connection, sensor signal (under range or over range) and sensor signal type.
DAC LED is blinking RED	Damper slippage	Check if the damper works properly.
DAC LED is blinking RED quickly	Actuator alarm is reported	Check if actuator output has failed, or the gap between the actuator output (in percentage) and feedback (in percentage) is bigger than the actuator tolerance setpoint (3ACT TOLR).

Symptom	Reason	Solution
DAC LED is OFF	Terminal ACT-FB is configured but no available feedback signal	Check if the feedback signal is under range or over range; check if ACT-FB is faulty or not.
The controller has no alarm, but the Free Cooling LED never	Shutoff SP setting error	The shutoff temperature and/or enthalpy setpoint is incorrectly set up. Consult an HVAC professional to set up the shutoff setpoint correctly.
turns on even though the OA seems to be suitable for Free	OA temp is too low	The OAT is too low; therefore, there is no cooling demand. This could possibly enable the OAT cooling lockout function.
Cooling	OA temp is too high or too humid	In DIFF mode, even though OA temperature is lower than RA temperature, if both OA and RA temperatures exceed the high limit, Free Cooling turns off. In Differential Enthalpy control mode, even though OA enthalpy is lower than RA enthalpy, if both OA and RA enthalpy exceed the high limit, Free Cooling turns off.
An alarm is displayed on the LCD	Sensor, damper or the whole working system may not work properly	Check sensor, damper or the whole working system following the detailed alarm information.
RS485 communication failure	RS485 signal or configuration error	Check wiring, configuration, Baud Rate (using mobile app) and other network communication parameters.
Firmware update failure	Application file is damaged Operation is incorrect USB flash disk doesn't work properly	Reload a BIN file, restart the controller, update firmware following Firmware Update [\rightarrow 30] or change a USB flash disk. Contact your service provider if failure still exists.
WLAN connection failure	WLAN stick error or wrong user name and password	Plug out and plug in the WLAN stick, enter a correct user name and password, restart the controller or change a WLAN stick. If the WLAN stick is POL903.00/100, the default user name and password are Siemens-WiFi-Stick and SIBPAdmin. See document <u>CC1N7219en</u> for more details.

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