YNE-Type EEV Controller
Easy Setup Sheet (Front Side)

By following STEP 1 to STEP 4, control of the expansion valve can be initiated.
For details on changing initial settings or utilizing advanced functions, refer to the full instruction manual.

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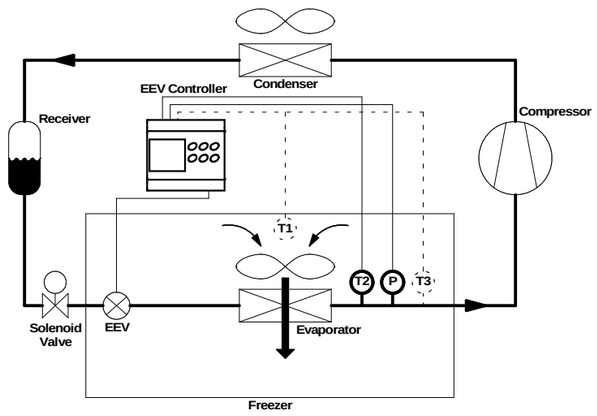
STEP 1: Select the Control Mode

First, choose either A [Temperature–Pressure Mode] or B [Temperature–Temperature Mode]. Then, select the desired control mode and proceed to STEP 2.

A: Temperature–Pressure Mode

Used when the superheated gas temperature is measured by a temperature sensor, and the evaporation temperature is calculated from a pressure sensor.



Mode 3 — Fixed Target Superheat + External Thermostat

[Basic System Configuration]

Symbol	Device Name	Purpose	Model No.
-	EEV Controller	Superheat Control	YNE-BB01
P	Pressure Sensor	Evaporation Pressure Measurement (converted to evaporation temp)	NSK-AEA20 (-0.1 to 2MPa)
T2	Temperature Sensor	Evaporator Outlet Temp Measurement	AEK-23H
-	Electronic Expansion Valve (EEV)	-	PKV-**
			GKV-**
-	Solenoid Valve	-	SEV-**
			RPV-**

Mode 4 — Fixed Target Superheat + YNE Internal Thermostat

[Basic System Configuration + the following]

Symbol	Device Name	Purpose	Model No.
T1	Temperature Sensor	Freezer Temperature Measurement	AEK-23K

Mode 1 — Automatic Target Superheat + External Thermostat

[Basic System Configuration + the following]

Symbol	Device Name	Purpose	Model No.
T3	Temperature Sensor	Reference Temperature Measurement	AEK-23H

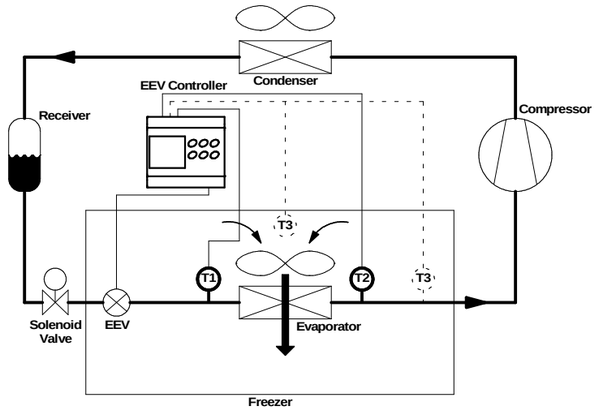
Mode 2 — Automatic Target Superheat + YNE Internal Thermostat

[Basic System Configuration + the following]

Symbol	Device Name	Purpose	Model No.
T1	Temperature Sensor	Freezer Temperature Measurement	AEK-23K
T3	Temperature Sensor	Reference Temperature Measurement	AEK-23H

B: Temperature–Temperature Mode

Used when both the superheated gas temperature and the evaporation temperature are measured using temperature sensors.



Mode 6 — Fixed Target Superheat + External Thermostat

[Basic System Configuration]

Symbol	Device Name	Purpose	Model No.
-	EEV Controller	Superheat Control	YNE-BB01
T1	Temperature Sensor	Evaporator Intlet Temp Measurement	AEK-23H
T2	Temperature Sensor	Evaporator Outlet Temp Measurement	AEK-23H
-	Electronic Expansion Valve (EEV)	-	PKV-**
			GKV-**
-	Solenoid Valve	-	SEV-**
			RPV-**

Mode 7 — Fixed Target Superheat + YNE Internal Thermostat

[Basic System Configuration + the following]

Symbol	Device Name	Purpose	Model No.
T3	Temperature Sensor	Freezer Temperature Measurement	AEK-23K

Mode 5 — Automatic Target Superheat + External Thermostat

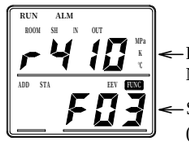
[Basic System Configuration + the following]

Symbol	Device Name	Purpose	Model No.
T3	Temperature Sensor	Reference Temperature Measurement	AEK-23H

STEP 3: Set Parameters for Each Mode

Set the required parameters for each mode according to the diagram below.

Set Refrigerant Type



← Refrigerant Name

Supported Refrigerants
R410A,R404A,R134a
R22,R23,R448A
R449A,R463A,R32
(as of September 2025)

← Setting Item (F03: Refrigerant Type)

Use the ▲ or ▼ key to select the refrigerant to be used, then press the ↵ key.

Set Target Superheat

After set: STEP 4

← Target Superheat

← Setting Item (F04: Fixed Target Superheat)

Use the ▲ or ▼ key to set the target superheat, then press the ↵ key.

Set Refrigerant Type

[Operation: Same as above]
(F03: Refrigerant Type)

Set Target Superheat

[Operation: Same as above]
(F04: Fixed Target Superheat)

Set Target Temperature

After set: STEP 4

← Target Temperature

← Setting Item (F05: Target Temperature)

Use the ▲ or ▼ key to set the target temperature, then press the ↵ key.

Set Refrigerant Type

[Operation: Same as above]
(F03: Refrigerant Type)

Set Target Superheat

[Target Superheat Not Required]
Starts with a default target superheat of 15K, and automatically adjusted within the range of 5K to 20K

Set Refrigerant Type

[Operation: Same as above]
(F03: Refrigerant Type)

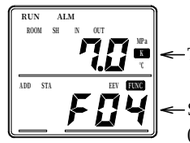
Set Target Superheat

[Target Superheat Not Required]
Starts with a default target superheat of 15K, and automatically adjusted within the range of 5K to 20K

Target Temperature Definition:
For Modes 2, 4, 7: Target Freezer Temperature
For Modes 1, 5 : Target system cooling temperature

Set Target Superheat

After set: STEP 4



← Target Superheat

← Setting Item (F04: Fixed Target Superheat)

Use the ▲ or ▼ key to set the target superheat, then press the ↵ key.

Set Target Superheat

[Operation: Same as above]
(F04: Fixed Target Superheat)

[Target Superheat Not Required]
Starts with a default target superheat of 15K, and automatically adjusted within the range of 5K to 20K

Set Target Temperature

After set: STEP 4

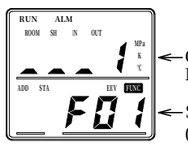
← Target Temperature

← Setting Item (F05: Target Temperature)

Use the ▲ or ▼ key to set the target temperature, then press the ↵ key.

STEP 2: Set the Control Mode

When the power is turned on for the first time after purchase, the system will perform initialization and display the following:



← Control Mode Number

← Setting Item (F01: Control Mode)

Use the ▲ or ▼ key to select the desired mode number, then press the ↵ key.
Proceed to STEP 3.

STEP 4: Start Control

Confirm the settings and start control.

Each time press the ↵ key, the setting items will cycle through.
Please review each setting value carefully.

Use the ▲ or ▼ key to display "YES", then press the ↵ key to confirm the settings.

[Start Control]

YNE-Type EEV Controller
Easy Setup Sheet (Back Side)

A-NE-71004 (2025.10)

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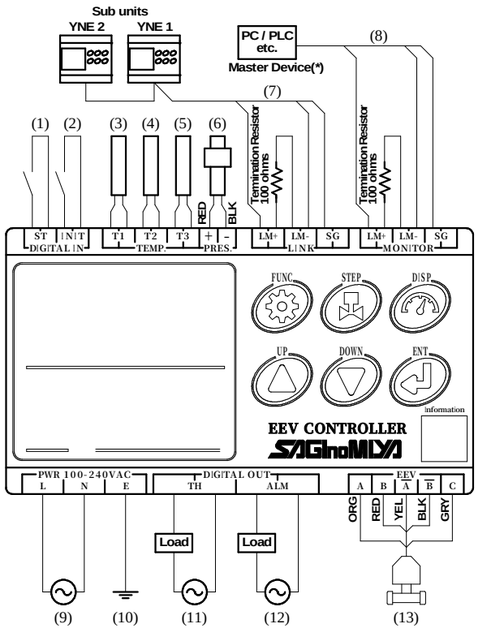
Wiring Instructions

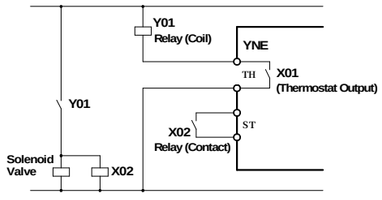
Please make sure to perform all wiring **with the power turned off.** There is a risk of electric shock.
Incorrect wiring to the controller may cause **malfunction or fire.**
Before supplying power to the controller, **always verify that all connections are correct.**



No.	Symbol	Signal Type	Name	Function Description
(1)	ST	Digital Input (Dry contact)	Startup Input	When shorted, expansion valve control starts; when open, it stops.
(2)	INIT	Digital Input (Dry contact)	Zero-point Adjustment Input	When shorted, performs zero-point adjustment of the electronic expansion valve.
(3)	T1	Analog Input (Non-polarized)	T1 Temperature Sensor	Measures evaporator inlet temperature (Modes 5, 6, 7) or Freezer Temperature (Mode 2).
(4)	T2	Analog Input (Non-polarized)	T2 Temperature Sensor	Measures evaporator outlet temperature. (Common to all modes)
(5)	T3	Analog Input (Non-polarized)	T3 Temperature Sensor	Measures Reference Temperature (Modes 1, 2, 5) or Freezer Temperature (Mode 7).
(6)	+/-	Analog Input (4-20 mA)	Pressure Sensor	Measures evaporation pressure (converted to evaporation temperature).
(7)	LM+/LM-/SG	Communication (RS-485)	Multi-unit Communication	Used for communication with sub YNE units in a multi-unit system.
(8)	LM+/LM-/SG	Communication (RS-485)	Monitor Communication	Used for communication with customer equipment.
(9)	L/N	Power Supply	Power Input	100-240 VAC
(10)	E	-	Earth Ground	-
(11)	TH	Relay Output (Dry contact)	Thermostat Output	Contact turns ON when thermostat is ON, and OFF when thermostat is OFF.
(12)	ALM	Relay Output (Dry contact)	Alarm Output	Turns ON when an alarm is triggered.
(13)	A/B/Ā/B̄/C	Digital Output	Electronic Expansion Valve	Controls superheat.

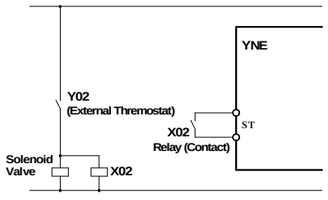
(*) "Master Device" is a standard term used in the Modbus RTU protocol to identify the host device.
While the term originates from legacy terminology, it is retained here for consistency with the official Modbus specification.

When using YNE Internal Thermostat



Wire the system so that the solenoid valve and the startup input turn ON/OFF in sync with the thermostat output (TH) from the YNE controller.

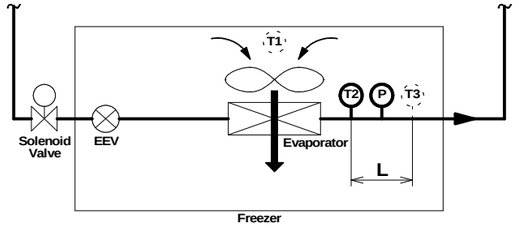
When using External Thermostat



Wire the system so that the solenoid valve and the startup input turn ON/OFF in sync with the ON/OFF signal from the external thermostat device.

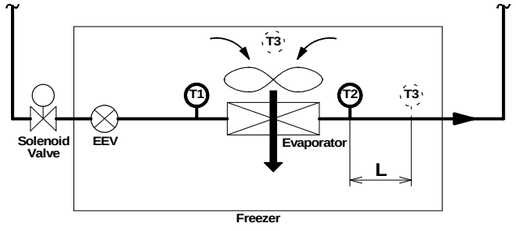
Recommended Installation Positions for Each Device

Temperature–Pressure Mode



Symbol	Purpose	Recommended Installation Position
T1 (Temperature Sensor)	Freezer Temperature Measurement	A location that represents the average temperature inside the Freezer
T2 (Temperature Sensor)	Evaporator Outlet Temperature Measurement	Near the outlet of the evaporator
T3 (Temperature Sensor)	Reference Temperature Measurement	Approximately 2 meters downstream from T2; on the upper side of the piping (to detect superheated gas temperature)
P (Pressure Sensor)	Evaporation Pressure Measurement (converted to evaporation temperature)	Near the outlet of the evaporator; if Freezer Temperature is below –40°C, install outside the Freezer

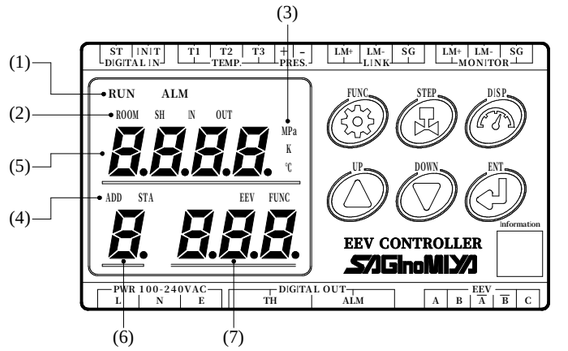
Temperature–Temperature Mode

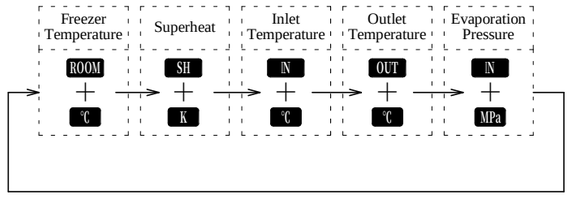


Symbol	Purpose	Recommended Installation Position
T1 (Temperature Sensor)	Evaporator Inlet Temperature Measurement	Near the inlet of the evaporator
T2 (Temperature Sensor)	Evaporator Outlet Temperature Measurement	Near the outlet of the evaporator
T3 (Temperature Sensor)	Freezer Temperature Measurement (Mode 7)	A location that represents the average temperature inside the Freezer
T3 (Temperature Sensor)	Reference Temperature Measurement (Mode 5)	Approximately 2 meters downstream from T2; on the upper side of the piping (to detect superheated gas temperature)

Display Panel Overview

The upper 4-digit display switches each time the DISP key is pressed.
The indicator lamp corresponding to the currently displayed measurement point will light up.



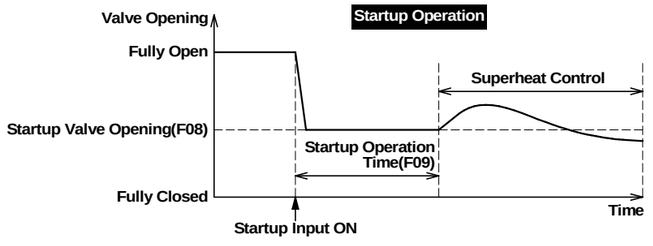


No.	Indicator	Description
(1)	RUN	Lights up during operation (the startup input is ON)
	ALM	Lights up when an alarm occurs; blinks if alarm history exists
(2)	ROOM	Lights up when displaying Freezer temperature
	SH	Lights up when displaying superheat
	IN	Lights up when displaying evaporator inlet temperature
	OUT	Lights up when displaying evaporator outlet temperature
(3)	MPa	Lights up when displaying pressure
	K	Lights up when displaying superheat
	° C	Lights up when displaying temperature
(4)	ADD	Lights up when displaying multi-unit communication address
	STA	Lights up when displaying system status
	EEV	Lights up when displaying valve opening degree
	FUNC	Lights up when displaying setting items
(5)	Upper 4 digits	Displays measured values (temperature, superheat, pressure) or setting values
(6)	Lower 1 digit	Displays system status or multi-unit communication address
(7)	Lower 3 digits	Displays valve opening degree or setting item code

⟶ : Press the DISP key once to switch display

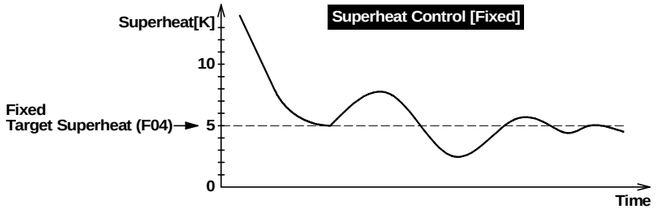
Superheat Control Settings

When the startup input is OFF, the controller keeps the electronic expansion valve fully open and stops operation.
When the startup input turns ON, the valve opens to the preset startup opening level, waits for the startup operation time to elapse, and then transitions to superheat control.



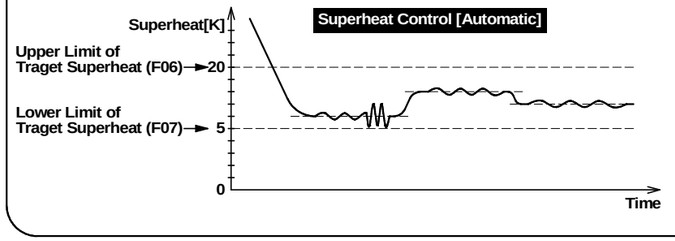
[Main Setting Parameters]

Code	Item	Default	Min	Max	Step
F04	Fixed Target Superheat [K]	7.0	1.0	30.0	0.5
F06	Upper Limit of Target Superheat [K]	20.0	-10.0	50.0	0.5
F07	Lower Limit of Target Superheat [K]	5.0	-10.0	50.0	0.5
F08	Startup Valve Opening [pulse]	Auto	0	480	1
F09	Startup Operation Time [sec]	20	0	1200	5



Superheat Control [Fixed]

Maintains a constant target superheat value during operation.
Recommended for systems with relatively stable and low load fluctuations.



Superheat Control [Automatic]

Searches for the optimal minimum superheat within the range defined by the upper and lower limits.
If superheat becomes unstable, the target value increases; if stable, the target value decreases. Ideal for maximizing evaporator efficiency.