Read the user manual carefully before using the device! The user is responsible for any damage, loss, or accidents resulting from not following the warnings in the user manual. In case of damage, the device will not be covered under warranty.

EDT3523

Defrost Control Device

- 35×77×68 mm. size,
- Control with a touch key,
- On-Off control,
- 3 relay outputs for compressor, defrost and fan control,
- Two NTC probe inputs for compressor and defrost,
- Offset value can be entered for NTC input,
- Adjustable compressor protection parameters feature,
- Adjustable compressor operation, stop or periodic operation in case of probe failures,
- Selectable smart defrost feature,
- Capability of time-based or manual defrost depending on time and evaporator temperature,
- Ability to set the lower and upper limits of the set value,
- Adjustable defrost duration and interval options,
- Alarm lower and upper limit and delay settings,
- Ability to display temperature units as °F or °C,
- External alarm, defrost start, fan operation, and closing of any output possible with digital input,
- Parameter editing and loading via NFC,
- Communication feature with RS485 ModBus RTU protocol (optional),
- CE marked according to EN standards.

Order Code

EDT3523 - 230 - 1 2

1 - Outputs
16 ...16A-8A-5A
Non-option ...8A-8A-8A
2 - Modbus Selection
RS ...Modbus

Technical Specifications

Electrical Specifications

Supply Voltage	230V AC +%10 - %20
Power Consumption	Maximum 1.4VA
Wiring	2.5mm² terminal
Scale	-60.0 …+150.0°C (-76.0 …+302.0°F)
Sensitivity	0.1°C (Selectable as 0.1°C or 1°C)
Accuracy	±1°C
Screen	4 digits, 12.5mm, 7-segment LED
EMC	EN 61326-1: 2021
Safety Requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)

Environmental Specifications

Ambient/Storage Temperature	0 …+50°C/-25 …70°C (without freezing)
Relative Humidity	Operates at %80 humidity up to 31°C, then decreases linearly to %50 at 40°C
Protection Rating	Front panel: IP65 Back panel: IP20 according to EN 60529 standard
Operational Height	Maximum 2000m

⚠ **KEEP AWAY device from exposed to corrosive, volatile and flammable gasses or liquid**

Outputs

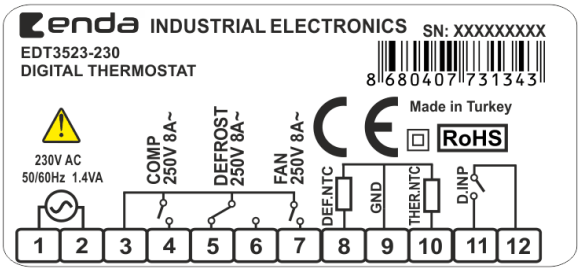
Compressor Relay Output	**8A Relay :** NO 250V AC, 8A, (for resistive load) **16A Relay :** NO 250V AC, 16A, (for resistive load)
Defrost Relay Output	NO+NC 250V AC, 8A, 1/2hp 240V AC
Fan Relay Output	**8A Relay :** NO 250V AC, 8A, (for resistive load) **5A Relay :** NO 250V AC, 5A, (for resistive load)
Relay Life	**8A Relay :** 30,000,000 switching under no load, 300,000 switching at 250V AC, 8A resistive load **16A Relay :** 30,000,000 switching under no load, 100,000 switching at 250V AC, 16A resistive load **5A Relay :** 5,000,000 switching under no load, 100,000 switching at 250V AC, 5A resistive load

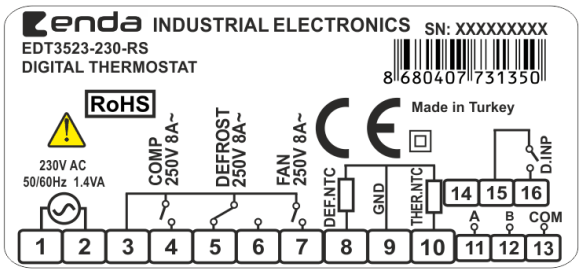
Control	
Control Format	Compressor, defrost, and fan control with set values
Control Method	On-Off control
Hysteresis	Adjustable between 1 …20.0°C

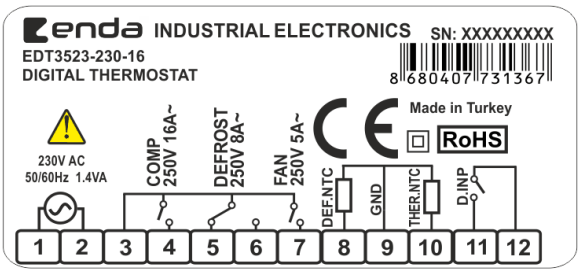
Housing	
Mounting Style	Press fit into the panel
Dimensions	W77xH35xD68mm
Weight	Approximately 190g (Packaged)
Housing Material	Self-extinguishing plastics are used
⚠ **The device should not be cleaned with solvents (thinner, gasoline, acid, etc.) or abrasive cleaning agents.**	

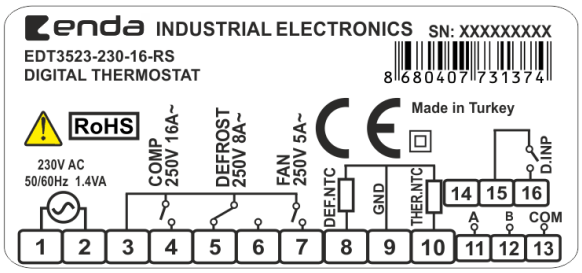
Connection Diagram

EDT3523 is a panel type defrost control device. The device must be used in accordance with the instructions. Installation and electrical connections must be carried out by technical personnel in accordance with the instructions in the user manual. During installation, care must be taken to ensure that there is no electricity. The device must be protected from humidity, vibration, and pollution. Operating temperature should be observed. Installation cables should not pass near high-power lines or other devices.







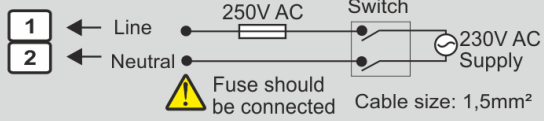


Equipment is protected throughout by **DOUBLE INSULATION**

Holding screw
0.4-0.5Nm.

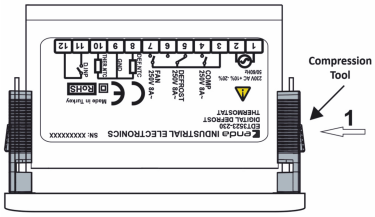
NOTE:
SUPPLY:

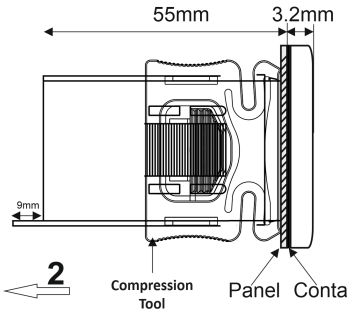
184-253V AC
50/60Hz
1.4VA



Note:
1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Dimensions and Montage





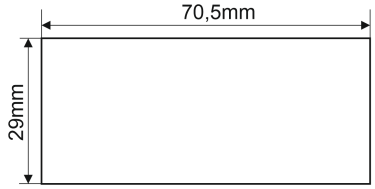
To removing mounting clamps:
1: Push the flush-mounting clamp in direction 1 as shown in the figure above

2: Then, pull out the clamp in direciton 2

NOT:
1: Panel thickness should be maximum 7mm.

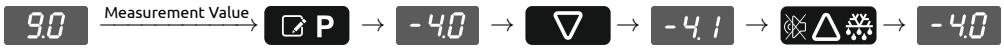
2: If there is no 60mm free space at the back side of the device, it would be difficult to remove it from the panel.

Panel slot section



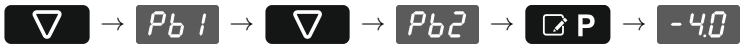
Panel Commands

Displaying and Changing the Set Value



In operation mode, pressing the P button displays the set value. It can be changed with the and buttons.

Displaying Defrost Probe Measurement Value



To view the defrost probe temperature, press P + buttons for 2 seconds and go to the menu where probe temperatures are displayed. From there, select the desired probe using the and buttons, then press the P button to display the probe temperature (Pb1 = Thermostat NTC, Pb2 = Defrost NTC). Then, press the button for 2 seconds to exit the menu displaying these probe temperatures. If no button is pressed, the device returns to the operating mode after 60 seconds.

Locking and Unlocking the Keys

In operation mode, pressing P + ⏻ buttons together for 3 seconds or no key is pressed for 60 seconds, displays the Loc message and locks the buttons. If any button is pressed for 2 seconds the unL message will be displayed and unlocks the buttons.

Manual Defrost Operation

In operation mode, pressing the ❄△☀ button for 2 seconds initiates or stops the defrost operation manually. If parameter d3 is 0 or if the evaporator temperature is greater than the temperature value set by parameter d2, manual defrost is disabled.

Manual On / Off the Device

In operation mode (without button lock), pressing the ⏻ button for 3 seconds turns off the display, temperature measurement and control are not performed, and the outputs become inactive. Pressing the ⏻ button again for 3 seconds turns on the display, and the device continues temperature measurement and control.

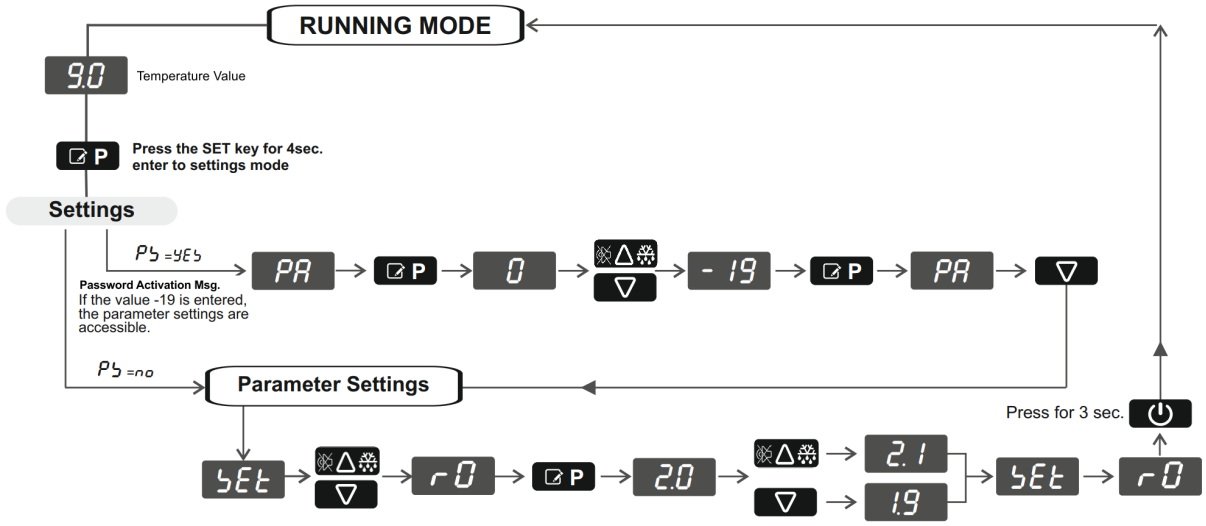
Restoring Factory Settings

If parameter P5 is selected as YES, the security parameter is set to "PA" -44 by pressing the P button, then the display shows the dF message, then the device returns to factory settings and returns to the operating mode. If parameter P5 is selected as no, in operation mode, press the P button first, then press the ❄△☀ button together for 5 seconds to display the dF message on the display for 4 seconds, then the device returns to factory settings and returns to the operating mode.

Displaying the Revision Date

In operation mode, pressing the ❄△☀ + ▽ buttons displays the device code first, then the revision date as YY/MM/DD.

Changing Parameter Values



In operating mode, if the P button is pressed for 4 seconds the password message PA on the display. Press the P button to set the password as **"-19"**, then press the P button, then press either the ▲❄ or ▽ button to enter the parameter menu. When the desired parameter message to be adjusted is displayed with the ▲❄ and ▽ buttons, press the P button to display the value of that parameter. The value of the relevant parameter can be changed with the ▲❄ and ▽ buttons. If no action is taken while the parameter value is displayed, or if the P button is pressed, it returns to the name of the parameter. While the parameter name is displayed, pressing the ⏻ button for 3 seconds exits without waiting.

LEDs and Touch Key Definitions

LED Definitions	
	ON/OFF Led : - Does not light up when the device is on (ON), lights up when it is off (OFF).
	Compressor Led : - Lights up when the compressor is running, flashes when protection delays are active, and turns off when not running.
	Defrost Led : - Lights up during defrost, flashes when protection delays and drip-drain time are active, and turns off when not running.
	Fan Led : - Lights up when the fan is running, flashes when protection delays are active, and turns off when not running.
°C	**Celcious Led :** - Lights up if the temperature unit is set to °C (Celsius).
°F	**Fahrenheit Led :** - Lights up if the temperature unit is set to °F.
	Warning Led : - Flashes during alarm and error conditions.

Touch Key Definitions	
P	**Set Button :** - Displays the set value in operation mode, - In Programming Mode, displays the value of the selected parameter, and confirms the changed parameter value.
	Up Button : - If conditions are suitable in operation mode, starts manual defrost, - In Programming Mode, switches between parameters, and increases the value of the selected parameter.
	Down Button : - In operation mode, shows the evaporator temperature if **P4=1**, - In Programming Mode, switches between parameters, and decreases the value of the selected parameter.
	ON/OFF Button : - Turns the device off / on in operation mode, - In Programming Mode, returns from the parameter menu to the operating mode.

Error - Warning - Alarm Definitions

	Definition	Outputs
PF 1	**Termostat Probe Error** -Check the connection of thermostat probe. -Compressor works for C4 ve C5 parameters.	All outputs will close
P5 1	**Termostat Probe Error** -Short circuit in the thermostat sensor or line. -Check the connection of thermostat probe.	All outputs will close
PF2	**Defrost Probe Error** -Check the connection of cabin probe. -Sensor and/or cable is faulty or not connected.	Defrost output is turned off.
P52	**Defrost Probe Error** -Short circuit in the defrost sensor or line. -Check the connection of defrost probe.	Defrost output is turned off.
EA	**External ALarm** -Indicates that the external alarm is active. -Check the i5 parameter.	Outputs remain unchanged.
SA	**Serious External Alarm** -Indicates that the serious external alarm is active. -Check the i5 parameter.	All outputs will close
Ah	**High Temperature Alarm** -Check the A4 parameter.	Outputs remain unchanged.
AL	**Low Temperature Alarm** -Check the A1 parameter.	Outputs remain unchanged.

Control Parameters

Display	Description	Min	Max	Unit	Default
SEt	Setpoint value	r1	r2	°C / °F	-20
o1	Offset cooling value	-20	20	-	0
r0	Cooling hysteresis	0	20	-	2
r1	Setpoint value for lower limit	-60	r2	°C / °F	-60
r2	Setpoint value for upper limit	r1	150	°C / °F	150

Configuration Parameters

Display	Description	Min	Max	Unit	Default
LP	Should the setpoint be adjustable while the key lock is active? no: No, setpoint cannot be changed. YES: Yes, setpoint can be changed.	no	YES	-	no
P1	Decimal point no: Undotted YES: Dot	no	YES	-	no
P2	Temperature unit °C: Centigrade °F: Fahrenheit	°C	°F	-	°C
P5	Should a password be required when entering the parameter menu? no: No, no password required. YES: Yes, require a password.	no	YES	-	YES

Digital Input Parameters

Display	Description	Min	Max	Unit	Default
i1	Digital input polarity cL: Active when digital input contact is closed. oP: Active when digital input is on.	cL	oP	-	cL

Display	Description	Min	Max	Unit	Default
i3	Delay time duration for Digital input	0	99	min	0
i5	Digital input types nd: Digital input not used. EA: External alarm. EA message flashes on the display. Output does not change. SA: Important external alarm. SA message flashes on the display. Relay outputs are turned off. CP: Compressor output is turned off. FC: Fan output is turned off. dF: Defrost operation is started.	nd	dF	-	nd

Compressor Protection Parameters

Display	Description	Min	Max	Unit	Default
c0	Delay time duration for the compressor on power-up	0	99	min	1
c2	Delay time duration for the compressor restart after the stop	0	99	min	1
c4	Duration of the compressor output remaining off in case of a probe fault	0	99	min	1
c5	Duration of the compressor output remaining on in case of a probe fault	0	99	min	0

Defrost Control Parameters

Display	Description	Min	Max	Unit	Default
d0	The time between 2 consecutive defrosts	0	99	hr	1
d1	Defrost type selection ELC: Electric (compressor off) defrost GAS: Hot gas (compressor on) defrost	ELc	GAS	-	ELc
d2	Defrost stopping temperature	-60	150	°C / °F	2
d3	Defrost duration	0	99	min	30
d4	Defrosting process begins with energy no: Defrost: no auto-start on power-up. YES: Defrost: auto-start on power-up.	no	YES	-	no
d5	Defrost start delay time after the power-up	0	99	min	1

Display	Description	Min	Max	Unit	Default
d6	During defrost, display configuration rE: During defrost, the actual temperature continues to be displayed. Lc: During defrost, the last measured temperature before entering defrost is seen on the display. This value remains constant until the defrost ends.	rE	Lc	-	Lc
d7	Dripping (discharge) time	0	99	min	2
d8	Smart defrost selection no: The defrost counter (time between 2 defrosts) is decremented regardless of the compressor status. YES: The defrost counter is decremented as long as the compressor is running.	no	YES	-	no
d9	Real temperature displaying delay time, after the defrost end	0	99	min	1

Alarm Control Parameters

Display	Description	Min	Max	Unit	Default
A1	Lower level alarm	-60	A4	°C / °F	-60
A2	Alarm configuration AbS: Independent alarm: The alarm values are A1 and A4. rEF: Relative alarm: The alarm values are A1 = SET-|A1| and A4 = SET+|A4|.	Abs	rEF	-	Abs
A3	Alarm hysteresis	0	20	-	2
A4	Upper level alarm	A1	150	°C / °F	150
A6	Time delay to display alarm message when powered up	0	99	min	10
A7	Time delay to display alarm message after alarm is on	0	99	min	0

Fan Control Parameters

Display	Description	Min	Max	Unit	Default
F0	Fan operation type selection con: Fan runs continuously except for certain controls(F2,F3,F5,F6). P1: Defrost probe temperature(P2) does not work if it is above F1, it works if it is below F1 - F4. P12: Defrost probe with thermostat probe temperature temperature difference (P12); if it is above F1+F4 the fan works, if it is below F1 it does not work.	con	P12	-	con
F1	Fan stopping temperature	-60	150	°C / °F	1
F2	Fan operation during defrost process no: Maintains fan status. YES: The fan stops during defrost.	no	YES	-	YES
F3	Required delay time for fan to be powered up after defrost	0	99	min	3
F4	Fan hysteresis	0	20	-	2
F5	Fan starts when compressor stop no: Maintains fan status. YES: The fan stops together with the compressor.	no	YES	-	YES
F6	Required delay time for fan to be powered up	0	99	min	1

Modbus Communication Parameters

Display	Description	Min	Max	Unit	Default
h1	Modbus slave device address	1	247	-	1
h2	Baud Rate Off: OFF 2.4: 2400 bps 4.8: 4800 bps 9.6: 9600 bps 19.2: 19200 bps 38.4: 38400 bps 57.2: 57200 bps	oFF	57.2	bps	9.6

EDT3523 Defrost Control Device Modbus Map

Holding Registers

Register Addresses		Data Type	Description	Display	Permission
Decimal	Hex				
0	0x0000	word	Setpoint value [°C / °F]	SEt	Readable Writable
1	0x0001	word	Cooling hysteresis	r0	Readable Writable
2	0x0002	word	Setpoint value for lower limit [°C / °F]	r1	Readable Writable
3	0x0003	word	Setpoint value for upper limit [°C / °F]	r2	Readable Writable
4	0x0004	word	Offset cooling value	o1	Readable Writable
5	0x0005	word	Delay time duration for Digital input [min]	i3	Readable Writable
6	0x0006	word	Digital input types 0: Digital input not used. 1: External alarm. EA message flashes on the display. Output does not change. 2: Important external alarm. SA message flashes on the display. Relay outputs are turned off. 3: Compressor output is turned off. 4: Fan output is turned off. 5: Defrost operation is started.	i5	Readable Writable
7	0x0007	word	Delay time duration for the compressor on power-up [min]	c0	Readable Writable
8	0x0008	word	Delay time duration for the compressor restart after the stop [min]	c2	Readable Writable
9	0x0009	word	Duration of the compressor output remaining off in case of a probe fault [min]	c4	Readable Writable
10	0x000A	word	Duration of the compressor output remaining on in case of a probe fault [min]	c5	Readable Writable
11	0x000B	word	The time between 2 consecutive defrosts [hr]	d0	Readable Writable
12	0x000C	word	Defrost stopping temperature [°C / °F]	d2	Readable Writable
13	0x000D	word	Defrost duration [min]	d3	Readable Writable
14	0x000E	word	Defrost start delay time after the power-up [min]	d5	Readable Writable

Register Addresses		Data Type	Description	Display	Permission
Decimal	Hex				
15	0x000F	word	Dripping (discharge) time [min]	d7	Readable Writable
16	0x0010	word	Real temperature displaying delay time, after the defrost end [min]	d9	Readable Writable
17	0x0011	word	Lower level alarm [°C / °F]	A1	Readable Writable
18	0x0012	word	Alarm hysteresis	A3	Readable Writable
19	0x0013	word	Upper level alarm [°C / °F]	A4	Readable Writable
20	0x0014	word	Time delay to display alarm message when powered up [min]	A6	Readable Writable
21	0x0015	word	Time delay to display alarm message after alarm is on [min]	A7	Readable Writable
22	0x0016	word	Fan operation type selection 0: Fan runs continuously except for certain controls(F2,F3,F5,F6). 1: Defrost probe temperature(P2) does not work if it is above F1, it works if it is below F1 - F4. 2: Defrost probe with thermostat probe temperature temperature difference (P12); if it is above F1+F4 the fan works, if it is below F1 it does not work.	F0	Readable Writable
23	0x0017	word	Fan stopping temperature [°C / °F]	F1	Readable Writable
24	0x0018	word	Required delay time for fan to be powered up after defrost [min]	F3	Readable Writable
25	0x0019	word	Fan hysteresis	F4	Readable Writable
26	0x001A	word	Required delay time for fan to be powered up [min]	F6	Readable Writable
27	0x001B	word	Modbus slave device address	h1	Readable Writable
28	0x001C	word	Baud Rate[bps] 0: OFF 1: 2400 bps 2: 4800 bps 3: 9600 bps 4: 19200 bps 5: 38400 bps 6: 57200 bps	h2	Readable Writable

Coils

Register Addresses		Data Type	Description	Display	Permission
Decimal	Hex				
0	0x0000	bit	Decimal point 0: Undotted 1: Dot	P 1	Readable Writable
1	0x0001	bit	Temperature unit 0: Centigrade 1: Fahrenheit	P2	Readable Writable
2	0x0002	bit	Digital input polarity 0: Active when digital input contact is closed. 1: Active when digital input is on.	i 1	Readable Writable
3	0x0003	bit	Should the setpoint be adjustable while the key lock is active? 0: No, setpoint cannot be changed. 1: Yes, setpoint can be changed.	LP	Readable Writable
4	0x0004	bit	Defrost type selection 0: Electric (compressor off) defrost 1: Hot gas (compressor on) defrost	d 1	Readable Writable
5	0x0005	bit	Defrosting process begins with energy 0: Defrost: no auto-start on power-up. 1: Defrost: auto-start on power-up.	d4	Readable Writable
6	0x0006	bit	During defrost, display configuration 0: During defrost, the actual temperature continues to be displayed. 1: During defrost, the last measured temperature before entering defrost is seen on the display. This value remains constant until the defrost ends.	d6	Readable Writable
7	0x0007	bit	Smart defrost selection 0: The defrost counter (time between 2 defrosts) is decremented regardless of the compressor status. 1: The defrost counter is decremented as long as the compressor is running.	d8	Readable Writable
8	0x0008	bit	Alarm configuration 0: Independent alarm: The alarm values are A1 and A4. 1: Relative alarm: The alarm values are A1 = SET-|A1| and A4 = SET+|A4|.	A2	Readable Writable
9	0x0009	bit	Fan operation during defrost process 0: Maintains fan status. 1: The fan stops during defrost.	F2	Readable Writable

Register Addresses Decimal	Hex	Data Type	Description	Display	Permission
10	0x000A	bit	Fan starts when compressor stop 0: Maintains fan status. 1: The fan stops together with the compressor.	F5	Readable Writable
11	0x000B	bit	The key lock active / inactive 0: The key lock is inactive. 1: The key lock is active.		Readable Writable
12	0x000C	bit	Starting manual defrost or stopping manual defrost 0: Stopping manual defrost. 1: Starting manual defrost.		Readable Writable
13	0x000D	bit	Manual on/off the device 0: Device off 1: Device on		Readable Writable
14	0x000E	bit	The factory setting is loaded. 0: 1: The factory setting is loaded.		Readable Writable
15	0x000F	bit	Should a password be required when entering the parameter menu? 0: No, no password required. 1: Yes, require a password.	P5	Readable Writable

Input Registers

Register Addresses Decimal	Hex	Data Type	Description	Display	Permission
0	0x0000	word	Measured thermostat sensor, temperature value [°C / °F]		Readable
1	0x0001	word	Measured defrost sensor, temperature value [°C / °F]		Readable

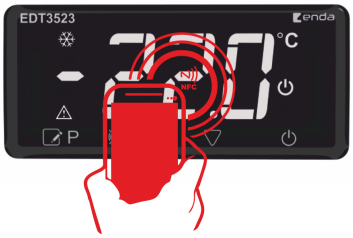
Discrete Inputs

Register Addresses Decimal	Hex	Data Type	Description	Display	Permission
0	0x0000	bit	Compressor output status (0 = OFF, 1 = ON)		Readable
1	0x0001	bit	Defrost output status (0 = OFF, 1 = ON)		Readable
2	0x0002	bit	Fan output status (0 = OFF, 1 = ON)		Readable

NFC

ENDALink, is a mobile application that provides fast and secure data sharing between NFC supported ENDA devices and mobile devices.

⚠ **To communicate with an NFC supported ENDA device, your mobile device must have NFC support.**



You can scan the QR codes below to access our EndaLink application on Google Play and the App Store.

enda link

Resetting the NFC Password via EndaLink

When an NFC password reset command is sent via EndaLink, if the device's display shows the message PcL and an audible alert is given at the same time, it means that the NFC password has been successfully reset. If the PcL message is not displayed, the reset operation has failed.