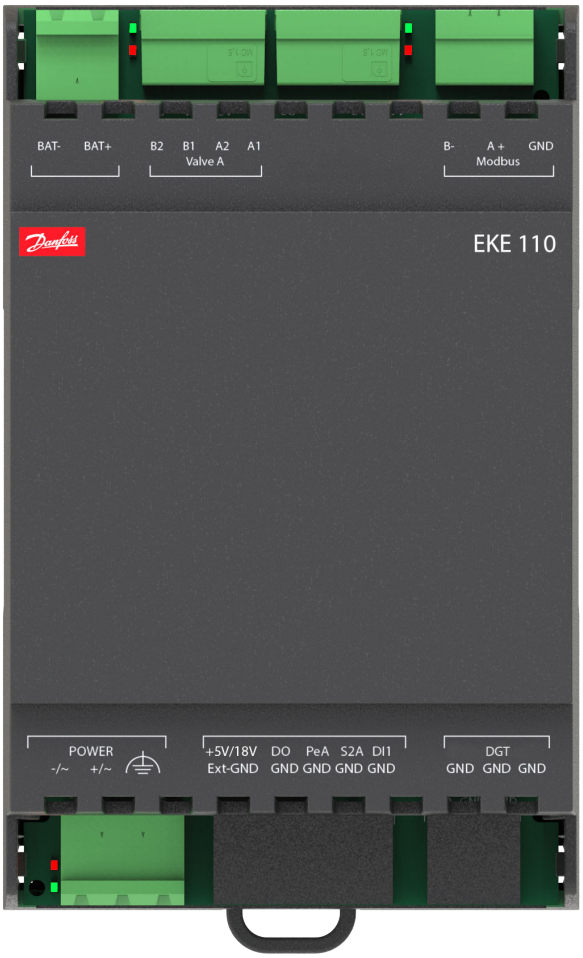
ENGINEERING
TOMORROW

Data Sheet

Injection Controller Type **EKE 110** (PV01)

For light commercial, commercial and industrial low ambient heat pump application



The flexible pre-programmed EKE 110 Injection controller can be used for

Vapor or wet injection (VI/WI): Where controller will manage stepper motor valve in injection of superheat vapor to compressor injection port and automatically switch to wet injection to avoid high discharge temperature control depending on the running conditions. This enables improved compressor performance on an extended running envelope.

Liquid Injection (LI): Where controller will manage stepper motor valve in liquid injection to avoid too high discharge temperature control (DGT) depending on the running conditions. This enables compressor to run safe in an extended running envelope.

This controller is typically used in light commercial, commercial and industrial low ambient heat pump applications

Features

- 1 Bipolar stepper valve output
- Supports NTC10K and PT1000 sensor types
- Fast installation and setup
- Lost step prevention
- Open circuit detection
- LED indication for valve movement and alarm/warnings
- Digital output for compressor stop
- Battery backup option for emergency closing
- Modbus communication

Portfolio overview

Table 1: Portfolio overview

Hardware Specifications	
Power supply	
Supply Voltage	24 V AC/DC[1] 50/60 Hz, SELV [2]
Battery backup Input (Danfoss recommends EKE 2U)	24V DC
Valve support	
Number of valve outputs	1 stepper motor valve
Valve type	Bipolar stepper valve
Data communication	
Modbus RS485 RTU	Yes (Isolated)
Baud rate (default setting)	19200
Mode (default setting)	8E1
Sensor support	
No of temperature sensors	2 (S2A, DGT)
Type of temperature sensors	S2A-PT1000/NTC10K, DGT-PT1000
List of temperature sensors S2A	PT1000, NTC 10K 3435, EKS 221, ACCPBT NTC10K, MBT 153 10K, 112CP, AKS, NTC10K G
List of temperature sensors DGT	PT1000
No of Pressure transmitter [3]	1(PeA)
Type of pressure transmitter [3]	Ratiometric 0-5-5 V DC, 0-10V, Current 4-20mA
List of temperature transmitter [3]	DST P110 standard, DST P310 Ratio, DST P310 current, AKS 32R, AKS 32 1-5 V, AKS 32 1-6 V, AKS 32 0-10 V, AKS 33, AKS 3000, ACCPBP Ratio, ACCPBP current, 112CP, NSK, XSK, OEM ratio, OEM voltage, OEM current
Digital Input	
No of digital input	1 Input: DI 1
Use of digital input[4]	Start/Stop regulation
Digital Output	
Digital output[5]	1 output: D0 (open collector), max sink current 10 mA
User interface	
PC suite	KoolProg
Gateway to Pc suite	EKA 200 + EKE 100 service cable
Display	No
Installation and IP	
Mounting	35mm Din rail
Enclosure	IP20
Environmental Conditions	
Storage temperature	-30 – 80 °C / -22 – 176 °F
Operating temperature	-20 – 70 °C / -4 – 158 °F
Humidity	<90% RH, non-condensing

[1] The unit is suitable for use on a circuit capable of delivering not more than 50A RMS (symmetrical Amperes)
[2] For US and Canada, use class 2 power supply
[3] By default the power supply for pressure transmitter is set for 0V. Supply will change to 5V if pressure transmitter is selected as ratiometric and 18V if selected as current type. Supply can be changed manual by selecting it in parameter P014 in advanced I/O configuration.
[4] DI is software configurable, if not used with external signal then short circuit it or configure it as not used in software.
[5] By default, DO is configured for communicating alarm for compressor stop. It can be used for other alarms if activated in the configuration.

Table 2: Overview

Software Features	
Economizer control	
Fixed Superheat (default)	Yes
Startup Mode for SH control	
Proportional control	Yes
Fixed opening degree with protection	Yes
Fixed opening degree without protection (default)	Yes
Injection control	
Vapor or Wet Injection(VI/WI)	Yes
Liquid Injection(LI)	Yes

Software Features	
Alarm Management [6]	
Battery Alarm	Yes
Low Superheat alarm (VI/WI mode only)	Yes
High Superheat alarm (VI/WI mode only)	Yes
Open Circuit detection [7]	Yes
DGT level warning and trip	Yes

[6] By default, DO is configured for communicating alarm for compressor stop. It can be used for other alarms if activated in the configuration
[7] Turn off open circuit detection when using with ETS 6 valves

Product specification

Technical data

Table 3: Technical data

Supply Voltage	24 V AC / DC 50 / 60 Hz, class II isolation No galvanic isolation
Power consumption	Idle operating: < 1 W (without valve) Power consumption for using 1 valve CCMT 16 – CCMT 42: 25 VA / 15 W ETS 6: 20 VA / 10 W ETS 12C – ETS 100C, KVS C: 30 VA /15 W ETS 12.5 – 400: 10 VA / 5 W CCMT 2- CCMT 8: 10 VA / 5 W CTR 20: 14 VA / 10 W CCMT L: 20 VA / 10 W ETS 175L – 250L: 10 VA / 5 W
Max drive current	800 mA Peak
Total steps	4000 steps
Digital outputs[1]	1 output: D01 (open collector), max sink current 10 mA
Valve support	STEPPER 1: A1, A2, B1, B2 Bipolar motor output: - Danfoss ETS/ETS L / KVS / ETS C / KVS C / CCMT 2 – CCMT 42 / CTR / CCMT L Valves / ETS 8M Bipolar Coil / ETS 5M Bipolar / User defined valves.
Battery backup	1 input for EKE 100: Bat-, Bat+ Nominal 24 V DC, Min 16 V DC - Max 28 V DC (Danfoss EKE 2U recommended)
Connector terminal pitch	5mm pitch: Power supply, Battery backup 3.5mm pitch: Analog inputs, Digital inputs, Digital outputs, Stepper valve connection, Modbus communication

[1] By default, DO is configured for communicating alarm for compressor stop. It can be used for other alarms if activated in the configuration.

- The unit is suitable for use on a circuit capable of delivering not more than 50A RMS (symmetrical Amperes)
- For US and Canada, use class 2 power supply

⚠ WARNING:
To avoid potential malfunctions or damage to the EKE 110, connect all peripheral components only to the designated ports. Connecting components to unassigned ports may lead to operational issues

Product part numbers

Table 4: Product part numbers

Description	IP	Display	Code no.
Injection controller EKE 110 1V	20	No	080G5059

Accessories and related products

Table 5: Accessories and related products

Description	Code no.
EKE 2U battery backup	080G5555
EKA 200 Koolkey 2.0	080N0020
EKE 100 service cable	080G5058
Power supply, AK-PS 063 Step 3	080Z0057
Power supply, AK-PS 130 Step 3	080Z0058
Power supply, AK-PS 250 Step 3	080Z0059

Identification

Above product label is an example. While programming the product it's important to check the SW version and code number and make configuration for the specific version.

Table 6: EKE 110 description

Injection controller	Product description
EKE 110 1V	Product type designation
080G	Product code number
24V AC/DC 50/60Hz	Input power rating
PV00	Product version
SW1.00	Software version
Made in Slovakia	Country of Origin
Danfoss A/S, 6430 Nordborg, Denmark	Company address

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 7: Approvals

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