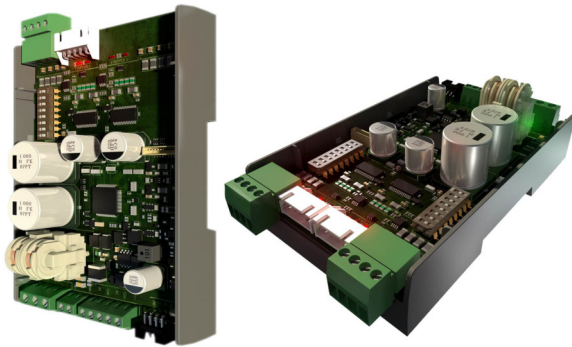*Danfoss*

Data Sheet

Stepper Valve driver
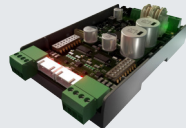# Type **EKF 1A, EKF 2A**

Driver for stepper motor valves

Stepper Valve Driver EKF series is for use where stepper valves must be accurately controlled typically in commercial air conditioning, heat pumps, commercial refrigeration and food retail applications
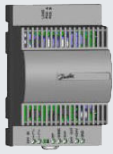
Features:

- Support both Bipolar and Unipolar stepper motor valves
- Driven by analog input signal
- Fast installation and setup
- Lost step prevention
- Open circuit detection
- LED indication for valve movement and alarm/warnings
- On board DIP switch for quick selection
- Plug and play
- 4 pole terminal block and JST-XHP 5 pin connections
- Phoenix connector terminals
- Digital output for alarm signal
- 1 and 2 valve driver version available

Portfolio overview

Table 1: Portfolio overview

Features	EKF 1A	EKF 2A
Code number	080G5030	080G5035
Power supply	24 V AC/DC	24 V AC/DC
Number of valves	1 stepper motor valve	2 stepper motor valves
Valve type	Unipolar/Bipolar	Unipolar/Bipolar
Analog inputs	1	2
Digital outputs	1	1
Dip switch	1	2
Battery backup support	Yes	Yes
Mounting	35 mm, 4 DIN	35 mm, 4 DIN
Dimension (H x W)(mm)	110 x 70	110 x 70

Table 2: Related Products

| EKE 2U Backup power module	Power supply
EKE 2U Backup power module ensures sufficient power in case of power failures to the controller / driver to ensure closure of the electronic valves.	**AK-PS** Input: 100 - 240 V AC/45 - 65 Hz Output: 24 V DC: available with 18 VA, 36 VA and 60 VA **ACCTRD** Input: 230 V AC, 50 - 60 Hz Output: 24 V AC, available with 12 VA, 22 VA and 35 VA

Applications

EKF series stepper valve drivers can be used in application where accurate control of stepper motor valves are needed using analog input signals (0-10V, 0-5V, 4-20 mA, 0-20 mA) from unit programmable controllers. The product can be used for both Bipolar and Unipolar type valves. General applications include use in commercial air conditioning, heat pumps, commercial refrigeration and food retail application

Figure 1: EKF 1A
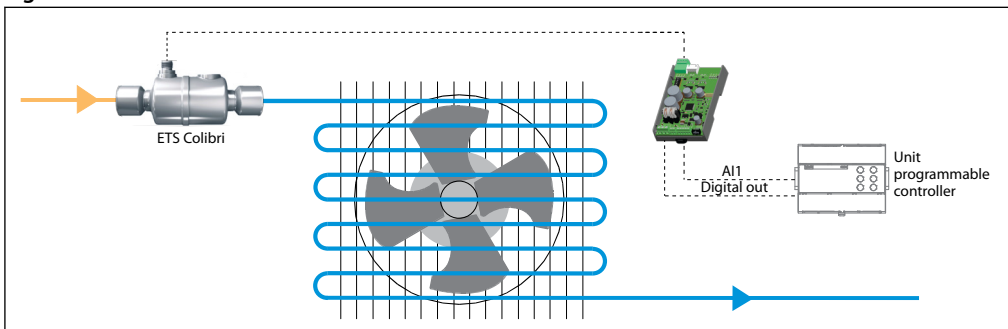
Figure 2: EKF 2A
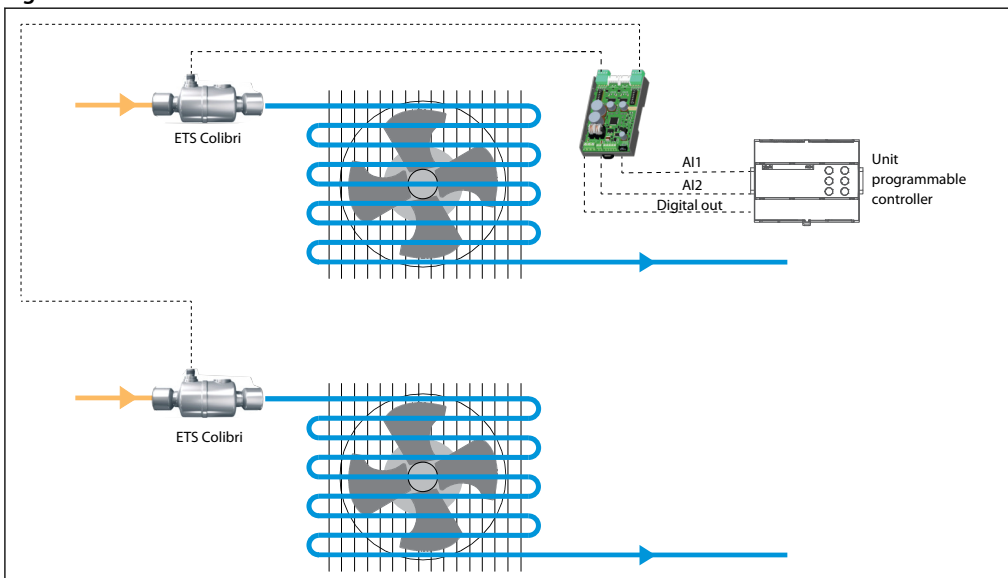
AI1	Analog input signal 1
AI2	Analog input signal 2

Product specification

Table 3: Technical data

Supply voltage	EKF 1A: 24 V AC / DC 50 / 60 Hz EKF 2A: 24 V AC / DC, 50 / 60 Hz	
Power consumption	Idle operating: < 1 W (without valve) Data below shows power consumption for using 1 valve. When using two valves sum the power consumption of each valve.	
	CCMT 16 – CCMT 42 ETS 5M, ETS 6 ETS 12C – ETS 100C, KVS C ETS 12.5 – 400 ETS 500P, 800P CCMT 2- CCMT 8 CTR 20 CCMT L	25 VA / 15 W 20 VA / 10 W 30 VA /15 W 10 VA / 5 W 28 VA / 20 W 10 VA / 5 W 14 VA / 10 W 20 VA / 10 W
Analog inputs	EKF 1A: 1 input AI1	0-5 V, 0-10 V, 4-20 mA, 0-20 mA
	EKF 2A: 2 inputs AI1 and AI2	0-5 V, 0-10 V, 4-20 mA, 0-20 mA
	Max. 15 V Analog input voltage. Do not connect voltage sources to unpowered units without limiting the current to analog inputs (overall 40 mA per input). Input Impedance: >50 kΩ (Voltage Input) 120 Ω ± 2% (Current Input)	
Digital outputs	1 output for EKF1A / EKF 2A: D01 (open collector), sink current max 10 mA	
Valve support	EKF 1A: 1 stepper motor valve output, EKF 2A: 2 stepper motor valve output STEPPER 1: A1, A2, B1, B2 STEPPER 2: A1, A2, B1, B2 Bipolar and unipolar stepper motor output: - Danfoss ETS / KVS / ETS C / KVS C / CCMT 2 – CCMT 42 / CTR / CCMT L Valves - ETS 6 / ETS 5M Valves Open circuit HW diagnostics is present.	
Battery backup	1 input for EKF 1A / EKF2A: Vbat BAT, GND: Nominal 18 – 24 V DC, Min 16 V DC - Max 28 V DC (EKE 2U recommended) Max. battery current: 2 A at 18 V (valve depended) Battery alarm/warning will be activated below 16 V DC.	
Enviroment	Storage	-30 – 80 ℃ / -22 – 176 ℉
	Operating	-20 – 60 ℃ / -4 – 140 ℉
	Humidity	< 90% RH, non-condensing
DIN Mounting	4 DIN, 35mm	

Identification

Product label is positioned behind the product.

Figure 3: Product label

Above product label is an example.

Table 4: Description

Stepper valve driver	Product description
EKF 2A	Product type designation
080G5035	Product code number
24V AC/DC 50/60 Hz	Input power rating
PV01	Product version
SW1v00	Software version
QR code	Danfoss product information website
Made in Denmark	Country of origin
Danfoss A/S, 6430 Nordborg, Denmark	Company address

Connection diagrams
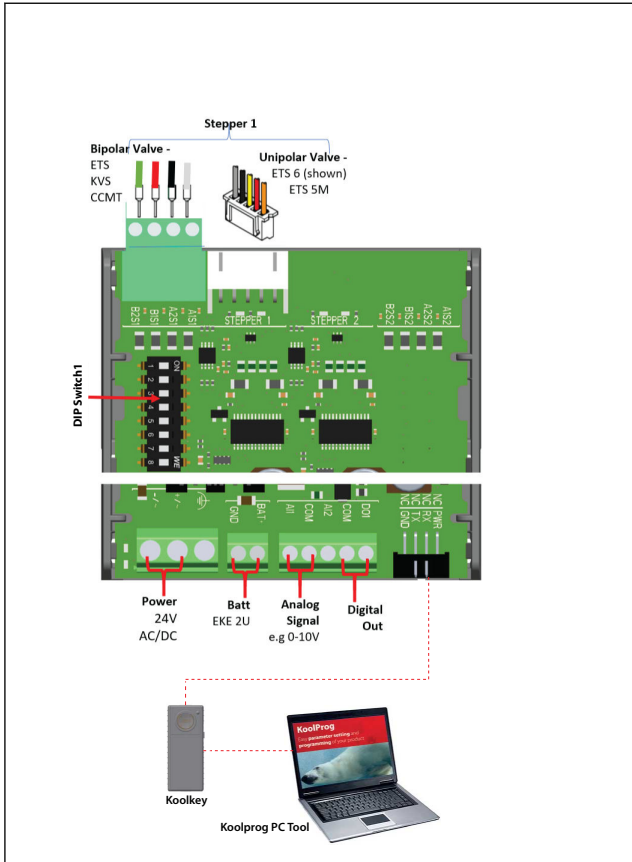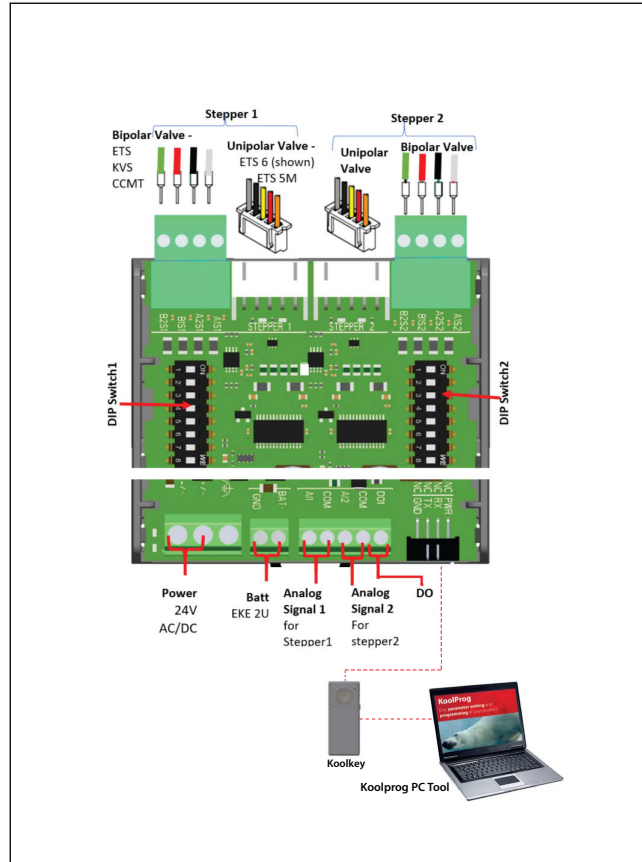
Figure 4: EKF 1A

Figure 5: EKF 2A

ⓘ NOTE:

There is both 4 pin terminal and JST 5 pin terminal available on the board per stepper drive output.

Only one of the terminals should be used per valve.

Do not connect valves to both 4 pin terminal and JST terminal of the same stepper driver output.

Ordering

Table 5: Product part numbers

Description	Code No.
Stepper Valve Driver EKF 1A	080G5030
Stepper Valve Driver EKF 2A	080G5035

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 6: Approvals

CE	RoHS	c UL us	089

Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

The Danfoss Product Store

The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.
Start browsing at store.danfoss.com.

Find technical documentation

Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at www.danfoss.com/en/service-and-support/documentation.

Danfoss Learning

Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at www.danfoss.com/en/service-and-support/learning.

Get local information and support

Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: www.danfoss.com/en/choose-region.