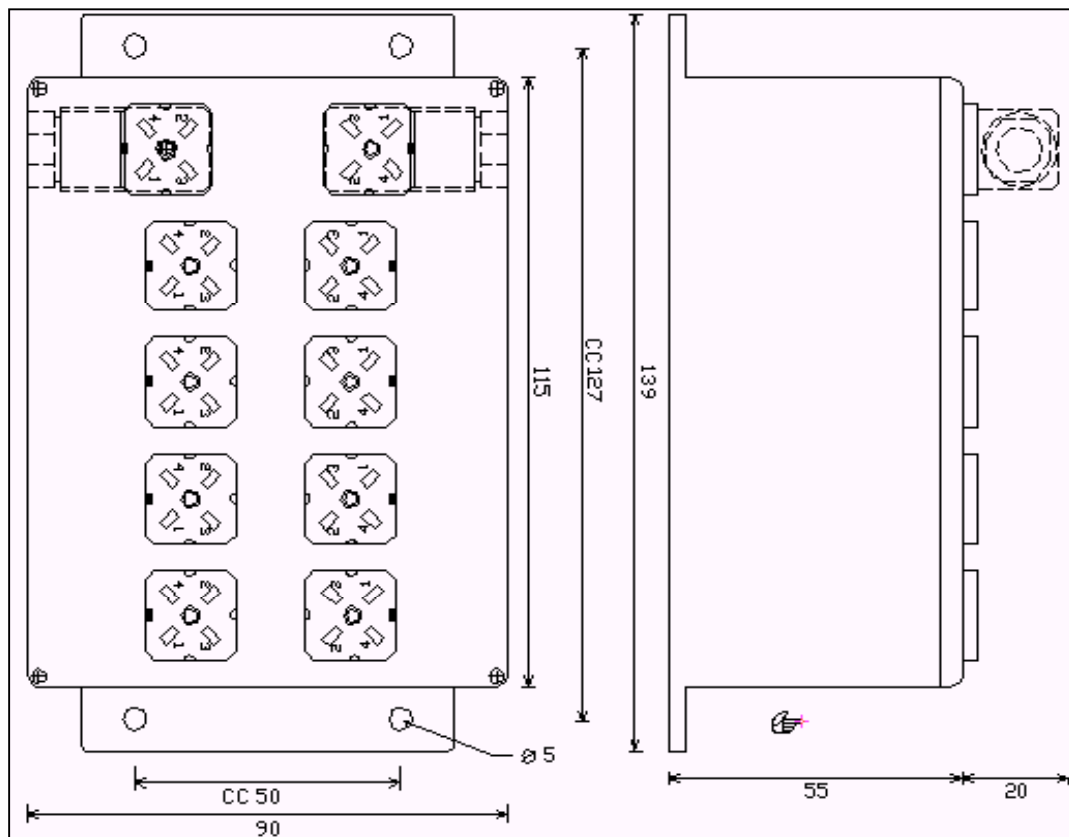
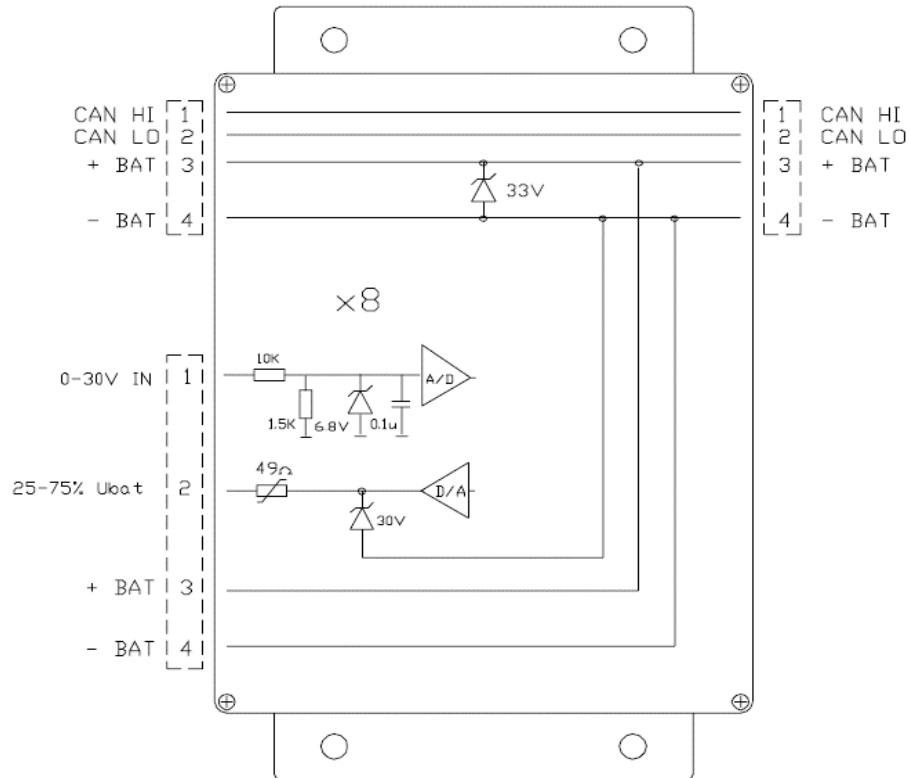


DANFOSS IN/OUT



Configuration of output from V5.3

From ver 5.3 the Danfoss module can give 0-100% of the system voltage. If you want to run the moduluen according to the Danfoss standard (25-75% of system voltage) put Max+ = 50% and Max- =50% in the Danfoss settings. In that way you limit the output to 25-75% of system voltage.

If you have a voltage drop in cables or for some other reason want to get a little extra you can increase MAX+ and MAX-. If the proportional amplifier on the Danfoss valve has built-in error detection, this can generate an error if you have to high MAX+ / MAX-.

Special flag 29: Sum

Flag 29 can be used to make a total sum for four Danfoss-outputs from the own module or from external modules. To activate the function the comment in flag 29 shall be SUM

The flag value is the total sum of the chosen ports variation from center multiplied with a scale value. The scale value is individual for each port. Which ports that will be summerized is chosen in the picture below. Up to four ports can be summerized.

Active if	module	I/O	Type	Comment	Center	Scale
AND	2 Danfoss module	1	Danfoss out	Output 1	127	100%
AND	2 Danfoss module	2	Danfoss out	Output 2	127	140%
AND	2 Danfoss module	3	Danfoss out	Output 3	127	95%
AND	2 Danfoss module	4	Danfoss out	Output 4	110	200%

The value in flag 29 in this example will be: $(\text{Deviation from 127 in ID2:1} * 1.00) + (\text{Deviation from 127 in ID2:2} * 1.40) + (\text{Deviation from 127 in ID2:3} * 0.95) + (\text{Deviation from 110 in ID2:4} * 2.00)$.

This feature is useful when an inlet valve is used as a flow regulator for several functions. By following the flag 29 in the conditions of the PWM output.

Boundaries

- A Centre: 127 bits
- B Start (1,3,5,7): 20 %
- C Start (2,4,6,8): 20 %
- D Max (1,3,5,7): 80 %
- E Max (2,4,6,8): 80 %

Ramp

- F Ramp Acc (1,3,5,7) 0,0-9,9s: 0,2 s
- Ramp Ret (1,3,5,7) 0,0-9,9s: 1,0 s
- G Ramp Acc (2,4,6,8) 0,0-9,9s: 0,4 s
- Ramp Ret (2,4,6,8) 0,0-9,9s: 1,0 s

Miscellaneous

- H Z-Tolerance: 10 bits
- I Error detection + (0-255): 255 bits
- J Error detection - (0-255): 0 bits
- Lin/Log mode: Lin

Danfoss configuration graph: Shows a sawtooth waveform between 0 bitar and 255 bitar. Parameters A-J are labeled on the graph.

Current module/port: Module: 1 Danfoss, Port: 5 Outreach 1, Config: A

Special flags 30-32: Driver selection

Driver selections are controlled by the modules internal flags 30,31,32. To make the flags work as driver selection flags, flag 30 must have the comment ABC. Otherwise flags 30, 31 and 32 will work as ordinary flags.

If no conditions are fulfilled in any of the flags, the driver selection will automatically be set to driver **A**
 If more than one flag have fulfilled conditions the driver selection will be set to the value in the lowest flag.

- Fulfilled conditions i flag 30 sets the driver selection to **A**
- Fulfilled conditions i flag 31 sets the driver selection to **B**
- Fulfilled conditions i flag 32 sets the driver selection to **C**

Special flag 28: MULDIV

Flag 28 can be used to multiply two optional values from the CAN-bus.
 After that the product can be divided to not make the result to large.
 To activate the function the comment in flag 28 shall be MULDIV

Output conditions

Module: 2 Danfoss module &SIM,20,28
 OutPort: 28 Internal flag MULDIV

Conditions:

Active if	ID	Type	Comment	I/O	Type	Comment
AND	3	Analog module		7	Analog in	is = 1
AND	3	Analog module		8	Analog in	is = 1
SET		Constant Value				100

$F28 = (3:7 * 3:8) / 100$

Port simulator:

8 flags can be sent to the CAN-bus for analysis, or to be used as conditions in other modules.

To activate the function the Danfoss module must have the comment &SIM,mm,ff
 mm is the simulated CAN-bus ID and ff the start flag (and 7 subsequent flags).
 Always write two numbers for ID and Flag, e.g. ID1 Flag 5 is written &SIM,01,05
 In the example below: &SIM,20,28 flag 28-35 will be sent to ID20 as port 1-8.

To be able to use the ports as conditions, a module need to be entered in the module configuration, in this case ID20. Set chosen ports as inputs and add port comments if desired.

Module Configuration

Module: Danfoss
 ID 1-25: 2
 Comment: &SIM,20,28

I/O 1: Function: Danfoss out, Port Comment: Turn

Module: Analog
 ID 1-25: 20
 Comment: Simulated module

I/O	Function	Port Comment
1	Analog in	Flag 28...
2	Analog in	
3	Analog in	
4	Analog in	
5	Analog in	
6	Analog in	
7	Analog in	
8	Analog in	Flag 35...

Special flags 26,27: Servo

The function **SERVO** in flag 26 & 27 is activated with SERVO in the comment for the flag.
 The flags value is 127 - (Error * gain-factor) where the error is feedback signal - input signal
 Conditions in CanPro is written as follows:

- 1 ModuleID Output = 1 (The port where input signal is located)
- 2 AND ModuleID Output = 1 (The port where feedback signal is located)
- 2 SET ModuleID Output = Factor (Gain factor that the error is multiplied by)

Special flags 20,21: Count

Counter function in flag 20. Activate the function with COUNT in the comment for flag 20.
 Each time the flag is true, the flag's value will be increased.
 The value will maximum be 255, then it will automatically be set to zero again.
 The counter is set to zero with flag 21. Please note that if no conditions for resetting is written in flag 21 the counter will always be zero.

Special flags from version 3.5

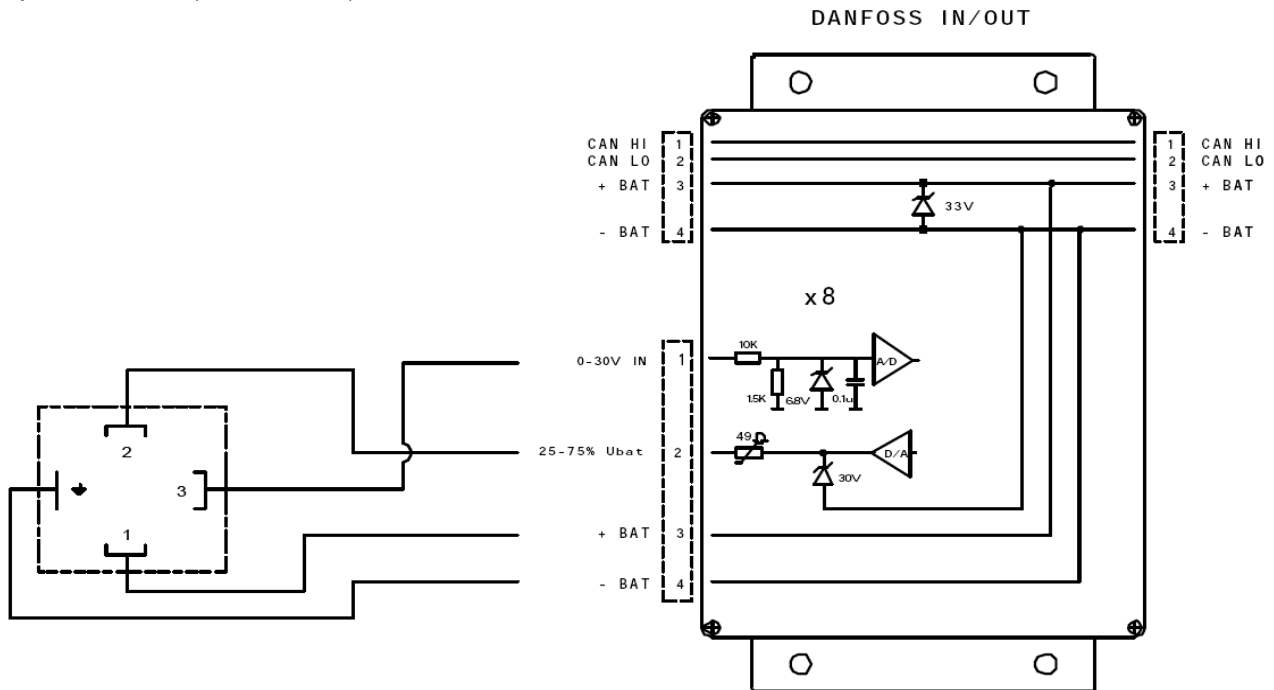
In flag 25 there is a PID-regulator. The function is activated by writing PREG in the comment for the flag.
 The condition rows are used to give the module information about regulator parameters and is therefore not conditions as in usual flags. See the picture below for information about how to put in the parameters.

K is the gain x 0,1 that is the value 10 corresponds to a gain of 1,0.
 This also applies to the times. For example Ti 50 corresponds to an I-time of 5,0 seconds.

From v37 it is also possible to get the input signal scaled with a factor. The function is activated by writing the fourth condition row. If you want to get the factor from the bus, state which port that has the factor and write value 0. If you want a fixed factor write the factor value on row 4 at the right (it doesn't matter what is chosen in the boxes in front of the value). Factor 100 corresponds to 1,00.
 Calculation: The regulator's input signal = input signal * factor / 100.

Analogue value from pin 1 in the connector

Flag 57-64 is not programmable, in these flags is the input values from the eight analogue inputs (0-30V = 0-255bit). These inputs can be connected to for example the Danfoss valve, to be able to record the error detection signal. The flags can be used as conditions in the program or be sent out on the CAN-bus with the port simulator (SIM function).



Error detection

To get maximal output signal the error detection value should be set to the value that the joystick gives. Add some bits for wire break function.

NOTE: If the Danfoss module has no internal error detection outside the 25-75% region, then the boot of the hydraulics must be prevented/delayed for 2 seconds so that the module will be able to start. This is to avoid involuntary actuation of the Danfoss module.

Example:

A joystick with actuation 10-90% gives approximately 25-240 bits according to the picture below.



Declaration of Conformity according to the EMC directive 2004/108/EG

Försäkran om överensstämmelse enligt EMC direktivet 2004/108/EG

By signing this document the undersigned declares as manufacture that the equipment in question complies with the protection requirements of directive(s)

Genom att underteckna detta dokument försäkras undertecknad såsom tillverkare att angiven utrustning uppfyller skyddskraven i rubricerade direktiv

CanCom Danfoss module

CISPR 25	Radiated RF emission
CISPR 25:2002	Conducted RF emission
EN 61000-6-2	Industrial immunity
ISO 11452-2 (95/54/EG)	Conducted RF immunity
ISO 11452-4 (95/54/EG)	Radiated RF immunity
ISO 7637-1 puls 4	Conducted transients on power lines
ISO 7637-2 puls 1-5	Conducted transients on power lines
ISO 7637-3 puls 3a, 3b	Conducted transients on signal lines
EN 61000-4-2	ESD (4kV contact, 8kV Air)
ISO/TR 10605	ESD (7kV contact, 14kV Air)
EN 61000-4-8	Magnetic field (50Hz 30A/m)



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