CanCom

MULTIMODUL A/D/PWM

JÖRGENSEN

Product ver 002

Specifikation	Specification		
Matningsspänning	Power supply	10-30	VDC
Spänningsrippel	Voltage ripple	<3	V t-t
CAN protokoll	CAN protocol	2.0B	150Kbit
CAN drivkrets	CAN driver	82C251	Philips
I/O adress	I/O address	Fixed	ID
Kabelkontaktdon	Cable connectors	Han R23	Harting
I/O kontaktdon (A/D)	I/O connectors (A/D)	H-BE 24	EPIC
Operativsystem	Operating system	CanCom	CanPro
CPU	CPU	98AZ60	Motorola
Flashminne	Flash memory	60	kB
Kapsling	Housing	Grey	Aluminium
Egenförbrukning	Internal consumtion	50	mA
Vikt	Mass	1200	g
Omgivningstemp.	Operating temp.	-30 - +80	Celcius
Mått (HxLxB)	Size (HxLxW)	110x144x58	mm
IP-klass	IP class	IP 65-67	

Utgångar	Output	* Max 10A totally for the module	
Antal utgångar	Number of outputs	10+8	Digital+PWM
Antal I/O	Number of I/O	2	Digital
Belastbarhet	Maximum load	2000	mA / IO*
Övertemp skydd.	Overtemp protected	+150	Celcius
Kortslutningsskydd	Short circuit protect	8	A
Återställning av skydd	Reset protection	Interupt power	Automatic
Aktiveringstid	I/O response time	20-50	ms

Ingångar	Inputs		
Antal ingångar	Number of inputs	8+3	Analog+Digital
Ingångs resistans (DI)	Input resistance (DI)	3,2	kohm
Ingångs resistans (AI)	Input resistance (AI)	47	kohm
ingång aktiv "0"	Input activated "0"	<1	VDC
Ingång aktiv "1"	Input activated "1"	>3	VDC
Buss uppdateringstid	Bus update time	25-50	ms
Tid mellan inläsningar	Input capture	20-50	ms
Frekvensingång	Frequency counter	1-255	Hz

EMC:			**2004/108/EG**
Emission CISPR 25	Emission CISPR 25	EN 55011	EN 61000-6-4
Immunitet	Immunity		EN 61000-6-2
ISO 11452-5	Stripline RF immunity	150V/m	10 KHz-200 MHz
ISO 11452-2	Radiated RF immunity	150V/m	200-1000 MHz
ISO 11452-2	Radiated RF immunity	125V/m	1-4.2 GHz
ISO 11452-2	Radiated RF immunity	50V/m	4.2-18 GHz
ISO 7637-2	24V system	Pulse	1,2,3a,3b,4,5
ISO 7637-3	12-24V system	Pulse	3a,3b
EN 61000-4-2	ESD	Air/Contact	8/4 KV

CanCom® **Multi module Analog/PWM/Digital** ***ID 21-24***

The module is moulded in a stable aluminium housing. The result is a hermitically sealed module that is resistant against the hard stresses in mobile environment that includes moisture and vibrations.
The module is programmed with ***CanPro*** V3.xx or V4.xx.

- CAN bus connection for programming and connection to other ***CanCom®*** products.
- 8 Analog inputs 0-5V, and +5V supply and - connection in a circular connector on the module.
- 8 PWM outputs (4+4), (with no current feedback)
- 12 digital outputs whereof 2 can be configured as PWM outputs with increase/decrease function.
- 2 of the outputs can also be set as digital inputs.
- 3 Digital inputs, also for measuring frequency 0-255Hz

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IN / OUT puts on *CanCom*® Multi module

Module id 21: Analog inputs 0-5V* 8bit
Circular connector Pin 1: Analogue in 1 0-5V
Circular connector Pin 2: Analogue in 2 0-5V
Circular connector Pin 3: Analogue in 3 0-5V
Circular connector Pin 4: Analogue in 4 0-5V
Circular connector Pin 5: Analogue in 5 0-5V
Circular connector Pin 6: Analogue in 6 0-5V
Circular connector Pin 7: Analogue in 7 0-5V
Circular connector Pin 8: Analogue in 8 0-5V
Circular connector Pin 10: +5V supply for analogue inputs (max 50mA)
Circular connector Pin 11: - for analogue inputs

** (To measure 0-10V connect 52Kohm in series with current analogue input)*
** (To measure 0-30V connect 220Kohm in series with current analogue input)*

Module ID 22:

OUT (I/O):	1	2	3	4	5	6	7	8
IN:		2	3					
Module pin:	2	12[1]	14[1]	3	4	5	6	7

Module ID 23:

PWM OUT (I/O):	1A	1B	2A	2B	3A	3B	4A	4B
Module pin:	8	10	11	13	15	16	17	18

Module ID 24:

OUT (I/O):	1	2	3[4]	4[4]	5[2]	6[2]	7[2]	8[2]
IN:					5	6[3]	7	
Module pin:	19	20	21	22	9	23	24	

+ 10-30V Pin 1 in the 24 pole connector
- Earth terminal in the 24 pole connector (GND)
(- is also connected to the modules housing, if galvanic separation is required
an isolation kit can be ordered)

- [1] = Selectable as in or output.
- [2] = 5, 6 7, 8 has no physical outputs, but they can be configured as outputs if you want to use these as ”bus flags”.
- [3] = This input cannot be used as frequency input.
- [4] = The outputs can be used as PWM with INC/DEC function (see special page)
- Module 22-24 have 32 internal flags each.
- Load, Max 2A / output, but not over 10A totally for the whole module..
- Voltage for activation of input is 2–30V, internal resistance is 2,5Kohm (1-12mA)
- The outputs are protected against overload and short circuit.
- The module is terminated with 1,5kΩ internally.

Power supply and CAN signals are connected to the **4-pole Hirschmann connector**

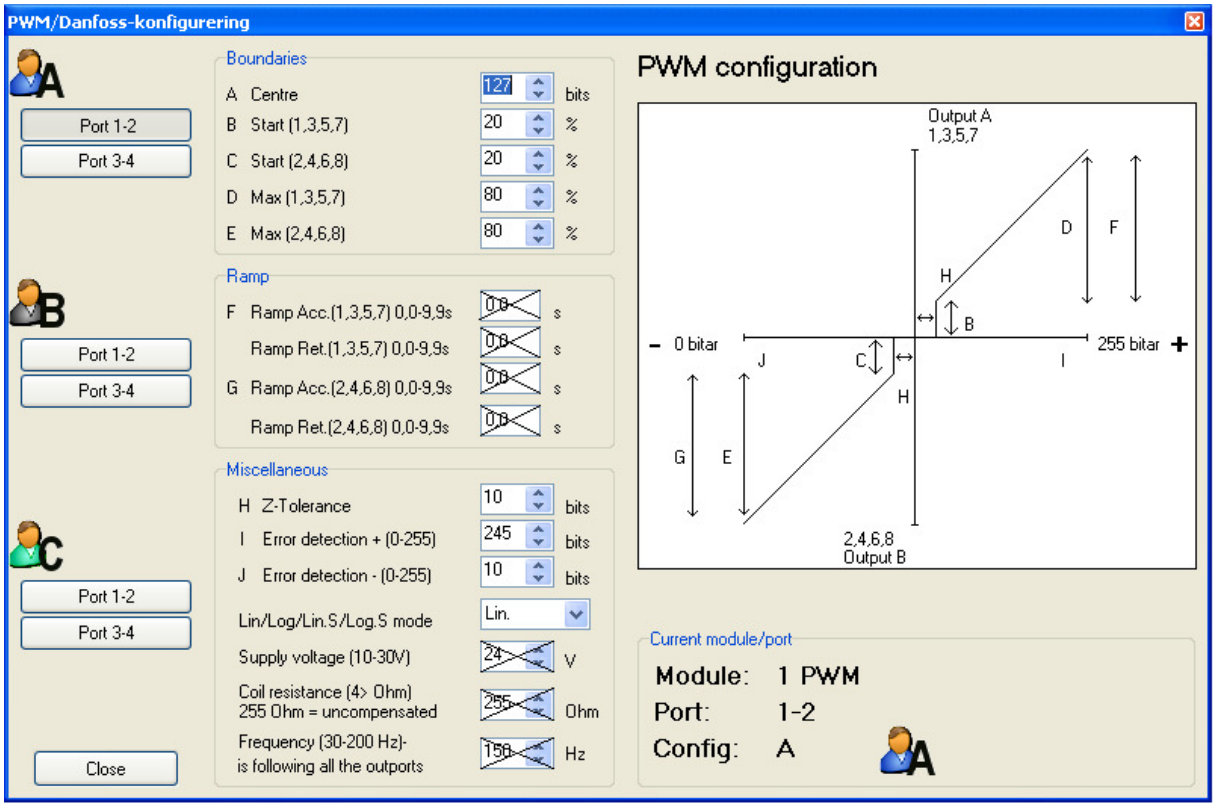
1 CAN HI

2 CAN LOW

3 + 10-30VDC

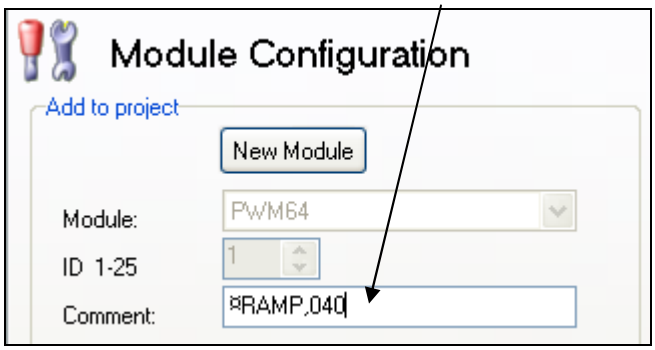
4 – (GND)

Settings for PWM outputs in ID23.



- The PWM outputs cannot be ramped *
- The frequency is not adjustable, always 150Hz.
- The supply voltage and the coil resistance has no meaning. since the PWM outputs are not current compensating.
- The Singel functions are not applicable.
- The PWM outputs is only working in driver selection A.

* For V35 and later the ramp time for Acceleration can be activated and set between 25ms up to 6,4 seconds by initiating the comment for the module with ¤RAMP,040
The value 001 corresponds to 25ms, this means that in the example below the ramp time is 040x25ms that is 1 second. The ramp time is common for all eight PWM outputs!



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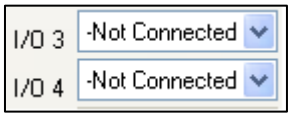
INC/DEC PWM function in Multimodule V3.xx

In module address 24 2 outputs can be chosen as PWM outputs by specifying these as –Not connected – in the module configuration.



If Digital in, Digital out or Frequency counter is chosen, output 3 and 4 and flags 27-32 will work as usual. (The PWM function is disconnected).

The outputs is controlled from following **flags** in module address 24

When the conditions in Flag **32** is valid "the comparison point" move against pin 22, with the speed that is chosen through a constant value.
The PWM signals actual level is kept when the condition is no longer valid.

When the conditions in Flag **31** is valid "the comparison point" move against pin 21, with the speed that is chosen through a constant value.
The PWM signals actual level is kept when the condition is no longer valid.

The speed is 25ms, and the resolution for each PWM output 3060 steps.

3060/constant value*0.025 = ramp time in seconds from min value to max value
Example:
Constant value 1 = 3060 / 1 x 0.025 = 76.5 seconds ramp time
Constant value 8 = 3060 / 8 x 0.025 = 9.5 seconds ramp time
Constant value 50 = 3060 / 50 x 0.025 = 1.5 seconds ramp time

When the conditions in Flag **30** is valid "the comparison point" is moved to origin right away with no delay, that is the PWM signals actual level is blocked, if the flags value is 1. It is possible to get a ramp down of the signal. If this is desired, put a constant value when the flag is true that corresponds to the fall time, from power supply to 0V, in centiseconds. Example: If the flag is finished with the condition SET CONSTANT VALUE = 20 you get a falltime of 2 seconds.

When the conditions in flag **29** is valid, the flags value will correspond to the Z-tolerance in % of 255. Example: The value 10 corresponds to 3,9% (10/255*100)

When the conditions in flag **28** is valid, the flags value will correspond to the start value in % of 255. Example: The value 50 corresponds to 19,6% PWM (50/255*100)

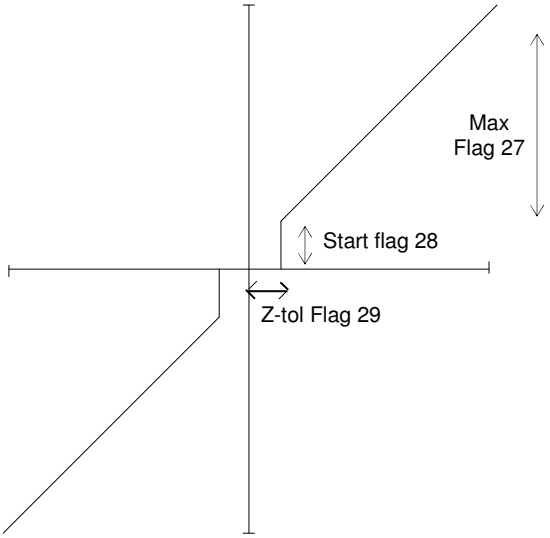
When the conditions in flag **27** is valid, the flags value will correspond to the Max value in % of 255. Example: The value 200 corresponds to 78,4% PWM (200/255*100)

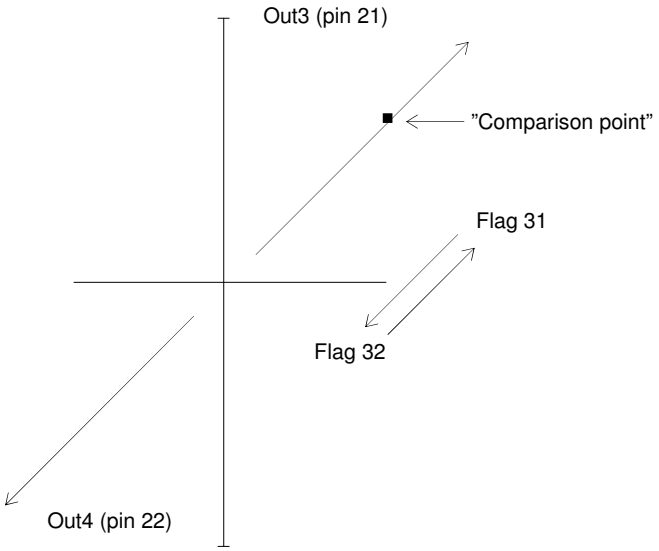
The flags can be programmed with the modules inputs, radio inputs, timer, follow, set etc.
PWM frequency is 150 Hz (not adjustable).

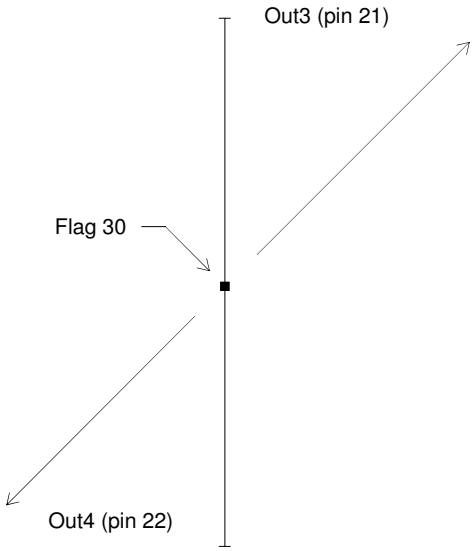
Module ID 24:

OUT (I/O):	1	2	**3**	**4**	5	6	7	8
IN:					5	6	7	
Pin:	19	20	**21**	**22**	9	23	24	

INC/DEC PWM function in Multi module V3.xx







SPECIAL FUNCTIONS (from V36)

Function SIM (SIMulate module) in ID 23

The function SIM can be used to send out eight flags from ID 23 on the bus with optional ID.
To activate the function write the following in the comment for the module with ID 23: ¤SIM,*ID*,*FL*
where *ID* is the ID you want the flags to get (01-25). Always written with two numbers and where *FL* is the first flag (of eight in a row) you want to send out (01-25). Always written with two numbers.

Example: Flag 5 and forward you want on ID 9.
Put in ¤SIM,09,05 in the comment for the module.
Then flag 5-12 will be sent out on ID 9 port 1-8.

Function COUNT in ID 23 Flag 20 & 21

Flag 20 can be used as up-counter for example for counting numbers or at sequence programming. Each time the flag is true, the flags value is increased with 1 (after 255 the counter is set to 0).

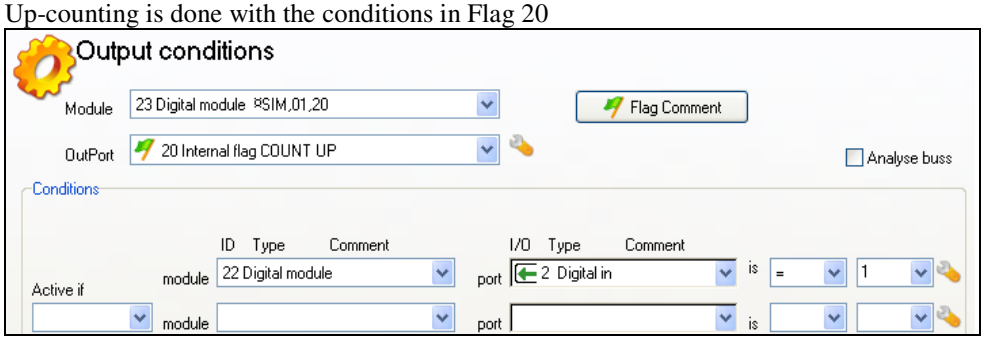
Count down: If you also write COUNT in the comment for flag 19, it can be used to count down the counter. When it has count down to 0 it will stay there.

Resetting: When flag 21 is true the counter in flag 20 is set to zero.
The function is activated by writing COUNT in the comment for flag 20.
The counter always starts with 0 after power-up.

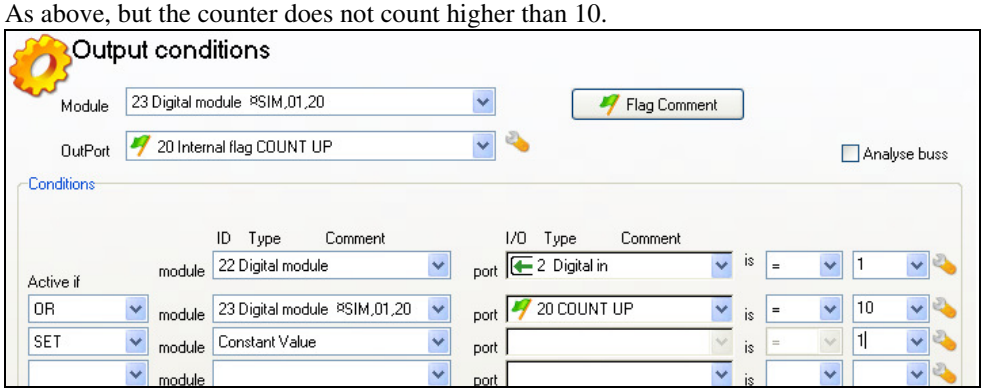
A timer on 0,2s is recommended as last instruction in Flag 20 to prevent that the counter counts due to contact bounces from inputs or when the logical conditions is time critical in the sequence programming.

Example below: The counter is increased when input ID22:2 = 1 and is set to zero when input ID22:3 = 1 or the counter is bigger than 25, and an example where the sequence counter is limited to max 10. Take notice of the SIM-function in the comment for the module, which put the counter on the bus in ID1:1.

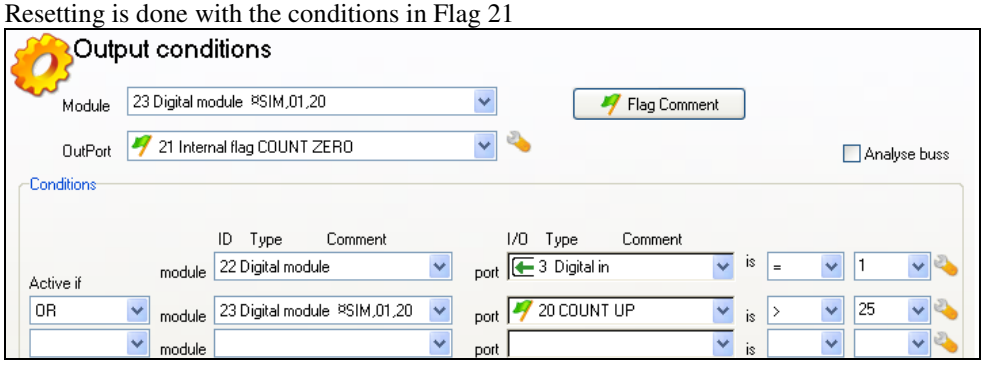
Up-counting is done with the conditions in Flag 20



As above, but the counter does not count higher than 10.



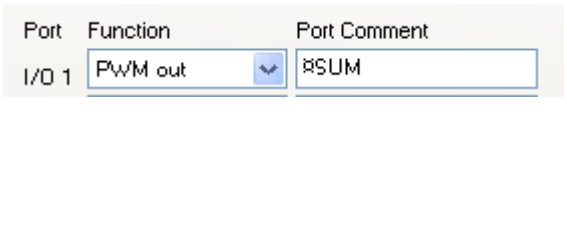
Resetting is done with the conditions in Flag 21

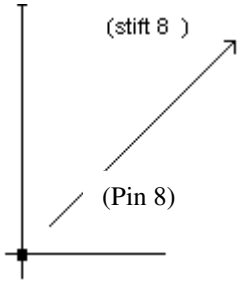


SPECIAL FUNCTIONS (from.V39)

Function SUM in ID 24
The function is to be used in for example inlet proportional valve at rotor tilt manoeuvring.
When this function is used the PWM output signal from channel 1 and 2 is summed to steer out the total current from channel 1 and 2 to only pin 8 on the module.
It doesn't matter if the input signal fall below or exceed the centre value.

The function is activated by putting the text ¤SUM in the port comment for PWM 1.





SPECIAL FUNCTIONS (from.V41)

Function to show the percentage actuation (V4.1)
From version 4.1 PWM out is stated as a percentage (0-100%) in port 5-8 in the analysis of Canpro. The value specified in port 5 is the value of port 1 and so on.

INSTRUCTION FOR INSTALLATION:

Assembly:
The module can be assembled in any optional position.
When installing the module, the casing of the module shall have good electrical contact with the base frame of the vehicle.

Electrical installation:
Secure the module with maximum 10 Ampere fuse.
The connectors is made for maximum 16 Ampere.
The module has built-in CAN termination.

Other:
The module is hermetically moulded in PUR.
The enclosure is made of powder coated aluminium.
The module enclosure is connected to GND.

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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 försäkrar undertecknad såsom tillverkare att angiven utrustning uppfyller skyddskraven i rubricerade direktiv

CanCom Multimodule

EN 61000-6-4	**Radiated RF emission**	
CISPR 25:2002	**Conducted RF emission**	
EN 61000-6-2	**Industrial immunity**	
ISO 11452-5 (95/54/EG)	**Stripline RF immunity 10KHz-200MHz**	**150V/m**
ISO 11452-2 (95/54/EG)	**Radiated RF immunity 200MHz-1GHz**	**150V/m**
ISO 11452-2 (95/54/EG)	**Radiated RF immunity 1GHz-4.2GHz**	**125V/m**
ISO 11452-2 (95/54/EG)	**Radiated RF immunity 4.2GHz-18GHz**	**50V/m**
ISO 7637-3 puls 3a,3b	**Conducted transients on signal lines**	
ISO 7637-2 puls1,2,3a,3b,4,5	**Conducted transients on signal lines**	
EN 61000-4-2	**ESD (4kV contact, 8kV Air)**	
EN 61000-4-8	**Magnetic field (50Hz 30A/m)**	

CE

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