

CANopen SERIES

EXPANION
UNIT



CANmaster

General description

The **Expansion unit** is an electronic control unit with CAN-bus/CANopen communication that is used in the CANmaster[®] control system to complement the basic system with additional PWM outputs, analog inputs and digital I/Os.

The unit contains 4 double-acting closed loop regulated PWM outputs, a servomotor PWM-output and a total of 21 I/Os for analog and digital signals where a number of I/Os can be used as either input or output. The servomotor output can be utilized for control of diesel engine rpm and power output for engines with mechanically controlled fuel pumps.

The unit is provided with a separate CAN-bus port for user specified CAN-bus protocols that can be used for integrated control and monitoring of external systems.

The unit has an internal error log that is automatically transferred to the Master unit's central error log via the CAN-bus line. 2 diagnostic LEDs on top show the status for the CPU (green) and CAN-bus (yellow) communication.

The housing has a protection class IP65 and permits placement anywhere on the machine.



Application areas

- Mobile machinery; control of working hydraulics, hydrostatic transmissions, powershift boxes, diesel engines and braking systems.

Technical Data

General data

Supply Voltage	11-30 VDC
Operating temp.	-40° C to +70° C
Max. current power output	15 A, total
Housing material	Aluminum
Housing breathing filter	Gore-Tex [®] membrane
Enclosure	IP65 (IEC 60529)
EMC class	Automotive
Shock	IEC 60068-2-27 Es, 30g
Bump	IEC 60068-2-29 Eb, 10g
Vibration	IEC 60068-2-64, Random 10-250 Hz
Test level, IEC-tests	IEC 60721-3-5 Class 5M3
Weight	0.95 kg
Connectors	AMPSEAL 35 + 14 pin

Data communication

CAN-1	CANopen/CAN 2.0B, 500 kbps
CAN-2	CAN user specified/CAN 2.0B, 1000 kbps
PC-communication	RS232, 9600 kbps

Unit addressing

Jumpers on address pins. Max 4 Expansion units can be addressed when used in the CANmaster control system.

I/O data

I/O-type	Qty	Data
Analog input	7-max 10	Analog input 0-5V, A/D-10 bit resolution
Servo output	1	PWM 20 kHz, 10 bit resolution. Max 2A
Digital input	2-max 10	Digital input, +24V
Digital output	4-max 8	Digital output, +24V max 2 A
PWM-output	4	Double acting PWM output 0 - max 1600 mA, 10 bit
Frequency input	1	Frequency input max 15000 Hz
Supply output for sensors	1	+5VDC

Programming tool

Hydratronics CANmaster PC-TOOL[™] graphical programming tool.

Comprehensive technical information: User Manual Technical Data & Installation Part No. 5011 0003-GB

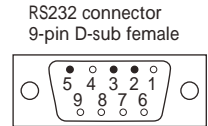
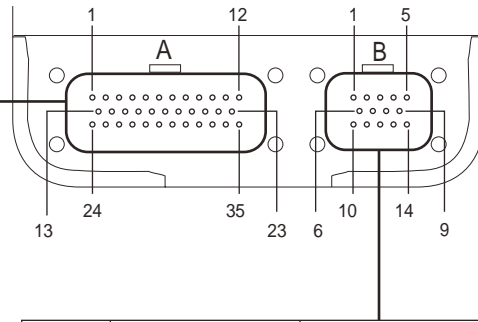
Ordering Information

EXPANSION control unit compl. Part No. 5010 4000

Connector pin assignments

Pin No.	I/O function / designation	
01	Analog IN 04 / Servomotor Return	
02	Analog IN 05	
03	Analog IN 06	
04	Analog IN 13	Digital IN 00
05	Servo OUT A	
06	Frequency IN 00	Digital IN 09
07	Digital OUT 00	
08	Digital OUT 01	
09	PWM-OUT 00(+)	
10	PWM-OUT 01(+)	
11	PWM-OUT 02(+)	
12	PWM-OUT 03(+)	
13	Analog IN 07	
14	Analog IN 08	
15	Analog IN 12	Digital IN 01
16	Analog IN 11	Digital IN 02
17	Servo OUT B	
18	Digital OUT 02	
19	Digital OUT 03	
20	PWM-OUT 00 RET	
21	PWM-OUT 01 RET	
22	PWM-OUT 02 RET	
23	PWM-OUT 03 RET	
24	Analog IN 09	
25	Analog IN 10	
26	Digital IN 03	
27	Digital IN 04	
28	Digital OUT 04	Digital IN 05
29	Digital OUT 05	Digital IN 06
30	Digital OUT 06	Digital IN 07
31	Digital OUT 07	Digital IN 08
32	PWM OUT 00(-)	
33	PWM OUT 01(-)	
34	PWM OUT 02(-)	
35	PWM OUT 03(-)	

*) User defined I/O-type. Totally 8 I/Os.



RS232 connector
9-pin D-sub female
Communication port for boot software download. No permanent connection required. (Not supplied with unit)

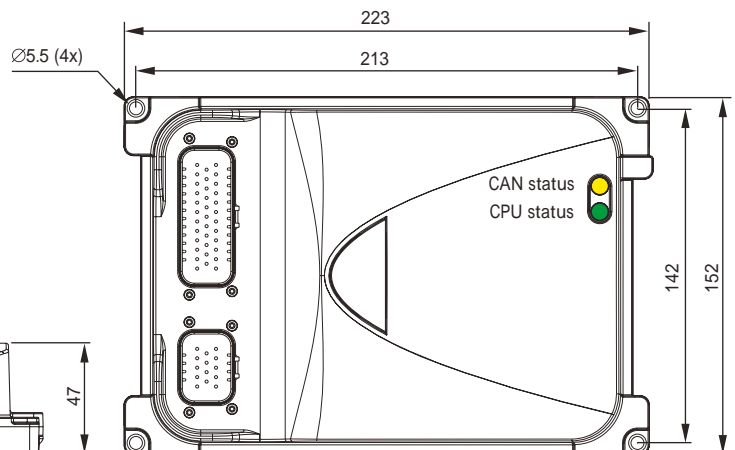
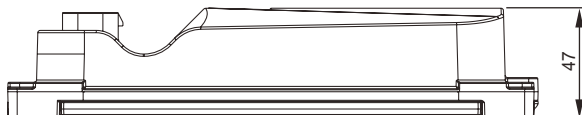
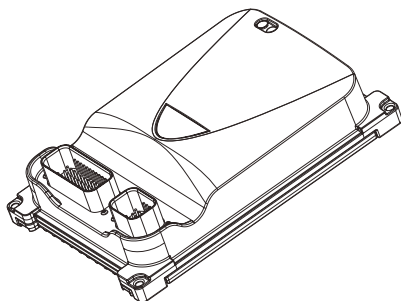
Pin No.	Designation	Function
01	Vbatt SYS	+24V powersupply EXPANSION-unit electronics
02	Vbatt GND	0 V EXPANSION-unit, system electronics
03	-Vref sensor GND	0 V reference for sensors
04	+Vref sensor	+5V supply for sensors
05	+Vbatt Power OUT	+24V powersupply for power outputs
06	CAN1_L	CAN-bus signal L, CANopen
07	CAN1_H	CAN-bus signal H, CANopen
08	CAN2_L	CAN-bus signal L, user specified protocol
09	CAN2_H	CAN-bus signal H, user specified protocol
10	Address 1	Unit address pin 1 for CAN-bus
11	Address 2	Unit address pin 2 for CAN-bus
12	RS232 GND	Ground terminal RS232. RS232 Pin 5
13	RS232 Rx	Receive data RS232 from PC. RS232 Pin 3
14	RS232 Tx	Transmit data RS232 to PC. RS232 Pin 2

Mating connector specification

Mating connectors	A	B
AMPSEAL, Part No.	776164-1	776273-1
Hydratronics Part No.	5015 1000	5015 1001
Contacts AMP, type	Cu-Sn, 0.5-1.5 mm ² 16-20 AWG	Gold plated 0.5-1.5 mm ² 16-20 AWG
Loose contacts, AMP Part No.	770854-1	770854-3
Hydratronics Part No.	5015 1002	5015 1007
Contacts on strap AMP Part No.	770520-1	770520-3
Crimp tool, AMP Part No.	0-0058529-1	
Hydratronics Part No.	5015 1008	

(Mating connectors not supplied with unit)

Dimensions (mm)



Supported by a worldwide network



CONTACT INFORMATION

EMEA

GERMANY	Hydreco Hydraulics GmbH, Straelen (NRW)	+49 283494303-41	info-de@hydreco.com
ITALY	Hydreco Hydraulics Italia Srl, Vignola (MO)	+39 059 7700411	sales-it@hydreco.com
NORWAY	Hydreco Hydraulics Norway AS, Nittedal	+47 22909410	post-no@hydreco.com
UK	Hydreco Hydraulics Ltd, Poole, Dorset	+44 (0) 1202 627500	info-uk@hydreco.com

AMERICAS

USA	Hydreco Inc, Rock Hill (SC)	+1 704 295 7575	sales-us@hydreco.com
LATIN AMERICA		+1 704 572 6266	sales-es@hydreco.com

APAC

AUSTRALIA	Hydreco Hydraulics Pty Ltd, Seven Hills (NSW)	+61 2 9838 6800	sales-au@hydreco.com
AUSTRALIA	Hydreco Hydraulics Pty Ltd, Smeaton Grange (NSW)	+61 2 4647 6577	au-smeatongrange@hydreco.com
AUSTRALIA	Hydreco Hydraulics Pty Ltd, Welshpool (WA)	+61 8 9377 2211	reception-wa@hydreco.com
INDIA	Hydreco Hydraulics India Private Ltd, Bangalore	+91 80 67656300	sales-in@hydreco.com