

4IN Light and Light+

Four analog Inputs to CAN bus module

(ptc protected)



Electrics:

Supply voltage: Supply current: Sensor supply: Sensor current max: 12V output * : Measuring range: ADC resolution: Input impedance: Input lowpass filter: 5.5V to 16V 15mA 5V +/-2% 50mA overall 350mA overall 0 to 5V 12bits >500kOhm 1600Hz (-3db) (can be powered at 5V with radiometric sensor) (sensors consumption not included) (common for all input and internal electronic)

Sig. \ Input	1	2	3	4
Auxiliary Supply (*)	Purple	Purple	Purple	Purple
5V	Red	Red	Red	Red
Signal	White	Yellow	Green	Blue
GND	Black	Black	Black	Black

Supply,CAN	
Power Supply	Purple
GND	Black
CAN H	White
CAN L	Blue

(*) On 4IN Light+ only

Mechanics:

Size: Cables: Wiring sleeve: Device sleeve Protection: Operating temp.: Weight: 40x20x12mm without cables KU 22AWG at least 15cm available DR-25 Machined and anodized aluminum IP67 (filled with PU resin) -20 to 80°C 41g



Functionalities

CAN: Termination CAN baudrate: 2.0A and 2.0B Open User settable (1M, 500k, 250k, 125k)

Format: Messages Rate: Messages content: Big or Little endian (user settable) Individually and user settable up to 1kHz mV (1st word) and load resistance (2nd word) for CTN and PT1000.

Miscellaneous:

- Internal 1k21 pull-up or/and pull down switchable
- Configuration through Lawicel USB/CAN or PEAK system tool and free specific software.
- Firmware update possibilities
- The connector choice is left to the customer.

THOtronic



Installation

FTDI drivers must be installed before connect the USBCAN tool from Lawicel. Use administrator mode for this installation. Then, install the Thq4IN software running setup.exe.

A subd9 adaptor is supply with this tool. Find right wiring details:

Note that only Lawicel USBCAN tool supply by THQtronic have power supply present on pin 9 and must powered ONLY THQtronic devices.

Sig.	color	Subd pin
5V (from USB)	Red	9
GND	Black	3
CAN H	White	7
CAN L	Blue	2

Function description

HANNEL1 Hannel2 Hannel3			Lineanseu	R (Ohm)	Freq	.	F lin.	PWM (%)			Rotary		R	195	IGL	LgP
HANNEL2		1	1	0	0		0	0	1			0	ADIN1				
HANNEL3		1	1	0	0		0	0				H	ADIN2	_	_		
		1	1	0	0		0	0				0	ADIN4				
HANNEL4		1	1	0	0		0	0				1	ADIN5				
				-	-		-	-				Ŀ	ADIN6				
												0					
											-						
ip 4IN / 8A16DIN -											- I						
uts CAN																	
uts setup											111						
	ame T	avg.(ms)	Config		Table	Gain	DIV	Offset VRm	n VRmax	Dec.							
Ni Dut 1 CHA	ame T	avg.(ms) 10	Config InstP.	1	Table lot used	Gain 1	DIV 1	Offset VRm 0 0	n VRmax 5	Dec.							
Ni Dut 1 CHA Dut 2 CHA	ame T	avg.(ms) 10 10	Config InstP, InstP.	1	Table lot used lot used	Gain 1	DIV 1 1	0ffset VRm 0 0	n VRmax 5 5	Dec. 0							
Ni put 1 CHA put 2 CHA put 3 CHA	ame T NNEL1 NNEL2	avg.(ms) 10 10 10	Config InstP, InstP, InstP,	1 1 1	Table Not used Not used	Gain 1 1 1	DIV 1 1	0ffset VRm 0 0 0 0 0 0	n VRmax 5 5 5	Dec. 0 0							
Na Dut 1 CHA Dut 2 CHA Dut 3 CHA Dut 4 CHA	ame T NNEL1 NNEL2 NNEL3 NNEL4	avg.(ms) 10 10 10 10	Config InstP, InstP, InstP, InstP,	1 1 1 1	Table lot used lot used lot used lot used	Gain 1 1 1 1	DIV 1 1 1	Offset VRm 0 0 0 0 0 0 0 0 0 0	n VRmax 5 5 5 5	Dec. 0 0 0							

Digital inputs names can also be edited (up to 8 char). Input real time state, toggle short push, toggle long push, long push detection automatically managed. For virtual rotary:

- _
- ADIN1 is AVR1 "Up", ADIN2 AVR2 "Down" and so on Using analog input, switch to 5V is "Up". Switch to AGND is "Down"



Input setup:

- Channel name up to 16 char. _
- Average period in ms -
- Gain, divisor and offset as conversion factor -
- -Virtual rotary min/max value
- Decimal place (only used for PC displaying values _

		2.5.7	Connig	Table	Gain	DIV	Offset	VRmin	VRmax	Dec
nput 1	CHANNEL1	10	InstP,	Not used	1	1	0	0	5	0
nput 2	CHANNEL2	10	InstP,	Not used	1	1	0	0	5	0
nput 3	CHANNEL3	10	InstP,	Not used	1	1	0	0	5	0
nput 4	CHANNEL4	10	InstP,	Not used	1	1	0	0	5	0

input Name	k	HANNE	.1
Average Period (m	s)	Γ	100
LookUp Table	Not	Used	•
Conversion coeffic	ients:		
(A*X / C) +	Offse	t Dec	imal place
1 1	0		-
			0
°C to °F °	C to °K] 0
	C to °K		0
C to F Virtual Rotary Min Virtual Rotary Max	C to °K Value Value		0
C to °F Virtual Rotary Min Virtual Rotary Max PullUp Automatic	C to °K Value Value	Inst P	0 0 5 eriod 🗸
C to °F Virtual Rotary Min Virtual Rotary Max PullUp Automatic PullUp On	C to °K Value Value C C	Inst P Freq.	0 5 eriod V Hz
	C to °K Value Value C C	Inst P Freq. Freq.	0 5 eriod V Hz Lin.
C to F O Virtual Rotary Min Virtual Rotary Max PullUp Automatic PullUp On	C to °K Value Value C C	Inst P Freq.	0 5 eriod V

Can setup:

- Message ID in standard or extended format.
- Message length (DLC) -
- -Message period in ms
- -Message byte order
- _ Up to 4 Channels selected on the available list.

Г	CAN set	up							
		ID	DLC	Period (ms)	Cfg	Word1 (D0,D1)	Word2 (D2,D3)	Word3 (D4,D5)	Word4 (D6,D7)
	Msg 1	0x300	8	10	Big endian	ADC mV input1	ADC mV input2	ADC mV input3	ADC mV input4
	Msg 2	0x301	8	0	Big endian	Input1 Lin	Input2 Lin	Input3 Lin	Input4 Lin
	Msg 3	0x302	8	0	Big endian	Freq.raw Input1	Freq.raw Input2	Freq.raw Input3	Freq.raw Input4
	Msg 4	0x303	8	0	Big endian	ANDig1/ANDig2	ANDig3/ANDig4	ANDig5/ANDig6	ANDig7/ANDig8
	Msg 5	0x304	8	0	Big endian	AN V.Rot. 1/2/3/4	Not Used	Not Used	Not Used
	Msg 6	0x305	8	0	Big endian	Not Used	Not Used	Not Used	Not Used
	Msg 7	0x306	8	0	Big endian	Not Used	Not Used	Not Used	Not Used
	Msg 8	0x307	8	0	Big endian	Not Used	Not Used	Not Used	Not Used

CAN setting D 0x100 Nº of Word 4 word • Intel format Msg Period 100 Sent only if # ſ Word 1 ADC mV input1 • Word 2 ADC mV input2 • Word 3 ADC mV input3 -Word 4 ADC mV input4 -Help !! Apply Close

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🖏 CAN ...

Digital input byte description (ADINx bytes):

Bit	State
7	Not used
6	Not used
5	Long push
4	Toggle long
3	Toggle short
2	Actual state
1	Falling edge
0	Rising edge

Note that each word have 2 digital inputs information. Depending of format used order give (ex) :

- Big endian : D0=ADIN1 , D1=ADIN2 --
 - Little endian: D0=ADIN2, D1=ADIN1



Analog input used as virtual rotary:

Two internal resistors must be activated for set idle voltage to 2,5V..



BRIDGE

Each ID set is also received by the device and frame are save in buffer. To access to the frame datas, you can select the channels "Msg1_Wrd1" to "Msg8_Wrd8".

So, the device is able to received frame from ID1 and sent them with ID2.

Not that the ID receiving the frame must be set with period=0 for discard CAN bus conflict.

List of channels selectable for CAN messages

"ADC raw input1"	"R Input1"	"Msg1_Wrd1"
"ADC raw input2"	"R Input2"	"Msg1_Wrd2"
"ADC raw input3"	"R Input3"	"Msg1_Wrd3"
"ADC raw input4"	"R Input4"	"Msg1_Wrd4"
"ADC mV input1"	"Fregency input1"	"Msg2_Wrd1"
"ADC mV input2"	"Freqency input2"	"Msg2_Wrd2"
"ADC mV input3"	"Freqency input3"	"Msg2_Wrd3"
"ADC mV input4"	"Freqency input4"	"Msg2_Wrd4"
"Input1 Lin"	"Freq. Lin input1"	"Msg3_Wrd1"
"Input2 Lin"	"Freq. Lin input2"	"Msg3_Wrd2"
"Input3 Lin"	"Freq. Lin input3"	"Msg3_Wrd3"
"Input4 Lin"	"Freq. Lin input4"	"Msg3_Wrd4"
	"Virt. Rot. 1/2/3/4"	"Msg4_Wrd1"
	"ANDig1/ANDig2"	"Msg4_Wrd2"
	"ANDig3/ANDig4"	"Msg4_Wrd3"
	"ANDig5/ANDig6"	"Msg4_Wrd4"
	"ANDig7/ANDig8"	"Msg5_Wrd1"
	"AN V.Rot. 1/2/3/4"	"Msg5_Wrd2"
	"ANDIN 18 state"	"Msg5_Wrd3"
		"Msg5_Wrd4"
		"Msg6_Wrd1"
		"Msg6_Wrd2"
		"Msg6_Wrd3"
		"Msg6_Wrd4"
		"Msg7_Wrd1"
		"Msg7_Wrd2"
		"Msg7_Wrd3"
		"Msa7 Wrd4"

Msgo_Wrd4 "Msg7_Wrd1" "Msg7_Wrd2" "Msg7_Wrd3" "Msg8_Wrd4" "Msg8_Wrd1" "Msg8_Wrd2" "Msg8_Wrd3"

Export to DBC:

After CAN setup, you can export the CAN configuration to DBC file format.

