

E58 CS ANA E58 CM ANA E58 HS ANA E58 HM ANA

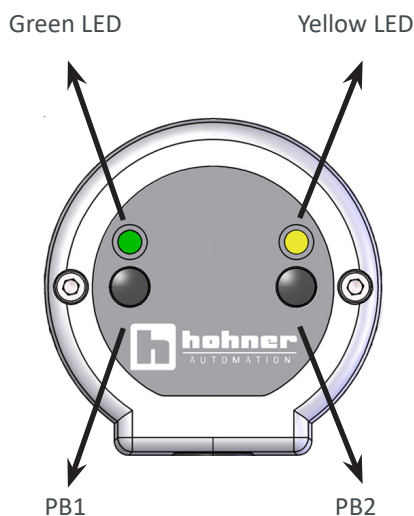
Analog Absolute Encoder
with configurable measuring range

Programming manual



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LED STATUS



GREEN LED	YELLOW LED	DESCRIPTION
ON	OFF	Operation with user configured settings
OFF	ON	Operation with factory settings
BLINK	BLINK	Waiting for any push button press
ON	BLINK	SET1 pressed first, initial measurement position set
BLINK	ON	SET2 pressed first, end measurement position set
BLINK	BLINK	Alternate blink, error. Start again the configuration process
ON	ON	One led lights solidly and then the other led. The configuration is completed

During setup process

MEASURING RANGE BY BUTTONS (OPTIONS CBO AND CBL)

- Press PB1 and PB2 together for 5 sec. to enter programming mode. Be careful not to exceed 10 seconds to avoid an undesired factory default settings restore. Both LEDs green and yellow light solidly. As soon as the keys are released both LEDs start blinking.
- Turn the encoder shaft to the start measuring position.
- Press PB1 (minimum) or PB2 (maximum) for 2 seconds, then the LED of the pressed PB stays fixed while the other LED still blinks.
- Turn the encoder shaft to the end measuring position.
- Press the other PB for 2 seconds, then both LEDs green and yellow light solidly. Releasing the keys causes the LEDs to signal the **normal operation with user settings** (Green LED = ON; Yellow LED= OFF).
- Analog output is scaled to the new measuring range.

⚠ During configuration, do not use the pins/wires SET1 and SET2 along with the push buttons at the same time.

⚠ If you want to return to the factory configuration, press the two buttons at the same time for more than 10 seconds until the yellow led stays fixing.

⚠ If you want to reconfigure the encoder, press the two buttons at the same time for 5 seconds and wait until the two leds blink at the same time, then you can start the configuration process.

MEASURING RANGE BY CABLE (OPTIONS CCO AND CCL)

- Turn the shaft to the start measuring position.
- Connect SET1 or SET2 with + V for at least 1 second.
- On release, the analog output value jumps to the minimum (SET1) or maximum (SET2) output value, depending on the first SET connected.
- Turn the shaft to the end measuring position.
- Connect the other SET not configured for at least 1 second.
- On release, the analog output value jumps to the maximum (SET2) or minimum (SET1) output value.
- The new measuring range is active.

⚠ If you want to return to the factory configuration, connect SET1 and SET2 at the same time for 3 seconds.

⚠ In case the new measuring range results lower than minimum scalable range (22,5°), factory settings are applied and LEDs indicate the **normal operation with factory settings**.

MEASURING RANGE NOT CONFIGURABLE (OPTION NC)

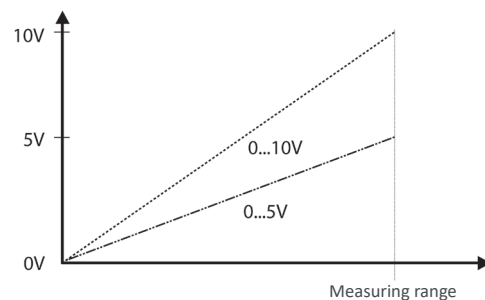
> DIRECTION CHANGE

- Please set the direction before zeroing the encoder.
- When the Direction pin is connected to GND or not connected and the shaft is turned clockwise, the encoder has an increasing output signal.
- When the Direction pin is connected to ≥ 5 V up to max Supply Voltage and the shaft is turned clockwise, the encoder has a decreasing output signal. The Direction pin needs to be always connected to ≥ 5 V for this functionality to remain.
- After setting the direction, you need to do a reset (switch off and switch on).

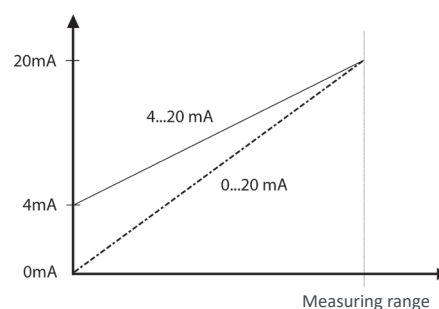
> PRESET FUNCTIONALITY

- Turn the shaft to the position you want to set to zero.
- Connect the Preset pin to ≥ 5 V up to max Supply Voltage for at least $T=100$ msec.
- On releasing the pin, the encoder output is set to the min position.
- Make sure the shaft is not moving during zero procedure.

> Not configurable version V (Voltage)



> Not configurable version mA (Current)

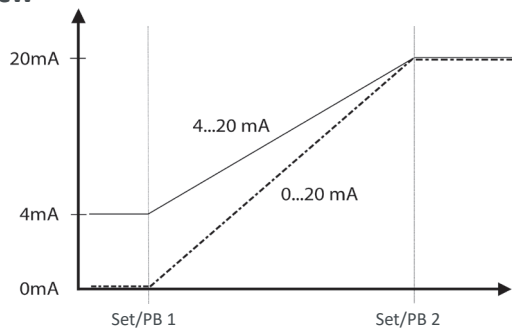


LIMIT SWITCH

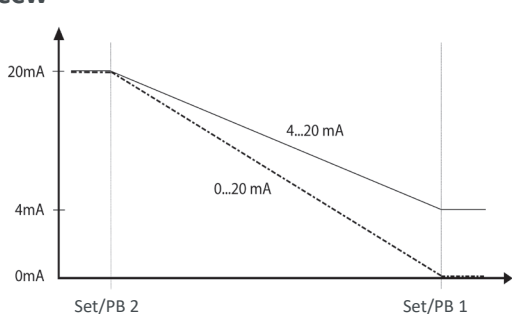
Limit Switch is the functionality that allows identifying when the limit of the programmed measurement range is exceeded in its initial or final position. *Not available with the Interface/Supply Voltage option 5 (0...20 mA).*

> Configurable version mA without Limit Switch function

CW

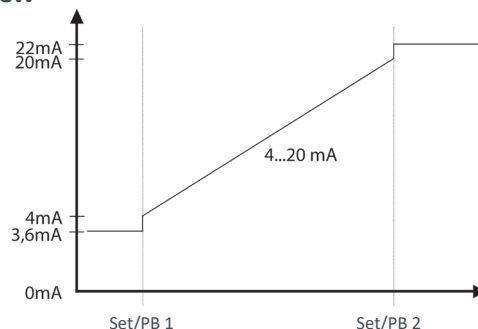


CCW

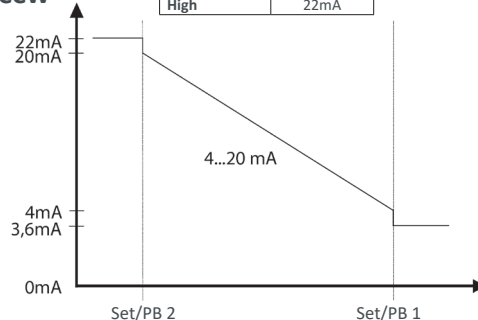


> Configurable version mA with Limit Switch function

CW

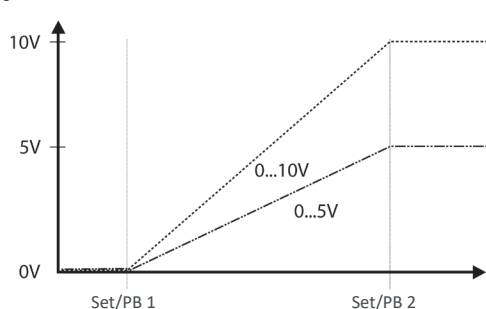


CCW

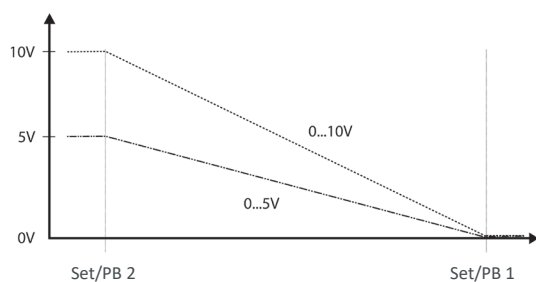


> Configurable version V without Limit Switch function

CW

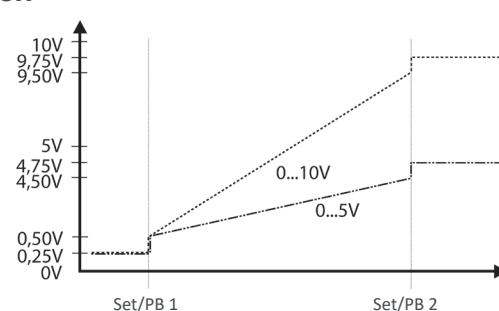


CCW

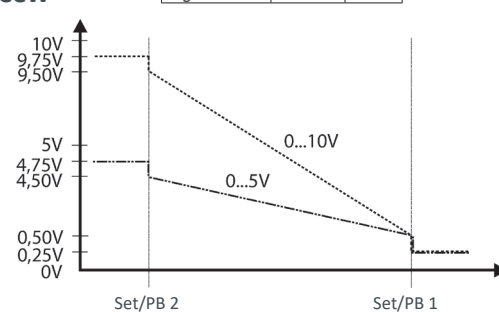


> Configurable version V with Limit Switch function

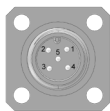
CW



CCW



CONNECTION



	Cable	Connector
	5x0,14 95.0008051	M12 5p CCW
GND	Yellow	1
VCC	White	2
SET1 / DIR	Brown	3
SET2 / PRESET	Green	4
I _{out} / V _{out}	Grey	5

ROLLOVER

The encoder operates as default in rollover mode. The rollover mode is the repetition of the user programmed measuring range. The repetition starts on the 2ⁿ turn immediately above the programmed measuring range.

Rollover (RO) occurs at the midpoint between the scaled measuring range (MR_s) and measuring range degrees (MR_d), where n is the smallest integer satisfying $2^n \geq n_s$.

For measuring ranges between MR_s and MR_d the encoder operates in the dead band regime, the output of the encoder equals the constant high and low dead band values when the measuring range is between (MR_s & RO) and (RO & MR_d), respectively.

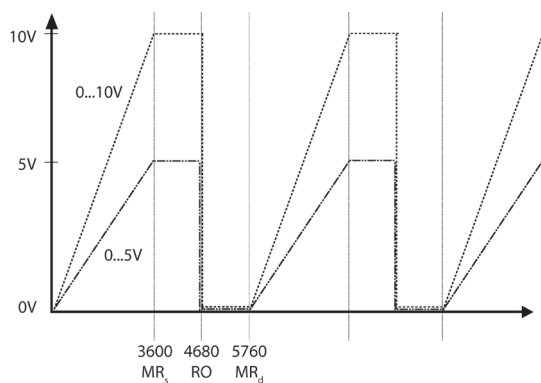
In the configurable options by buttons (CB0 and CBL) or by cable (CC0 and CCL), the rollover mode can be disabled on request.

ROLLOVER EXAMPLE

The measuring range can be scaled up to 2¹⁶ turns. The graph below shows the output of the encoders for an exemplary scaled measuring range (MR_s on the x-axis) of 3600° or in terms of user scaled turns $n_s = 10$.

In the example shown in the graph below MR_d equals $2^4 \times 360^\circ = 5760^\circ$.

V VERSION



MA VERSION

