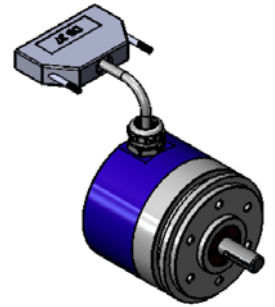
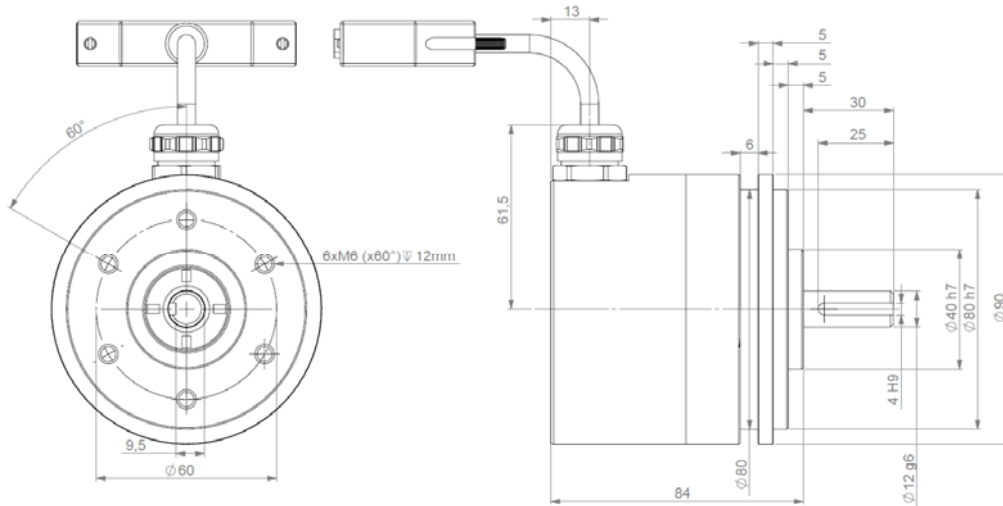


PARALLEL ABSOLUTE MULTITURN ENCODER – PNP - NPN - PHM9 RANGE

- Solid shaft $\varnothing 12$ and $\varnothing 11$ mm,
- Robustness and excellent resistance to shocks / vibrations,
- High protection level IP65,
- High performances in temperature -20°C to $+85^{\circ}\text{C}$,
- Parallel output, PNP or NPN,
- Universal electronic circuits from 11 to 30Vdc,
- Protection against short-circuits and inversion of polarity,
- High resolutions available: 8192 (13 bits) per turn,
- Turn counting up to 65 536 (16 bits),
- Reset, select, Latch, Direction functions,
- Option: push-button on the cover for an encoder reset to a value X.



PHM9 PARALLEL DIMENSIONS

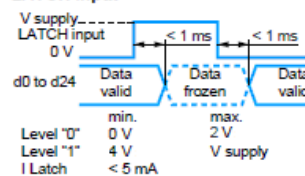


MECHANICAL CHARACTERISTICS

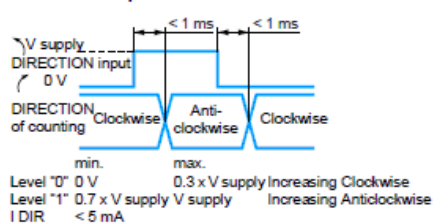
Material	Cover : steel	Shocks (EN60068.2.27)	$\leq 500\text{m.s}^{-2}$ (during 6 ms)	
	Body: aluminium	Vibrations (EN60068.2.6)	$\leq 100\text{m.s}^{-2}$ (10 ... 2 000 Hz)	
Shaft	Stainless steel	EMC	EN 61000-6-4, EN 61000-6-2	
Bearings	6001 serie	Isolation	100V (1 min.)	
Maximal loads	Axial : 100 N	Encoder weight (approx.)	1,600 kg	
	Radial : 200 N	Operating temperature	$-20 \dots +85^{\circ}\text{C}$ (encoder T°)	
Shaft inertia	$\leq 15 \cdot 10^{-6} \text{ kg.m}^2$	Storage temperature	$-20 \dots +85^{\circ}\text{C}$	
Torque	$\leq 10 \cdot 10^{-3} \text{ N.m}$	Protection(EN 60529)	IP 65	
Permissible max. speed	$6\,000 \text{ min}^{-1}$	Theoretical mechanical lifetime 10^9 turns ($F_{\text{axial}} / F_{\text{radial}}$)		
Continuous max. speed	$6\,000 \text{ min}^{-1}$	20 N / 30 N	50 N / 100 N	100 N / 200 N
		360	18	2,2
Shaft seal	Viton double lips			

SCHEMES

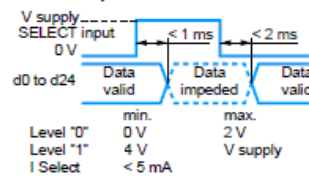
LATCH input



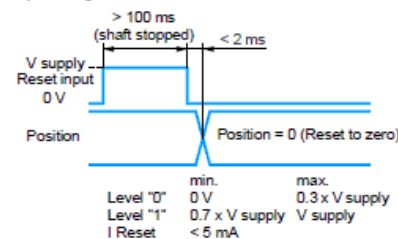
DIRECTION input



SELECT input



Input stage - Reset to zero

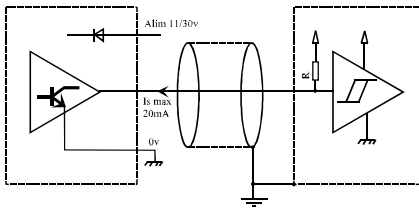


ELECTRONIC

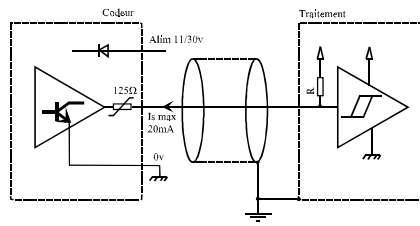
Power supply	11 – 30Vdc
Introduction	< 1 s
Cons. without load	< 100mA (typically 50-60mA at 24Vdc)
Position refresh	< 200 μs

PARALLEL ABSOLUTE MULTITURN ENCODER – PNP - NPN - PHM9 RANGE

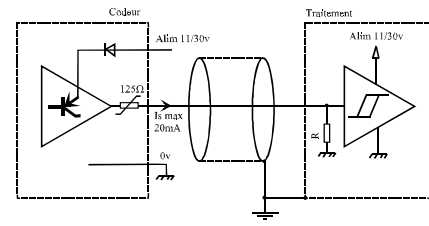
ELECTRONIC



550 Electronic: OC NPN
Power supply: 11 to 30Vdc
Current consumption (no load) : <100mA
Max ondulation : 500mV
Level "0" max : 1,25Vdc
Protection against polarity inversion



551 Electronic: OC NPN + CTP
Power supply: 11 to 30Vdc
Current consumption (no load): <100mA
Max ondulation : 500mV
Level "0" max : 3,75V at Is max
Protection against short-circuits
Protection against polarity inversion



556 Electronic : OC PNP + CTP
Power supply: 11 to 30Vdc
Current consumption (no load): <100mA
Max ondulation : 500mV
Level "1" mini : Vcc- 4,5Vdc at Is max
Protection against short circuits
Protection against polarity inversion

PARALLEL CONNECTION

1	GN green	Output Bit 0
2	YE yellow	Output Bit 1
3	GY grey	Output Bit 2
4	PK pink	Output Bit 3
5	BU blue	Output Bit 4
6	RD red	Output Bit 5
7	BK black	Output Bit 6
8	VT violet	Output Bit 7
9	WH/BN white/brown	Output Bit 8
10	WH/GN white/green	Output Bit 9
11	WH/YE white/yellow	Output Bit 10
12	WH/GY white/grey	Output Bit 11
13	WH/PK white/pink	Output Bit 12
14	WH/BU white/blue	Output Bit 13
15	WH/RD white/red	Output Bit 14
16	WH/BK white/black	Output Bit 15
17	BN/GN brown/green	Output Bit 16
18	BN/YE brown/yellow	Output Bit 17
19	BN/GY brown/grey	Output Bit 18

20	BN/PK brown/pink	Output Bit 19
21	BN/BU brown/blue	Output Bit 20
22	BN/RD brown/red	Output Bit 21
23	BN/BK brown/black	Output Bit 22
24	GN/GY green/grey	Output Bit 23
25	GN/PK green/pink	Output Bit 24
26	GN/BU green/blue	Reserved
27	GN/RD green/red	RESET
28	GN/BK green/black	SELECT
29	YE/GY yellow/grey	LATCH
30	YE/PK yellow/pink	DIRECTION
31	YE/BU yellow/blue	Reserved
32	YE/RD yellow/red	Reserved
33	NC	Reserved
34	YE/BK yellow/black	Reserved
35	RD/BK red/black	Reserved
36	BN brown	11 to 30Vdc
37	WH white	0 Vdc

SELECT

Active data output, pin SELECT at 0Vdc
Non active data output: pin select to +Vcc

LATCH

Active data: pin LATCH to 0Vdc
Data frozen: pin LATCH to +Vcc

DIRECTION, LATCH, RAX and SELECT inputs have to be connected to 0Vdc or +Vcc (LATCH, SELECT and RAX at 0V if not used)

Reserved: Do not connect !

Example of pin assignment for configuration 10x7 bits : data available on pin 1 to 17 - Max: 25 bits (Resolution + Number of turns)

DIRECTION

Increasing code clockwise: pin DIRECTION at 0Vdc
Increasing code counter clockwise: Pin DIRECTION at +Vcc

RAX (PRESET to X):

For an electrical RAX (or push-button option) : pin RAX to +Vcc during minimum 100ms.

ORDERING REFERENCE (Contact the factory for special versions, ex: special flanges, connections, electronics...)

	Shaft Ø	Supply	Output stage	Code	Resolution	Number of turns	Connection	Orientation
PHM9	12 : 12mm	5 : 11 to 30Vdc	S0 : NPN OC	G: Gray	13 : Standard 13 bits Nota: Available form 0 to 13 bits	B12 Standard 12 bits Nota: Available form 0 to 16 bits Max: 25 bits (Resolution + Number of turns)	S3 Cable + SUBD37 pinouts output	R010 : Radial 1m cable
	11 : 11mm		S1 : NPN OC + CTP S6 : PNP OC + CTP	B: Binary				A020 : Axial 2m cable
PHM9 _	12 //	5	S1	G //	13	B12 //	S3	A010

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