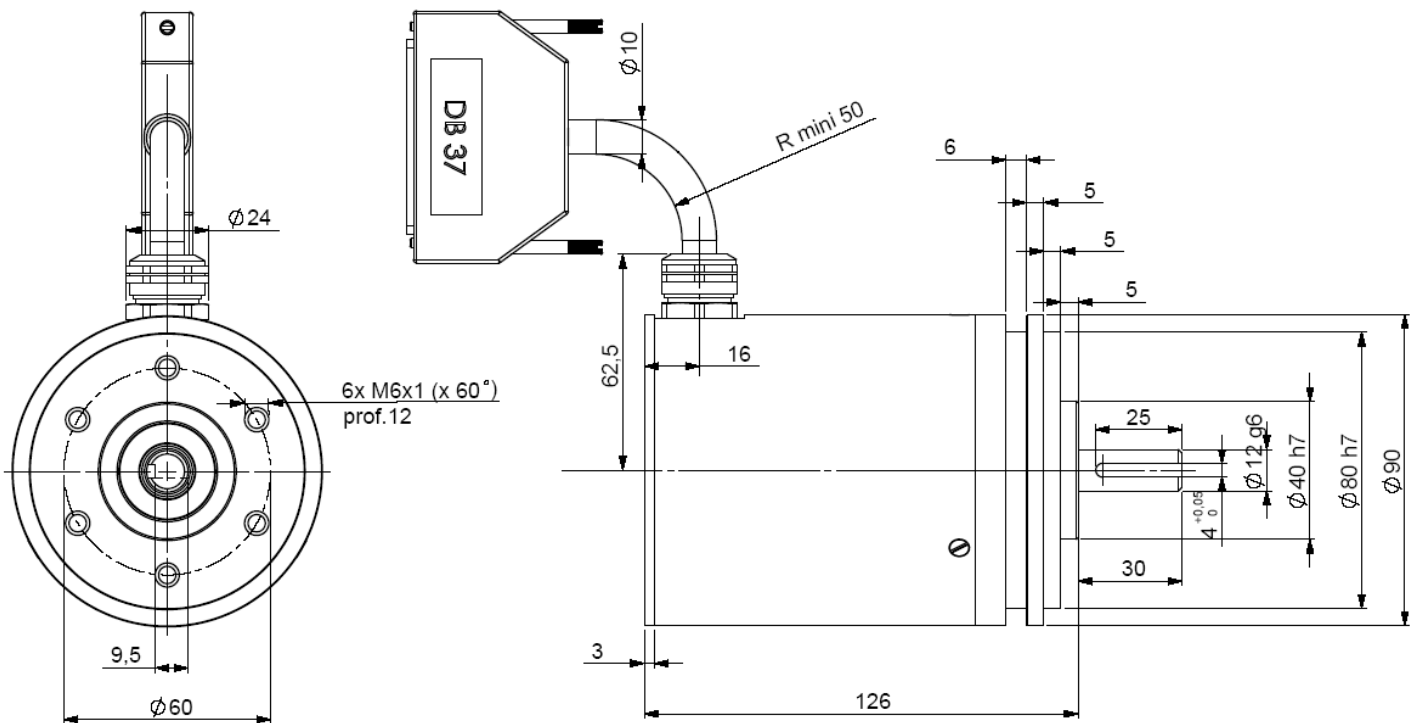


**PARALLEL ABSOLUTE MULTITURN ENCODERS, SHM9 RANGE**

Especially designed for Heavy Duty Industry: steel and paper mills, lumber, cranes, etc.  
Strong and compact design  
Excellent resistance to shocks/vibrations and to extreme axial/radial loads  
- programmation option with power of 2 or every code  
- pushing button option RAX

Also available in SSI and fieldbus interfaces : DeviceNet, CANopen and Profibus



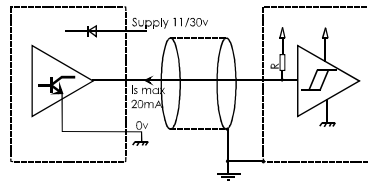
**CHARACTERISTICS**

Material Stainless steel option	Cover : zinc alloy	Vibration (EN60068-2-6)	≤ 100 m.s <sup>-2</sup> (10 ... 500 Hz)	
	Body: aluminium		EMC	EN 50081-1, EN 61000-6-2
Shaft	Stainless steel	Isolation	1 000 V eff	
Bearings	6001 serie	Weight	1,1kg zinc cover, alu body	
Maximal load	Axial : 100 N		2,4kg zinc cover, stainless steel body	
	Radial : 200 N		2,6kg stainless steel cover and body	
Shaft inertia	≤ 15.10 <sup>-6</sup> kg.m <sup>2</sup>	Operating temperature	- 10... + 70 °C (encoder T°)	
Torque	≤ 10.10 <sup>-3</sup> N.m	Storage temperature	- 10... + 70 °C	
Permissible max.speed	6 000 min <sup>-1</sup>	Protection(EN 60529)	IP 67	
Continuous max. speed	6 000 min <sup>-1</sup>	Theoretical mechanical lifetime 10 <sup>9</sup> turns (F <sub>axial</sub> / F <sub>radial</sub> )		
Shaft seal	Viton	20 N / 30 N	50 N / 100 N	100 N / 200 N
Shock (EN60068-2-27)	≤ 300 m.s <sup>-2</sup> (during 6 ms)	360	18	2,2

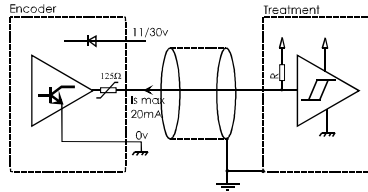
## PARALLEL ABSOLUTE MULTITURN ENCODERS, SHM9 RANGE

### Connecting on DB37

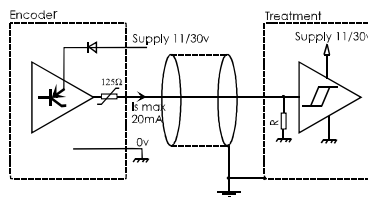
1	2 <sup>0</sup>	GN green
2	2 <sup>1</sup>	YE yellow
3	2 <sup>2</sup>	GY grey
4	2 <sup>3</sup>	PK pink
5	2 <sup>4</sup>	BU blue
6	2 <sup>5</sup>	RD red
7	2 <sup>6</sup>	BK black
8	2 <sup>7</sup>	VT purple
9	2 <sup>8</sup>	WH/BN white/brown
10	2 <sup>9</sup>	WH/GN white/green
11	2 <sup>10</sup>	WH/YE white/yellow
12	2 <sup>11</sup>	WH/GY white/grey
13	2 <sup>12</sup>	WH/PK white/pink
14	2 <sup>13</sup>	WH/BU white/blue
15	2 <sup>14</sup>	WH/RD white/red
16	2 <sup>15</sup>	WH/BK white/black
17	2 <sup>16</sup>	BN/GN brown/green
18	2 <sup>17</sup>	BN/YE brown/yellow
19	2 <sup>18</sup>	BN/GY brown/grey
20	2 <sup>19</sup>	BN/PK brown/pink
21	2 <sup>20</sup>	BN/BU brown/blue
22	2 <sup>21</sup>	BN/RD brown/rouge
23	2 <sup>22</sup>	BN/BK brown/black
24	2 <sup>23</sup>	GN/GY green/grey
25	2 <sup>24</sup>	GN/PK green/pink
26	Reserved	GN/BU green/blue
27	RAZ	GN/RD green/rouge
28	Select	GN/BK green/black
29	Latch	YE/GY yellow/grey
30	Direction	YE/PK yellow/pink
31	Reserved	YE/BU yellow/blue
32	Reserved	YE/RD yellow/rouge
33	NC	NC
34	Reserved	YE/BK yellow/black
35	Reserved	RD/BK rouge/black
36	11-30Vdc	BN brown
37	0Vdc	WH white



**Electronic 5S0: NPN Open Collector**  
Supply: 11 to 30Vdc  
Cons. Without load: <100mA  
Max ondulation : 500mV  
Level "0" max : 1,25Vdc  
Protection against polarity inversion



**Electronic 5S1: NPN OC + CTP**  
Supply: 11 to 30Vdc  
Cons. without load: <100mA  
Max ondulation : 500mV  
Level "0" max : 3,75V et Is max  
Protection against short circuits  
Protection against polarity inversion



**Electronic 5S6 : PNP OC + CTP**  
Supply: 11 to 30Vdc  
Cons. without load: <100mA  
Max. ondulation : 500mV  
Level "1" min : Vcc- 4,5Vdc at Is max  
Protection against short circuits  
Protection against polarity inversion

### Select

Active data on the outputs: Select pin at 0Vdc  
Non active data on the outputs: Select pin at +Vcc

### Latch

Active data on the outputs: Latch pin at 0Vdc  
Fixed data on the outputs: Latch pin at +Vcc

### Direction

CW increasing code : Direction pin at 0Vdc  
CCW increasing code : Direction pin at +Vcc

### RAZ execute with non turning shaft

For an electrical RAZ / with a pushing button (option) : push on +Vcc during 1s minimum

Reserved : Do not connect

Example of connection with a configuration of 10x7 bits : data available from pins 1 to 17

**ORDERING CODE** (Special versions upon request, for ex. special flanges/electronics/connections...)

	Shaft Ø	Electronic		Code	Resolution	Number of turns	Connection	Connection orientation
<b>SHM9</b>	12:12mm	5S0, 5S1, 5S6		G: Gray B: Binary	Up to 13 bits Example: 13 : 8192 points per tour (2 <sup>13</sup> ) 07 : 128 points per tour (2 <sup>7</sup> )	Up to 16 bits Example: 16 : 65 536 turns (2 <sup>16</sup> ) 10 : 1 024 turns (2 <sup>10</sup> )	S3: PE + cable + DB37	Example : R020 : radial cable of 2m A050 : axial cable of 5m
<b>SBM9</b> Stainless steel body		Supply	Output stage					
<b>SXM9</b> : Stainless steel cover & body		5 : 11 to 30Vdc	S0 : NPN CO S1: NPN CO with CTP S6: PNP CO with CTP					
<b>SHM9</b>	12 //	5	S6	B //	13	B12 //	S3	R050

Max: 25 bits (Resolution + Number of turns)

Made in FRANCE