Hall-effect Rotary Position Sensors

Table 1. Electrical Specifications

Characteristic	RTY Series		RTP Series	
	LV (Low Voltage)	HV (High Voltage)	LV (Low Voltage)	HV (High Voltage)
Supply voltage	5 ±0.5 Vdc	10 Vdc to 30 Vdc	5 ±0.5 Vdc	10 Vdc to 30 Vdc
Supply current: normal during output to ground short	 20 mA max. 25 mA max.	 32 mA max. 47 mA max.	 20 mA max. 25 mA max.	 32 mA max. 47 mA max.
Output: standard inverted	 0.5 Vdc to 4.5 Vdc ratiometric 4.5 Vdc to 0.5 Vdc ratiometric	 0.5 Vdc to 4.5 Vdc non-ratiometric 4.5 Vdc to 0.5 Vdc non-ratiometric	 0.5 Vdc to 4.5 Vdc ratiometric 4.5 Vdc to 0.5 Vdc ratiometric	 0.5 Vdc to 4.5 Vdc non-ratiometric 4.5 Vdc to 0.5 Vdc non-ratiometric
Output signal delay	4 ms typ.			
Overvoltage protection	10 Vdc	—	10 Vdc	—
Reverse polarity protection	-10 Vdc	-30 Vdc	-10 Vdc	-30 Vdc
Output to ground short circuit protection	continuous			
Resolution	12 bit			
Output load resistance (pull down to ground)	10 kOhm typ.			
EMI: radiated immunity	100 V/m per ISO11452-2 from 200 MHz to 1000 MHz		100 V/m per ISO11452-2 from 200 MHz to 1000 MHz	
conducted immunity	100 mA BCI per ISO11452-4 from 1 MHz to 200 MHz	100 mA BCI per ISO11452-4 from 1 MHz to 400 MHz	100 mA BCI per ISO11452-4 from 1 MHz to 200 MHz	100 mA BCI per ISO11452-4 from 1 MHz to 400 MHz
EMC	exceeds CE requirements			

Table 2. Mechanical Specifications

Characteristic	RTY Series		RTP Series	
	LV (Low Voltage)	HV (High Voltage)	LV (Low Voltage)	HV (High Voltage)
Expected life	35 M cycles		infinite rotation	
Air gap: bare magnet actuator housed magnet actuator misalignment	 — — —		 3,00 mm ±0.5 mm [0.12 in ±0.02 in] 2,00 mm ±0.5 mm [0.08 in ±0.02 in] 2,00 mm [0.08 in] max.	
Material: shaft magnet sensor housing housed magnet overmold sensor/housed magnet bushing sensor bushing	 stainless steel — PBT plastic — — stainless steel		 — NdFeB PBT plastic PPS plastic brass —	
Mating connector	AMP Superseal 282087-1			
Mechanical end stop	no			
Mounting screw sizes: sensor to mounting surface lever to mounting surface housed magnet actuator to actuator mounting shaft	 non-magnetic, stainless steel M5 screws and 10 mm [0.39 in] OD washers non-magnetic stainless steel M6 screws, —		 non-magnetic, stainless steel M4 X 0.7 screws and 8 mm [0.31 in] OD washers — non-magnetic, stainless steel M3 X 0.5 plain cup point set screws	
Approvals	CE			

RTY Series and RTP Series

Table 3. Environmental Specifications

Characteristic	RTY Series		RTP Series	
	LV (Low Voltage)	HV (High Voltage)	LV (Low Voltage)	HV (High Voltage)
Operating temperature range	-40 °C to 125 °C [-40 °F to 257 °F]			
Ingress protection	IP69K			
Media compatibility	heavy transportation fluids			
Shock[1]	50 G peak			
Vibration[1]	20 G peak			
Salt fog	concentration 5% ±1% for 240 hr per SAE J1455 Section 4.3.3.1 (at 5.0 Vdc, 38 °C [100 F °])		bare magnet: 96 hr for as per ASTM B117 housed magnet: 240 hr per ASTM B117	

[1] Does not apply RTY Series sensor shaft with lever.

CAUTION
ELECTROSTATIC SENSITIVE DEVICES
DO NOT OPEN OR HANDLE EXCEPT AT A STATIC FREE WORKSTATION
ESD SENSITIVITY: CLASS 2

NOTICE
Ferrous material or magnet material more than 300 Gauss within 10 mm [0.39 in] from sensor boundary may impact sensor performance.

Figure 1. All Available Configurations

Series	Actuator Type	Series	Actuator Type
RTY	Integral shaft without lever 	RTP	Separate bare magnet 
	Integral shaft with lever 		Separate housed magnet