

# YANKEE

## Absolute encoder



Single-turn electronic sensor that interfaces rotation elements and returns a signal according to the angular position or the rotation speed up to 800 rpm.

### FEATURES

- Used in a variety of industrial sectors, from lifting to automation, to meet any need in terms of registration and identification of modern production machines, wherever controls are needed, regardless of the nature of the mechanic system and of its complexity, and whenever reducing and unifying the system of angular positioning sensors is necessary.
- Designed for easy assembly and wiring in combination with standard sets of cams.
- Measuring accuracy guaranteed by 4095 points per revolution.
- IP protection degree: Yankee is classified IP20.
- Extreme temperature resistance: from -40°C to +85°C.
- High quality materials and components guarantee maximum mechanical life, precision and repeatability even in extreme conditions.

### OPTIONS

- Suitable for assembly on Fox, Oscar, Top and GF4C rotary limit switches\* to control multi-revolution rotors.
- Every position of the shaft or rotation speed up to 800 rpm is associated with an analog signal in voltage, in current or PWM.
- Multiple functions available on request:
  - CW/CCW direction inversion mode via terminal block;
  - incremental zeroing function based on time, or fixed zero function;
  - zeroing via terminal block;
  - configuration with measurement ranges different from standard values;
  - output proportional to speed, up to a maximum of 800 rpm;
  - configuration of non-linear output behavior across the entire 360° range.

### CERTIFICATIONS

- CE marking and cULus marking.

\* Attention: Yankee can be mounted only with PRSL0110/111XX switches (on cam sets with up to 4 switches for Fox rotary limit switches, with 2, 3 and 4 switches for Oscar and Top, with 5 and 6 switches for Oscar XL and Top XL and 2 switches for GF4C).

## CERTIFICATIONS

Conformity to Community Directives	2014/30/UE Electromagnetic Compatibility (EMC) Directive
	2006/42/CE Machinery Directive
	2014/35/UE Low Voltage Directive (LVD)
Conformity to CE Standards	EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements
	EN 60529 Degrees of protection provided by enclosures
Conformity to cULus Standards	CSA-C22.2 No 14-13 Industrial Control Equipment
	UL 508 Industrial Control Equipment
Markings and homologations	CE cULus

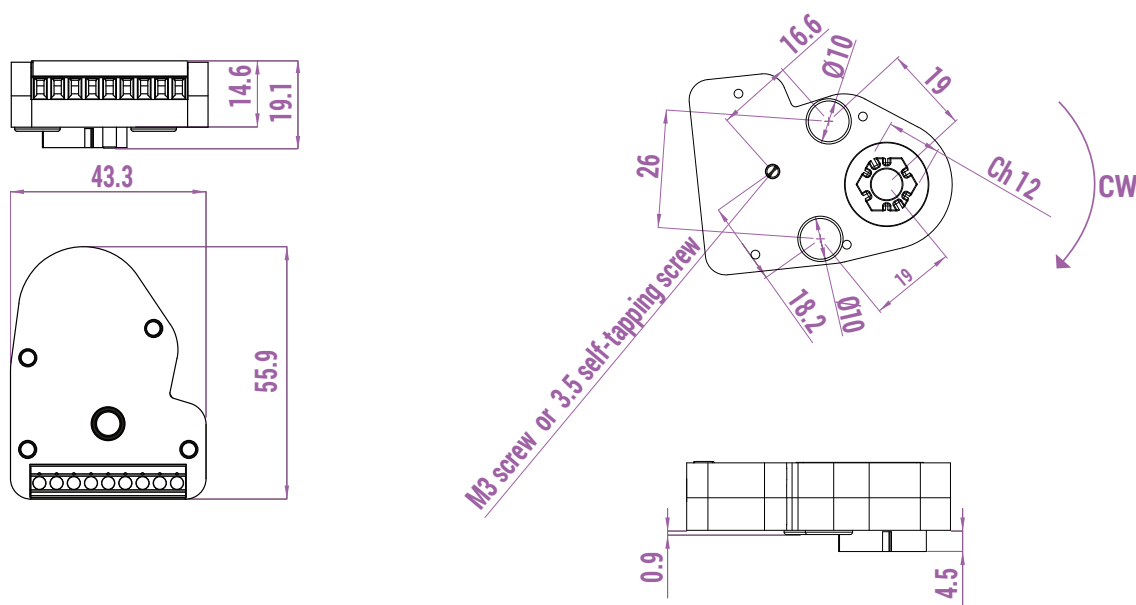
## GENERAL TECHNICAL SPECIFICATIONS

Ambient temperature	Storage -40°C/+85°C
	Operational -40°C/+85°C
IP protection degree	IP 20
Free rotation	360°
Max. rotation speed	800 rpm

## ELECTRICAL SPECIFICATIONS

Output	Current 0 ÷ 20 mA @ load resistance ≤ 500 Ω
	Voltage 0 ÷ 10 V @ load resistance > 500 kΩ
	PWM 0 ÷ 100% @ load resistance > 500 kΩ - Frequency 325 Hz
Measure type	Position (0° ÷ 360°)
	Speed (0 ÷ 800 rpm)
Power supply	12 ÷ 48 Vdc / 12 ÷ 48 Vac
Protection against reverse polarity	Yes
Consumption	35 mA
Resolution	12 bit (4095 points per revolution)
Linearity	+/- 0.25%
Max. hysteresis	0.1°
Zero Point setting	Through clamp
Signal increment direction	CW (default)
Connections	Terminal board
Terminal wires	0.14 mm² - 1.5 mm²
Terminal tightening torque	0.22 Nm - 0.25 Nm

### OVERALL DIMENSIONS (mm)



## OPTIONAL FUNCTIONS\*

Yankee is a highly configurable device in terms of output and operating modes.

The following functions and additional customizable features are available on request:

- **CW/CCW direction inversion mode** via terminal block, accessible to the user.
- **Incremental zeroing function** based on time, **or fixed zero function.**

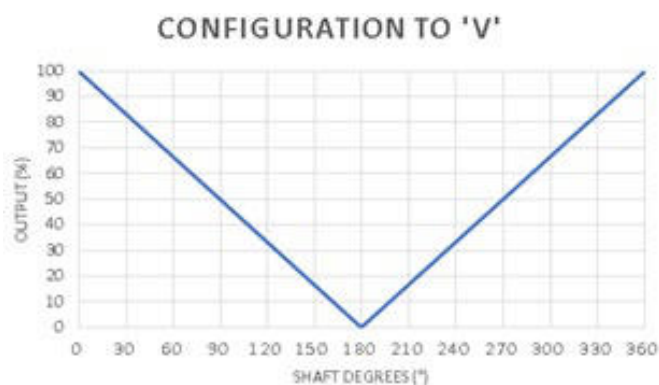
The first option is useful when, for various reasons, the user needs to shift by a certain value from the point where the reset is initiated. The second is required when the zero point must correspond exactly to a defined position.

In both cases, fixed zeroing occurs within the first 2 seconds after the reset command is given via terminal. In the case of incremental zeroing, if the command lasts longer than 2 seconds, it becomes a PRESET command. The output then increases by 0.32 mA / 200 mV / 2% per second respectively, depending on the configuration in current (I), voltage (V), or PWM. The maximum PRESET values are 12 mA / 5 V / 50%.

- **Zeroing via terminal block** also available with values different from the minimum (e.g. 12 mA in the 4..20 mA range, corresponding to 50% of the range).  
Normally, the fixed zero function corresponds to the minimum value of the configured range (e.g. 4 mA in the 4..20 mA range).
- Configuration with **measurement ranges different from standard values**. For example, the current output can be set to the 3..18 mA range, or voltage output to the 2..9 V range.
- **Output proportional to speed**, up to a maximum of 800 rpm.  
Normally, Yankee provides an output proportional to the absolute position of the monitored shaft.
- Configuration of **polyline output behavior** across the entire 360° range, up to 5 interpolation points.

In the standard configuration, Yankee provides an output proportional to shaft position. From minimum to maximum, the output increases monotonically. In some cases, however, a different behavior is needed.

One typical – though not exclusive – application is the so-called “V-shaped” output. In this setup, the maximum output corresponds to the minimum value of the measurement range, the minimum output is set at 50% of the range, and the maximum output is again set at the maximum value of the range. Within each segment, the output behaves proportionally.



## STANDARD ENCODERS

Description	Code
Yankee with current output and incremental zeroing	PA01AA01Y3
Yankee with voltage output and incremental zeroing	PA01AB01Y3
Yankee with PWM output	PA01AC01Y3
Yankee with current output, featuring ramp reversal via external command and incremental zeroing	PA01AA02Y3
Yankee with current output and reverse ramp, incremental zeroing	PA01AA03Y3
Yankee with voltage output, featuring ramp reversal via external command and incremental zeroing	PA01AB02Y3
Yankee with voltage output, reverse ramp and fixed zero	PA01AB04Y3