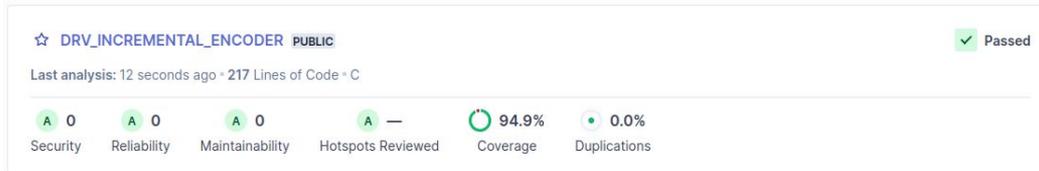


Encoder :: Incremental Encoder

An **Incremental Encoder** is a position sensor that produces a defined number of pulses per revolution (PPR) through its output signal. By counting these pulses, rotational movement can be measured. This library processes accumulated pulse counts and, using parameters such as wheel diameter and PPR, calculates distance traveled as well as angular position in degrees and radians, enabling accurate motion tracking in embedded and control applications

The software is architected with long-term maintainability, portability across MCU platforms, and adherence to high software quality standards as core design principles.

- ✓ Layered architecture with clear HAL abstraction
- ✓ Conforms to ISO C99 standard
- ✓ Portable across multiple MCU platforms
- ✓ Supports both RTOS and bare-metal environments
- ✓ CMake build system for scalable integration
- ✓ Seamless integration with GCC toolchain
- ✓ Statically analyzed for MISRA, CERT, and CWE compliance



Initialization Interface

```
inc_encoder_result_t inc_encoder_init( inc_encoder_handle_t*, ... )
```

Configuration Interface

```
inc_encoder_result_t inc_encoder_set_pulse( inc_encoder_handle_t*, ... )
```

```
inc_encoder_result_t inc_encoder_reset( inc_encoder_handle_t* )
```

Data Retrieval Interface

```
inc_encoder_result_t inc_encoder_get_pulse( inc_encoder_handle_t*, ... )
```

```
inc_encoder_result_t
```

```
inc_encoder_get_distance_cm( inc_encoder_handle_t*, ... )
```

```
inc_encoder_result_t
```

```
inc_encoder_get_angle_deg( inc_encoder_handle_t*, ... )
```

```
inc_encoder_result_t
```

```
inc_encoder_get_angle_rad( inc_encoder_handle_t*, ... )
```

Communication Interface:

I/O