

## General description

The HMT IO-Link Mini-stack software works in combination with the HMT physical layer IO-Link device line drivers (PHY's), either the HMT7742 GENIE IO-Link DEVICE PHY or the HMT7748 GENIE IO-Link DUAL DEVICE PHY. It is expressly designed to demonstrate the different operating modes of these PHY's and to demonstrate the recommended operation of the low level software.

The source code (C++) is provided by HMT free of charge. It is specifically designed to be as small as possible, to be readily understandable and to provide a good base for extension in customer applications.

Access to a download site for the source code is provided on registering with HMT, or together with the order of a GENIE Explorer development board (TM96.1A, TM96.1B, TM141.0 or TM142.0). Updates will be made from time to time, and are automatically available.

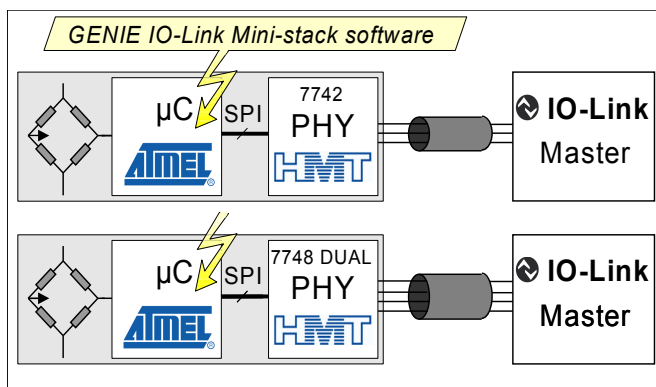


Fig. 1: Hardware architecture

## Communication rates

The Mini-stack provides support for operation at:

- 38.4kBaud
- 230.4kBaud

The interrupt service routines are optimised to support 230.4kBaud operation with M-sequences up to type 2.5 using the 8MHz internal Atmel RC oscillator.

## SIO operating modes

The HMT IO-Link Mini-stack provides support for all SIO modes:

- PNP (high-side switch)
- NPN (low-side switch)
- push-pull
- inactive (actuator)

## Data operating modes

The HMT IO-Link Mini-stack provides support for all PHY operating modes:

- Multi-octet UART mode
- Single-octet UART mode
- Transparent UART mode

## Software structure

The software provides for a simple cyclic execution of the user code, with equivalent operating conditions for the user code in both SIO and IO-Link operation. Execution of the user code is synchronised with the IO-Link exchange.

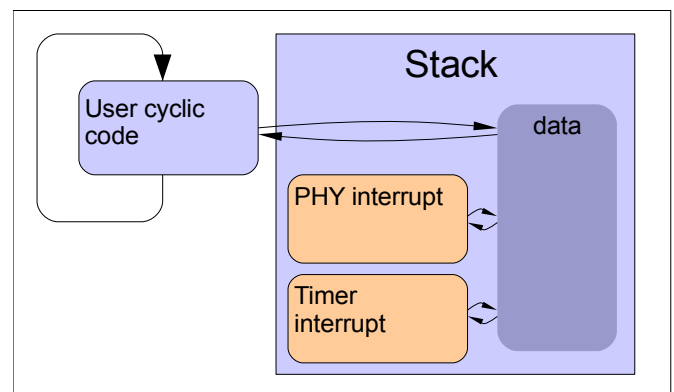


Fig. 2: HMT IO-Link Mini-stack software architecture

## Other features

- 1200 byte flash size (Multi-octet mode)
- support for IO-Link specifications v1.0 and v1.1

## Documentation

The software documentation is provided in the code package in both html and pdf format, including usage notes.

## Hardware platform

The source code runs directly on an Atmel ATmega328P microcontroller, and the interrupt service routines are optimised for this controller. Reliance on other hardware resources of the microcontroller is, however, minimised to facilitate porting to other microcontrollers.

## Demonstration application

A simple demonstration application and related IODD (IO-Link Device Description) file is supplied with the Mini-stack to facilitate a rapid development start together with one of the GENIE Explorer development boards or demonstrators.