

RO-CIP

(roh sip)

Robotic Open-Communication Interconnection Protocol

RO-CIP is a Family of Protocols [Hardware and Software] that are designed to co-exist and have interoperability on the same Data Link, connecting one or more Robot Controllers and Peripherals together.

- * Allow for multiple controllers & accessories [dozens] to share a single bus.
- * **RO-CIP** starts with a Protocol that is “dead simple” to understand, implement, and use, by sacrificing performance and advanced features in favor of simplicity and reliability.
- * **RO-CIP** will continue to more Advanced Protocols, to include Shared Data.
- * Useful for command & control, and basic sensor data. No streaming media [high-throughput] or time-critical [low-latency] data.
- * Message framing is based on ASCII. Each message starts with a character [e.g. 'A' or 'B' or 'M'] indicating what protocol is being used, and is terminated with one or more CR or LF chars. Everything in between is Protocol Dependent. This is chosen for future-proofing, and to play nicely with some preexisting protocols. Maximum Message length will be 64 bytes, including the Check-Sums.

RO-SIP will have Numbers [e.g. '1', '2', '3'] to identify the Hardware Protocol and Letters [e.g. 'A', 'B', 'M'] to identify the Software Protocol.

RO-CIP '1' [AKA “TTL Bus”] is the Hardware standard for TTL connections between devices.

RO-CIP '2' [AKA “485 Bus”] is the Hardware standard for RS-485 connections between devices.

RO-CIP '3' [AKA “I²C Bus”] is the Hardware standard for I²C connections between devices.

RO-CIP '4' [AKA “SPI Bus”] is the Hardware standard for SPI connections between devices.

RO-CIP 'A' [AKA “School Bus”] is a "starter" bus that introduces new programmers to some of the concepts in a friendly, forgiving way, and allows them to move on to fancier things later. A simple TTL/RS-485/I²C/SPI->USB serial cable and a terminal emulator are all you need to monitor and control the bus.

RO-CIP 'M' [AKA “Master Bus”] is a "single bus to rule them ALL". It supports Everything from command & control, and advanced sensor data to reading other human's minds, Anti-Gravity Levitation and Faster Than Light travel by Warping Space [Warp Drive]. [Dilithium Crystals not included]

RO-CIP is targeted at the community developing sensors/actuators/controllers that have interoperability to bring Maximum Flexibility to the Developers and Users of various Robotics and Control Systems.