

GCP Specification

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1 Summary

GCP (Generic Communications Protocol) is intended to send data over a network in a simple, open manner. While it can essentially be used on any type of communications layer, it was specifically designed for serial networks, such as RS232 or RS485. The protocol provides its own error detection, making such a service unnecessary at a lower layer.

Note: Throughout this document, the terms “byte” and “octet” are used interchangeably. All offsets and sizes listed are in octets. Values requiring more than one octet to store are stored MSB first (i.e.: with the most significant byte at the lowest offset) unless otherwise specified.

2 General Packet Format

All data sent over GCP is encoded using the general packet format (see table 1). The format of the *Payload* field varies depending on the type of message.

Offset	Size	Name	Value
0	2	<i>Preamble</i>	0x17, 0x01
2	2	<i>Size</i>	n
4	n	<i>Payload</i>	the payload data
$n + 4$	2	<i>CRC</i>	CRC of <i>Payload</i> (see section 2.1)

Table 1: General Packet Format

2.1 CRC Calculation

The CRC is calculated by prefixing the *Payload* field with a value of 1 and converting it to a number (MSB first). Then a standard CRC-16 calculation is performed using a polynomial of $x^{16} + x^{15} + x^2 + 1$.