Two-Wire Transfer Protocol (PR02)

1 Introduction

PR02 is a stateless link layer designed to formalise the process of transferring of small messages with error detection over a two-wire bus.

1.1 Revision History

Version	Author	Date	Change
0.01	CJH	13 Sep 2012	Initial release

1.2 Definitions

{1B} byte/octet

[2B] word (big endian)

(4B) long (big endian)

2 Framing

Framing characters are not required over two-wire bus.

- Frames always begin with a start condition
- The first octet following a start is always the address/RW byte
- Frames always end with either a repeated start or a stop condition

S/RS{address}{size}{data 0}{data 1}...{data n}{crc}**RS/STOP**

2.1 Address

The address octet is always driven by the primary station. Upper 7 bits are the secondary station address; least significant bit indicates which station drives the bus for the following octets.

Address octet least significant bit	Octets following address
0	Primary will drive the bus
1	Secondary will drive the bus

2.2 Size

Size of the following data field. Maximum size of 255 octets.

2.3 CRC

8 bit remainder calculated over all bytes (in order of first received bit) between **S/RS** and **RS/STOP** except the CRC itself. No special steps.

Order	8 bit
Polynomial	0x07 (CCITT)
Initial value	0xFF

3 Service Primitives

There are two services; read and write, indicated by the least significant bit of the address byte.

3.1 Read

Read a message from the secondary station buffer. Note that the crc is calculated over all octets regardless of which station sent them.

```
S/RS{b'AAAAAAA1'}.....................................RS/STOP
                 {size}{data 1}{data 2}...{data n}{crc}
```

3.2 Write

Write a message to the secondary station buffer.

```
S/RS{b'AAAAAAA0'}{size}{data 1}{data 2}...{data n}{crc}RS/STOP
```