



FLM-101 Communication Information - Software 677511

1. General.

Software 677511 is designed to provide the control function for the FLM-101 flow monitoring module. The FLM-101 uses the RS485/RS232 port to respond to communications from the host computer system.

This document describes the format of the communications protocol.

2. RS232 and RS485 Selection and Baud Rate.

The FLM-101 can be configured to use either RS232 or RS485 port signal levels. If more than one FLM-101 is to be connected to the same port then the communications must use RS485. Refer to ref 677916 for configuration information

The software supports two different baud rates (9600 or 1200) selected by an on board PCB jumper. Refer to ref 677916 for configuration information. Communication is always 8 data bits, no parity, 1 stop bit. The recommended baud rate is 9600 baud.

3. Communications Format.

Communications is achieved using an ascii character based protocol. Each string is output with a terminating <CR> character.

The FLM-101 can be configured (using Jumper J9 - refer also to reference 667916) for use with either a single dedicated serial port connection (with only one FLM-101 on) or a simple RS485 networked connection (with between 1 and 16 FLM-101 units all connected to the same RS485 bus).

When used in the single dedicated mode (J9 open circuit) the serial port is always an output and the communications string described in section 4 below is automatically output once a second.

When used in the networked mode (J9 present) the serial port remains inactive until the following data request string is received

?a (terminated with a <CR>, incoming <LF> chars are ignored without an error)

Where “a” is a decimal number which must be equal to the assigned address of the FLM-101 (refer to 667916). Data request with non-matching addresses are ignored without error (they are presumed to be intended for a different FLM-101 on the same RS485 network). When the matching data request is received the RS485 port is made active (output) and the communications string described in section 4 below is sent.



4. Communication String.

The FLM-101 output format is as follows

?a|P|C1|C2|C3|C4|S

Where all numbers are decimal integers as follows

a = device address (0 to 15)

P = time period in seconds over which the FLM-101 is counting the pulses. A value of 99 in this field indicates that the FLM-101 is in pulse width measuring mode.

C1 = number of pulses in channel 1 over this time period, or the measured pulse width for channel 1

C2 = number of pulses in channel 2 over this time period, or the measured pulse width for channel 2

C3 = number of pulses in channel 3 over this time period, or the measured pulse width for channel 3

C4 = number of pulses in channel 4 over this time period, or the measured pulse width for channel 4

S = Software number of installed firmware (eg 677511)

The string is terminated with a <CR>

5. Flow Meter Indication Utility.

A simple PC based terminal utility is available for communication with the FLM-101. This requires an RS485/RS232 COM port wired to one or more suitably configured FLM-101 units. It allows the flow rates of the four channels on a single FLM-101 to be monitored and displayed.