Maxiflex 4PI Pulse Integrity Module

Model M1713B 4 Channel Meter Pulse Integrity Module.

DATASHEET

FEATURES

- **4 dual-channel or 8 independent meter pulse inputs**
- **Provides ISO 6551 Level A pulse security.**
- **Detects and corrects both missing and added pulses**
- **Totalises corrected meter pulses from each channel**
- **Outputs a secondary single pulse stream from the selected input.**
- **Accepts a wide range of turbine meter output signals**
- **Fits in any MAXIFLEX base I/O slot**
- **1500V rms Isolation to logic.**

The primary function of the Maxiflex M1713B 4PI Module is to monitor dual inputs from up to four oil/gas turbine flow meters and to detect and correct errors in the input pulse streams, and totalise the pulses.

The module meets the Level A security requirements of specification ISO 6551 “Petroleum liquids and gases - Fidelity and security of dynamic measurement – Cabled transmission of electric and/or electronic pulsed data.”

ISO6551 recommends specific techniques to be employed in the quantitative measurement of petroleum products when royalty, fiscal and custody transfer accounting is required. Five levels of security are specified by this standard, with level A being the most stringent. When configured for Level A security, The Maxiflex M1713B 4PI module will continuously verify and correct pulse counts received from the flow meters. This module uses sophisticated correlation techniques in real time to compare the pulse streams and detect missing or added pulses, and accumulates all errors detected and corrected for reporting to the Maxiflex CPU.

This module also provides a pulse output signal selectable from any of the input pulse streams for use with the Maxiflex M1714A Meter Prover module.

A wide range of turbine meter inputs can be accommodated, with any phase.

When used with 90 degree phase shifted dual pulse streams, forward and reverse flow is totalised separately.

SPECIFICATIONS

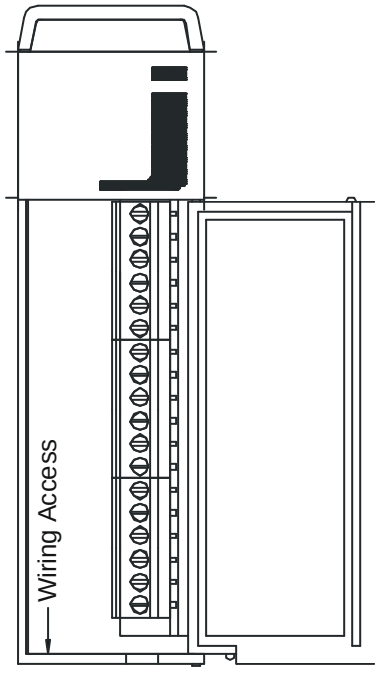
Inputs	
Number	8 Pulse Inputs (configurable as 4 dual pulse inputs or 8 independent pulse inputs)
Input Pulse Types	Three types of electrical pulse signal from the flow meter (including pre-amplifier) are catered for: Single-ended Voltage: 0 to 12V Differential Voltage: -6 to +6V Single-ended current: 4-16mA
Electrical Specifications	
Input “ON” voltage	3.5V minimum
Input “OFF” voltage	2.5V maximum
Input “ON” current	5mA minimum
Input “OFF” current	0.3mA maximum
Maximum Input Voltage	30Vdc
Input Indication (Green LED per channel)	LED ON when input is ON LED OFF when input is OFF
Input Pulse Frequency	0 - 4kHz
Minimum Pulse Width	100 microseconds
Pulse Counting Security	
Standards Compliance	ISO 6551 Levels A and B IP 252/76, Part XIII, Level A and B API Chapter 5.5 Level A and B
Output	
Type	Sourced voltage output pulses
Output Voltage	6Vdc minimum at 5mA
Pulse Width	100 microseconds minimum
Field Termination	
Type	Screw clamp Plug-in Terminal Blocks
Screw Terminal Wire Size	2.0mm^2 maximum *For manageable wiring to the module, 0.5 mm^2 is recommended with 2mm overall outside diameter*
Environmental	
Operating Temperature	-25°C to +60°C (-13°F to +140°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Humidity	95% max. at 40°C (104°F) non-condensing.
Protection	Electronics conformally coated
Logic Power Consumption	
From Logic Power Supply	60mA from 5Vdc max.
Mass	
Excluding Packaging	320g (11.3oz)
Including Packaging	410g (14.5oz)
Ordering Information	
Description	**Order Code**
Maxiflex 4PI Module	M1713B

ELECTRICAL CONNECTION

TERMINAL NO.	NAME	DESCRIPTION
1	IP1A+	Input 1 channel A positive
2	IP1A-	Input 1 channel A negative
3	IP1B+	Input 1 channel B positive
4	IP1B-	Input 1 channel B negative
5	IP2A+	Input 2 channel A positive
6	IP2A-	Input 2 channel A negative
7	IP2B+	Input 2 channel B positive
8	IP2B-	Input 2 channel B negative
9	IP3A+	Input 3 channel A positive
10	IP3A-	Input 3 channel A negative
11	IP3B+	Input 3 channel B positive
12	IP3B-	Input 3 channel B negative
13	IP4A+	Input 4 channel A positive
14	IP4A-	Input 4 channel A negative
15	IP4B+	Input 4 channel B positive
16	IP4B-	Input 4 channel B negative
17	OP+	Pulse Output positive
18	OP-	Pulse Output negative

MECHANICAL CONFIGURATION

Terminal Layout



Note: Module shown with door open.

LED Layout

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

LED	NAME	COLOUR	DESCRIPTION
1	1A	Green	ON when IP1A is ON
2	2A	Green	ON when IP2A is ON
3	3A	Green	ON when IP3A is ON
4	4A	Green	ON when IP4A is ON
5	1B	Green	ON when IP1B is ON
6	2B	Green	ON when IP2B is ON
7	3B	Green	ON when IP3B is ON
8	4B	Green	ON when IP4B is ON
9	AL1	Red	ON when Alarm present on Stream 1
10	AL2	Red	ON when Alarm present on Stream 2
11	AL3	Red	ON when Alarm present on Stream 3
12	AL4	Red	ON when Alarm present on Stream 4
13	OP	Green	ON when pulse output is ON
14			Unused
15			Unused
16	OK	Green	ON when module is operating