



Maxiflex MP Meter Prover Module

Model M1714B Meter Prover Module.

DATASHEET



FEATURES

- Performs pulse interpolation for proving oil & gas flow meters in accordance with the Manual of Petroleum Measurement Standards
- Accepts up to four detector switch inputs from a meter prover.
- Receives pulses from a flow meter to be proved.
- Performs pulse interpolation calculations in real time.
- Compatible with the Maxiflex M1713A four channel pulse integrity module to support multiple flow meters on a single meter prover.
- Fits in any MAXIFLEX base I/O slot

The Manual of Petroleum Measurement Standards Chapter 4 (Proving Systems) Section 6 (Pulse Interpolation) defines a method of “double-chronometry” or pulse interpolation for increasing the resolution of flow metering pulses when proving gas or oil meters used in custody transfer applications.

General purpose electronic control equipment (such as PLC's) are generally not able to meet the fast counting requirements needed to implement this method. This Maxiflex M1714B MP (Meter Prover) module is specifically designed to interface with compact meter provers, and provide the complete meter proving logic and pulse interpolation calculations in accordance with the standard.

This module performs the following functions:

- Accepts up to four detector switch inputs from a meter prover. Any two can be enabled for a meter prover “run”.
- Accepts a pulse input from the flow meter to be “proved”. This input is designed to be compatible with the Maxiflex 4PI (four channel pulse integrity) module pulse output so that any of the flow meter pulse streams into any Maxiflex 4PI module in the system can be software selected for this function.
- Upon software command, performs the pulse interpolation function (as defined in the Manual of Petroleum Measurement Standards) and provides the result to the Maxiflex CPU Module.

SPECIFICATIONS

Detector Switch Inputs

Number	4 detector switch inputs
Type	Opto coupled input (externally powered)

Electrical Specifications

Input “ON” voltage	9-30Vdc
Input “OFF” voltage	< 4Vdc
Input “ON” current	1.4mA at 9Vdc nominal 6mA at 24Vdc nominal

Indication	Three LED indicators per switch input: Green indicates switch is “ON” Yellow indicates switch is active Red indicates switch has activated.
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Flow Meter Pulse Input

Number	1 Flow meter pulse input
Type	Opto coupled input (externally powered)

Electrical Specifications

Input “ON” voltage	5-30Vdc
Input “OFF” voltage	< 1Vdc
Input “ON” current	1.2mA at 5Vdc nominal 2.4mA at 9Vdc nominal 7mA at 24Vdc nominal

Indication	Green LED indicates when pulse input is “ON”.
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Pulse Interpolation function

Standards Compliance	Performs all logic necessary to perform automated meter proving, and performs
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pulse interpolation using the “double chronometry” method in accordance with the Manual of Petroleum Measurement Standards Chapter 4 (Proving Systems) Section 6

Field Termination

Type	Screw clamp Plug-in Terminal Blocks
Screw Terminal Wire Size	2.0mm ² maximum <i>For manageable wiring to the module, 0.5 mm² is recommended with 2mm overall outside diameter</i>

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.
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Mass

Excluding Packaging	320g (11.3oz)
Including Packaging	410g (14.5oz)

Ordering Information

Description	Order Code
Maxiflex MP Module	M1714B



Maxiflex MP Meter Prover Module

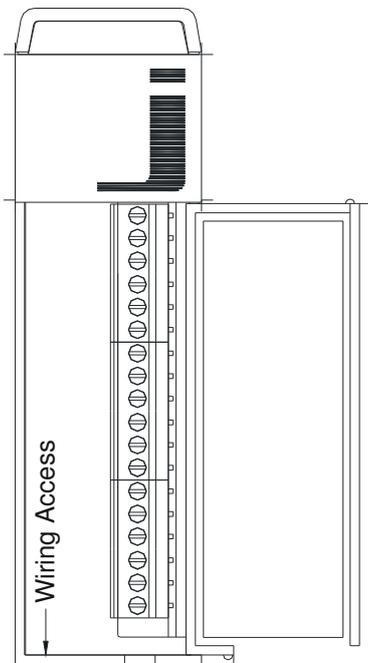
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ELECTRICAL CONNECTION

TERMINAL NO.	NAME	DESCRIPTION
1	D1+	Detector 1 Input positive
2	D1-	Detector 1 Input negative
3	D2+	Detector 2 Input positive
4	D2-	Detector 2 Input negative
5	D3+	Detector 3 Input positive
6	D3-	Detector 3 Input negative
7	D4+	Detector 4 Input positive
8	D4-	Detector 4 Input negative
9		No Connection
10		No Connection
11		No Connection
12		No Connection
13		No Connection
14		No Connection
15		No Connection
16		No Connection
17	P1+	Meter Pulse Input positive
18	P1-	Meter Pulse Input 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	D1	Green	ON when detector switch D1 is ON
2	D2	Green	ON when detector switch D2 is ON
3	D3	Green	ON when detector switch D3 is ON
4	D4	Green	ON when detector switch D4 is ON
5	A1	Yellow	ON when detector switch D1 is Active
6	A2	Yellow	ON when detector switch D2 is Active
7	A3	Yellow	ON when detector switch D3 is Active
8	A4	Yellow	ON when detector switch D4 is Active
9	L1	Red	Latches ON when D1 comes ON
10	L2	Red	Latches ON when D2 comes ON
11	L3	Red	Latches ON when D3 comes ON
12	L4	Red	Latches ON when D4 comes ON
13	P1	Green	ON when flow pulse input is ON
14	BSY	Yellow	ON during counting/timing
15	END	Green	ON when prover run is complete.
16	OK	Green	ON when module is healthy