F810A

Integrated Redundant Fieldbus Power for Foxboro EVO™ Control Systems

- **Integrated redundant fieldbus power for FBM228 FOUNDATION™ fieldbus modules**
- **8-segment redundancy**
- **High-density, compact design**
- **Fully isolated**
- **Low power dissipation**
- **No components on carrier**
- **Built-in "smart" termination**
- **Continuous physical layer diagnostic option**

The F810A fieldbus power system is designed to provide redundant FOUNDATION™ fieldbus power for Foxboro EVO™ control systems using FBM228 modules. Eight fieldbus segments are supported. The system comprises a baseplate which accommodates two redundant pairs of Foxboro FBM228 modules and two MTL-Relcom F801 or F802 power modules operating in redundant configuration. Failure alarms, galvanic isolation, power conditioning and segment termination are incorporated into each F80x module. In applications requiring simplex power, a single F80x module may be used.

For extreme reliability, the module baseplate has no components and only provides interconnections between FBM228 modules, the power modules and external connections.

Each F80x module has indicator LEDs to show both its status and that of the eight segments under power. In normal operation, each green 'Segment' LED is lit, showing that the segment is powered. If a segment is shorted, this LED is extinguished, and the red 'Alarm' LED is lit. In the alarm condition, a normally closed, galvanically-isolated relay contact goes to an open condition. Connections to the alarm relay are made via screw terminals on the F810A baseplate. If multiple F810A units are used, a common alarm circuit can be achieved by 'daisy-chaining' the alarm circuits.

The F80x module provides galvanic isolation between the 24V DC input power and the fieldbus segments, as required by the IEC61158-2 fieldbus standard and the Fieldbus FOUNDATION™ FF-831 validation test for power conditioners. There is also galvanic isolation between the fieldbus segments, thereby preventing multiple segment failures from ground faults on more than one segment. Each segment has its own fieldbus power conditioner and current limitation. Termination of the fieldbus segment is automatically maintained when single or redundant F80x modules are fitted.

An F809F-Plus diagnostic module may optionally be installed on the carrier, to automatically collect and distribute diagnostic information on each of the eight fieldbus segments. Measured parameters may be viewed in the Foxboro control system by either assigning the F809F-Plus as a fieldbus device to segment 1 or 8 of the powered segments, or by means of a separate fieldbus segment. Connections for the separate segment are provided on the baseplate. For more information see the F809F-Plus product specification.

Redundant 24V DC (nom.) input power can be connected to the F810A baseplate using Foxboro I/A standard AMP connectors. F80x power modules and the F809F-Plus fieldbus diagnostic module can either be powered from the same source or, alternatively, for installations in which standard Foxboro power supplies are unable to provide sufficient current capacity, an external 24V DC supply may be connected.

Field wiring connections are available with either pluggable screw terminals (F810A-PS) or pluggable spring clamp terminals (F810A-PC). Accessories are required for T-section and G-section, DIN-rail (DMK01) or surface (SMS01) mounting.

FOUNDATION™ fieldbus is a trademark of Fieldbus FOUNDATION™, Austin, Texas.

Powering Business Worldwide

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SPECIFICATION

Location of equipment
Safe area

INPUT	F801	F802
Input voltage (DC)	19.2 - 30.0V	19.2 - 30.0V
Current consumption (24V input, all outputs fully loaded)	4.4A*	6.9A*
Total Power dissipation (24V input, all outputs fully loaded)	42W*	46W*

** Redundant operation*

(Figures based upon fully populated F810A baseplate, including all F80x, FBM228 and F809F -Plus modules - see also next page)

OUTPUT	F801	F802
Number of channels	Eight (8)	Eight (8)
Voltage (DC)	21.5V - 24.0V	28.0V - 30.0V
Design current (per segment)	0 to 350mA	0 to 500mA
Current limit	> 370mA	> 520mA
Minimum load	0mA	0mA
Isolation		
Fieldbus to input power:	250V AC rms withstand	
Segment to segment:	200V DC withstand	

ALARMS

Alarm contact rating
1A maximum @ 30V DC maximum

Alarm contact status
Normally closed

Alarm threshold	F801	F802
Segment output	<19V DC	<24V DC

SYSTEM CONNECTIONS

Foxboro 'Fieldbus' LAN
9-way subminiature D, female

Address switches
Fieldbus wiring

Baseplate I.D.		
	Sw.1	Sw.2
0	ON	ON
1	ON	OFF
2	OFF	ON
3	OFF	OFF

Posn.	Sw.3
1 - 4	ON
5 - 8	OFF

Segment 1–8 and diagnostic segment – each has 3-way pluggable connector in screw terminal or spring clamp version, 0.14 to 2.5mm^2 (See ordering information)

Foxboro primary and secondary power inputs
2 x 3-way socket headers type AMP Universal MATE-N-LOK

Alternative power inputs
2 x 4-way pluggable connector, 0.14 to 2.5mm2
(Note these connectors are spring clamp type for -PC and -PS product variants. (See ordering information)

Chassis ground and screen/shield ground
Separate M4 terminal studs

Alarm contacts
2-way fixed screw terminal connector, 0.14 to 2.5mm^2

MECHANICAL

Mounting method
DIN-rail or vertical flat panel. DIN-rail mounting requires mounting clips (quantity 9 per F810A), available as part number DMK01 for pack of 40 clips.

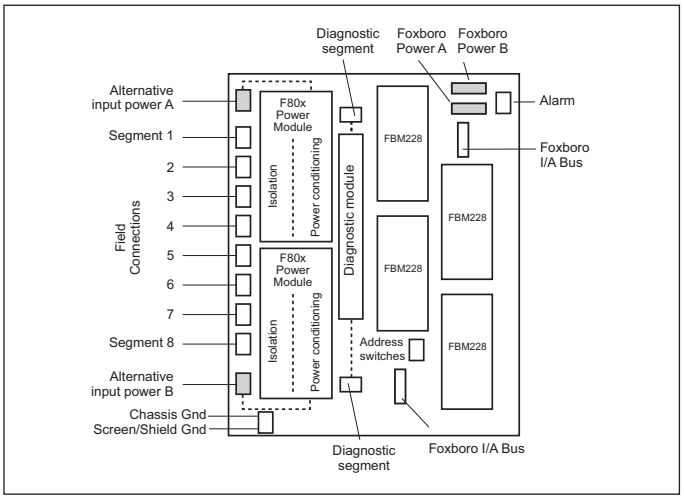
Weights

F801:	1.45kg
F802:	1.50kg
F810A-CA:	0.55kg

ELECTRICAL

EMC Compliance
To EN61326:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements

F810A - BLOCK DIAGRAM



ENVIRONMENTAL

Ambient temperature	F801	F802
Operating (full load)	- 40°C to +65°C	- 40°C to +50°C
Operating (60% load)	- 40°C to +65°C	- 40°C to +65°C
Storage	- 40°C to +85°C	- 40°C to +85°C

Note: Temperature range applies only when mounted on a horizontal DIN rail attached to a vertical surface.

Ingress protection
IP20 to BS EN60529
(For additional protection mount the equipment in an enclosure)

PHYSICAL NETWORKS

IEC61158-2
ISA-S50.02 Part 2-1992
FOUNDATION™ fieldbus H1

ORDERING INFORMATION

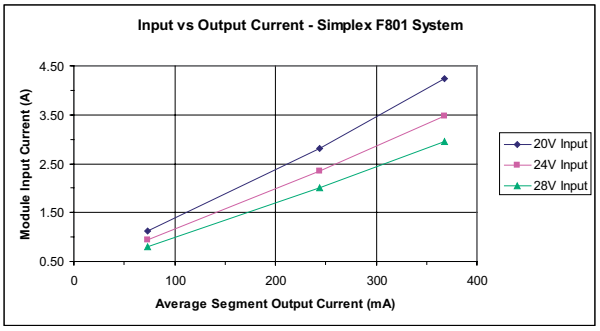
DESCRIPTION	PART NO.
Carrier, unpopulated	F810A-CA
8-segment power module: 21.5V, 350mA	F801
8-segment power module: 28V, 500mA	F802
F810A system with pluggable screw terminal connectors and two F801 modules	F810A-PS
F810A system with pluggable screw terminal connectors and two F802 modules	F810A-2-PS
F810A system with pluggable spring clamp connectors and two F801 modules	F810A-PC
F810A system with pluggable spring clamp connectors and two F802 modules	F810A-2-PC
Blanking module *	F800-BLK
Fieldbus diagnostic module	F809F-Plus
DIN-rail mounting kit, T or G section (pack of 40 clips)	DMK01
Surface mounting kit (pack of 40 clips)	SMS01

* Used in place of an F80x power module for non-redundant operation in order to defeat the failure alarm caused by the absence of the F80x.

Note: *Foxboro FBM228 modules are not included and must be obtained separately.*

F801 PARAMETERS

a)



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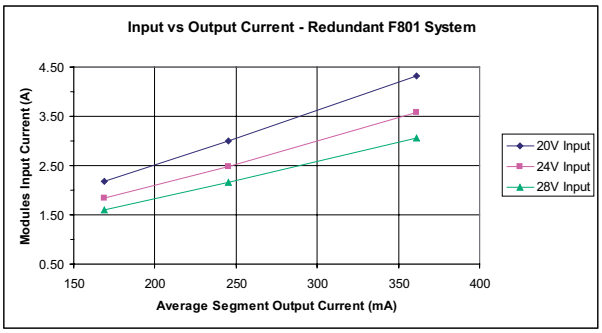

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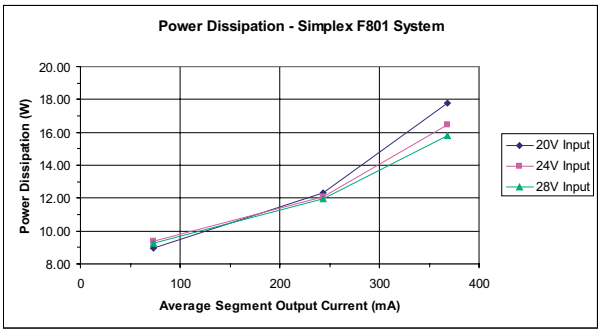

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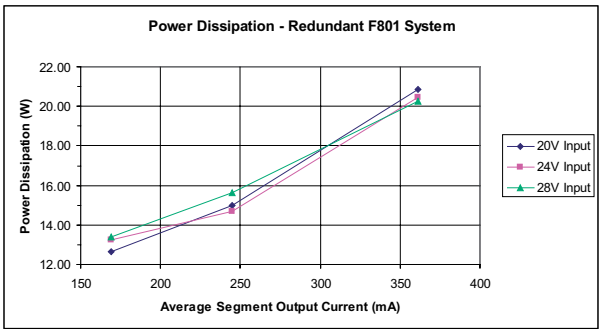
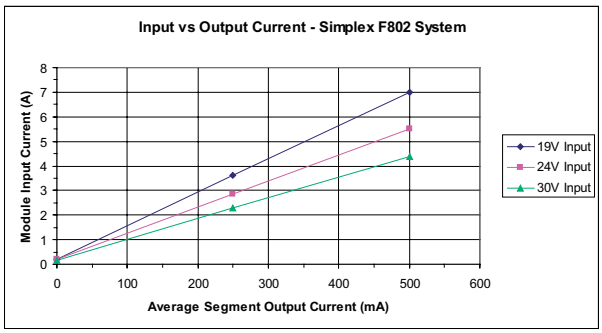


F802 PARAMETERS

a)



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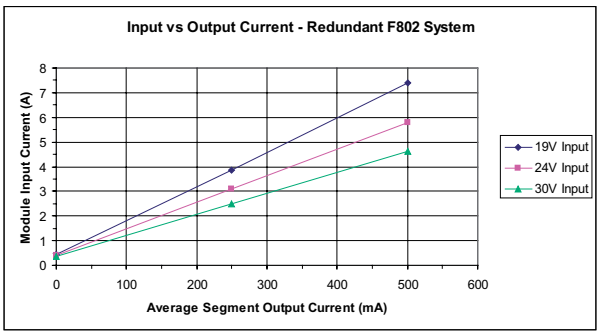

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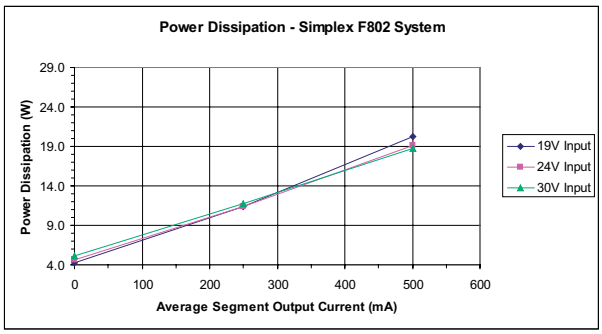

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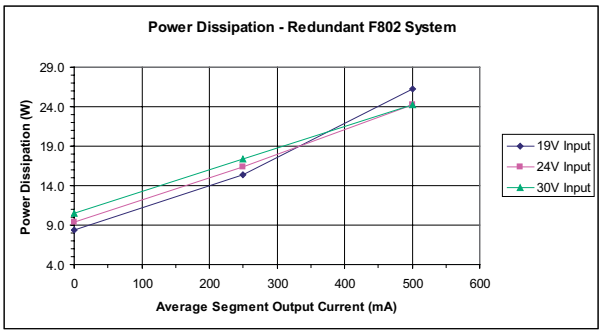


Calculating current requirements

There are two separate methods of powering the F80x power modules on the baseplate - **Option 1** - from the Foxboro Power system or - **Option 2** - from External Power supplies. Both methods can provide redundant power to the F810A.

Note: Power for the FBM228 modules is always taken from the Foxboro power supplies.

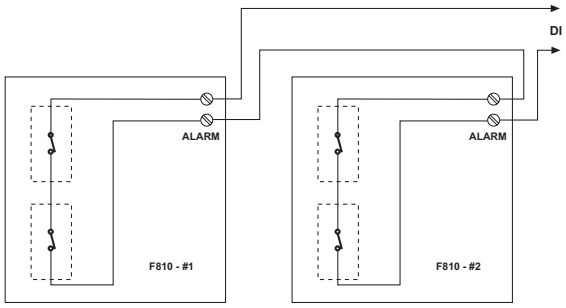
Option 2 current requirement from either external supply:

1. Use the 801/802 a) graph for simplex operation or the b) graph for redundancy.
2. Add 0.08A for the F809F-Plus - if fitted.

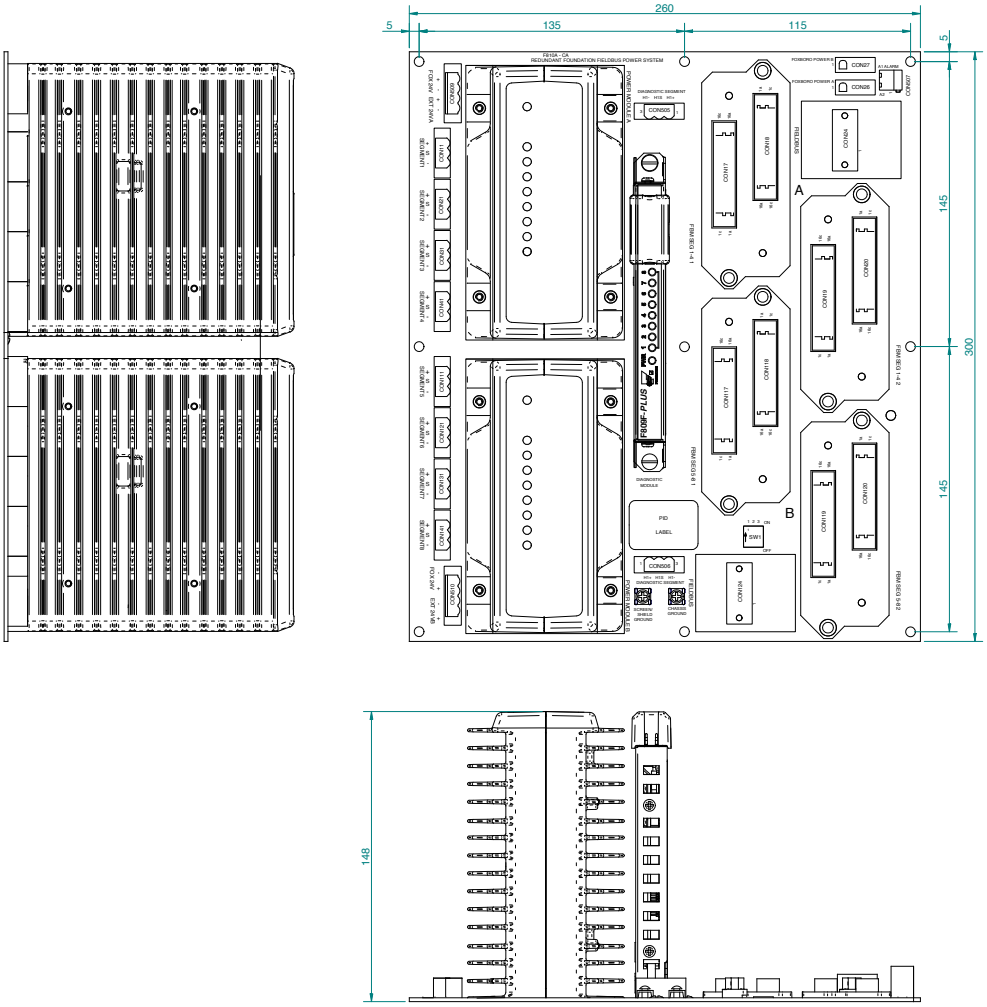
Option 1 current requirement from Foxboro supply:

Add a total of 0.8A for four FBM228 module to Option 2 current.

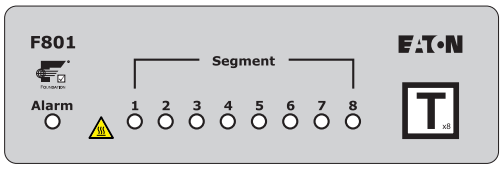
Linking alarm circuits

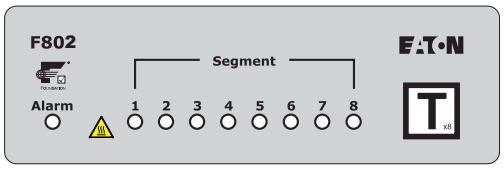


DIMENSIONS (mm)



F80x module top panels showing indicators





APPROVALS - *for the latest certification information visit www.mtl-inst.com/support/certificates/*

Country	Authority	Standard	Certificate	Approved for	Ratings
–	Fieldbus FOUNDATION™	FF-831	PS001700 (F801) PS001900 (F802)	H1 Profile- 132	–

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