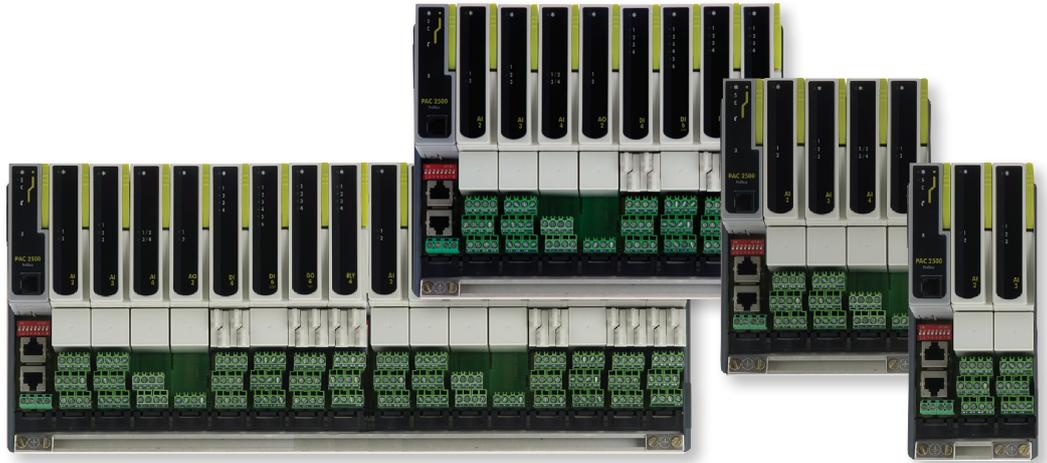




2500 Remote I/O



MODEL

The Foxboro PAC 2500 Remote I/O

Summary

The Foxboro PAC System enables secure and reliable process control and information recording with complete redundancy options for maximum availability.

The PAC System is a component of the InFusion Enterprise Control System. It is ideally suited for stand-alone applications and for integration into a wider ArchedraA-based control solution.

Business Value

Non-stop control and data acquisition is essential in today's competitive manufacturing environment. Ensuring your process runs continuously without data loss, regardless of the state of the surrounding environment, can mean the difference between a successful production run and expensive scrap or rework.

HIGH PERFORMANCE CONTROL IN A VERSATILE, MODULAR SYSTEM

High performance, high accuracy, high functionality in an I/O system that provides cost effective access to a wide range of advanced functions including PID control with auto tuning and gain scheduling.

Designed to communicate with Modbus RTU, Profibus®, DeviceNet®, or Modbus TCP/IP masters, it can be used for signal conditioning, alarm monitoring, remote data acquisition, or devolved control for systems such as the Foxboro PAC Controllers and Visual Supervisor, PC-based SCADA, and PLCs.

Devolved Control

Eight PID blocks, provide an extensive range of control strategies. Each block offers one-shot auto tuning to optimize control performance without the need for specialist knowledge. Every PID block may be a Single PID, Cascade, Ratio or Override controller, each providing the choice of analog, time proportioned, or valve position output.

Mounting Flexibility

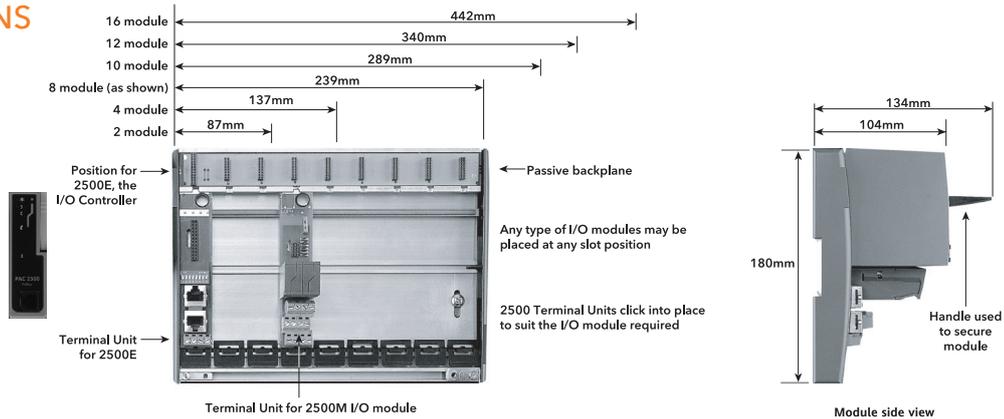
Six base sizes are available to take from 2 to 16 I/O modules each. Up to 16 bases may be daisy chained to provide acquisition and multi-loop control solutions with up to 128 I/O per base.

DIN rail mounting allows the 2500 to be located where the control action is required, minimizing the cost of the cable used, as only the communications need be taken to the User Interface. The 2500 may also be mounted on part of the machine, saving the cost of centralized control cubicles.

Easy Configuration

A friendly Windows configurator package, 'iTools,' is used to set up the 2500. iTools parameterizes and commissions the I/O points, the Toolkit, and PID function blocks and interconnects the different variables, alarms, function blocks, and I/O. 'Toolkit blocks' provide local combinational logic and mathematical calculation.

## SPECIFICATIONS



### 2500: General Specifications

Sample rate:	110mSec / Nominal 9Hz
Supply voltage range:	18.0 to 28.8V dc, 30V dc damage may occur
VA requirements:	< 80W max. for fully loaded rack
Non Replaceable Fuse:	4A time lag
Rating:	
IOC power consumption:	Modbus 1.5W max Profibus 2W max Devicenet 2W max Ethernet (Modbus-TCP) 2W max
I/O Module power consumption:	See module specification below

### EMC

Emissions:	EN50081-2: 1994
Immunity:	EN50082-2: 1992
Vibration:	EN60068-2, test FC

### Safety

Safety:	EN61010-1: 1993/A2: 1995 Installation cat II, Pollution degree 2 Safety earth and are made to clearly marked earth screen connections: terminals at the bottom of the base
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### Environmental

Operating Temperature:	0 to 55°C
Storage Temperature:	-20 to 70°C
Relative Humidity:	5 to 95 % non-condensing

### 2500B: Base Unit

The base consists of an aluminium extrusion, the internal I/O bus interconnection PCB and mounting supports. The base is designed to be DIN rail mounted, within an enclosure. However, if preferred it can be directly fixed to a bulkhead or mounting plate. Both base and modules can be fixed horizontally or vertically.

Bases are available in several standard sizes to suit the number of modules required in a particular system. The dimensions and weights of the different size bases are detailed in the table below.

### Mechanical

Module Capacity	0	2	4	8	10	12	16
Width (mm):	47	87	137	239	289	340	442
Weight Kg (No modules):	0.1	0.25	0.35	0.65	0.7	0.9	1.2
Weight Kg (all modules):	0.25	0.5	1.0	1.9	2.25	2.7	3.6

Mounting:	DIN rail or Bulkhead, can be mounted horizontally or vertically
DIN rail:	Use symmetrical DIN rail to EN50022-35 X 7.5 or 35X15
Casing:	Without additional protection IP20
Ventilation Space:	25mm free space above and below

### Module

#### I/O Module Sample Rate

IOC Type	Analog Input and Output	Digital Input and Output
2500E	110mSec / Nominal 9Hz	110mSec / Nominal 9Hz
2500E SYSIO	55mSec / Nominal 18Hz	55mSec / Nominal 18Hz

### Diagnostic LEDs

Diagnostic LEDs indicate module diagnostic status.

All modules:	A green LED at the top indicates the module is powered
2500C controller module:	3 yellow LEDs show configuration or standby status, and communications activity
	A red LED indicates failure of the internal self diagnostic routines
2500M Analog module:	Have red LEDs for each channel to indicate channel failure
2500M Digital module:	Have yellow LEDs for each channel to indicate the channel state

### Live Plug-in

The live plug-in feature means that I/O modules can be replaced under power without any disturbance to the field wiring or other inputs and outputs, reducing downtime and minimizing disturbance to other signal conditioning strategies.

### Termination Assemblies

The I/O modules are mounted on the base using terminal assemblies. Terminal assemblies provide the interface between the input and output signals and the I/O modules. Terminal assemblies and I/O modules are keyed to inhibit insertion of the incorrect module; this prevents damage to both equipment and plant.

### Test Disconnect / Fuse Units

Terminal assemblies have an optional fuse or a link (isolator or disconnect). This provides a series of connections between the customer terminals and the I/O module, permitting pluggable fuse or link units to be placed in series with the signal. Fuse and link units are not interchangeable. Terminal assemblies that do not have disconnect, have a dummy cover in the same position, providing space for a label to indicate the circuit or cable tag name.

### Communications

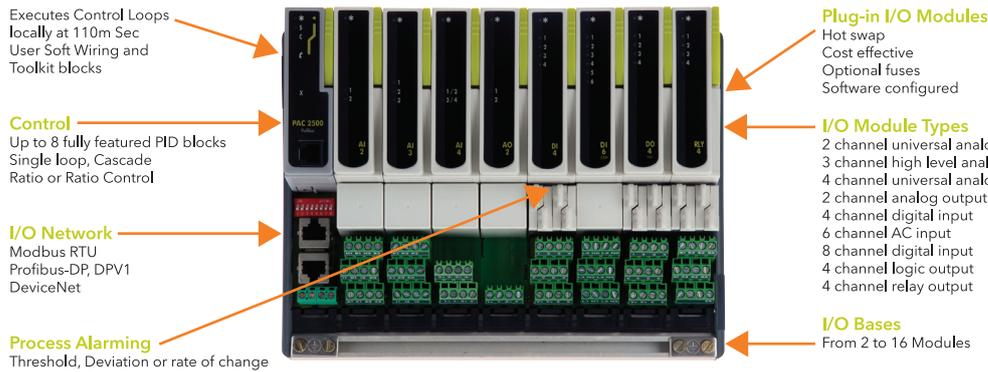
iTools is used to set up the type, range linearization and scaling of analog inputs, the PID control type and parameters, and all other functions and features within the 2500.

### Soft Wiring

Available on all 2500's; soft wiring enables interconnection between inputs, Alarms, Maths and Logic 'Toolkit Blocks', PID, and Outputs.

### Saving and Documenting your Configuration

Once the configuration has been completed the application can be saved as a 'clone' file for repeat application. Clone files can be loaded, copied, saved and edited both on and off-line.



### 2500E: Control module for a base unit

The Input Output Controller (IOC) is the Central Processing Unit of the 2500 DIN rail controller. Each 2500 base has an IOC module mounted in the extreme left-hand position. The control module communicates with the I/O modules via the internal I/O bus. Module interconnection is via the Base Unit PCB. This PCB also provides the internal power required by the I/O modules.

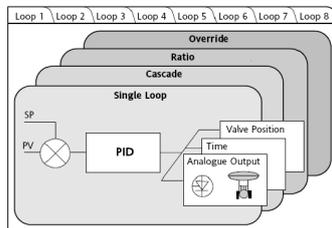
#### Control Blocks

- Control Loops: Up to 8 control blocks
- Control modes: On/Off, single PID, Cascaded PID, Ratio Control or Override Control
- Control outputs: Analog, Time Proportioned or Motorized Valve control with or without feedback potentiometer
- Cooling algorithms: Linear, Water, Fan, Oil
- Tuning: One-shot Auto tune or Manual
- Number of PID sets: Three
- Auto/Manual control: Bumpless transfer or forced manual O/P available



#### PID and User Alarms

All Analog inputs and outputs share a common, comprehensive alarm capability in addition to the I/O alarms.



- Number of user alarms: 4 per PID block plus 4 additional user alarms
- Alarm types: High absolute, Low absolute, Deviation high, Deviation low, Deviation band, Rate of change All with separate hysteresis
- Alarm modes: Latching or non-latching, Blocking, Energized or de-energized in alarm

#### Distributed Acquisition

The modularity of the 2500 makes it easier to create I/O blocks with just the correct mix of Inputs and Outputs, enabling you to distribute the acquisition equipment geographically saving the cost of expensive multi-core or compensation cables. Up to sixteen 2500 base units may be daisy chained to provide complex distributed multi-loop control or acquisition applications. Those are easily linked to an operator interface unit, SCADA package or supervisory PLC. They can also share the communications bus with other external devices such as discrete controllers, indicators, chart recorders, or drives.

#### Intelligent Alarm Monitor

Alarm Outputs (contact trips) may be triggered, based on sensed or calculated values. Calculated values can be derived from a comprehensive library of maths and Boolean functions. Alarms can be triggered upon violation of high or low threshold, deviation from a constant or sensed input, and from calculated values. Rate of change alarms are also available.

#### Toolkit Block

'Toolkit blocks' provide the mathematical or logical expressions required in creating an application. The functions are wired together using 'drag and drop' techniques simplifying complex applications. The Toolkit block variables are parameterized using pull down lists or by direct data entry.

- User variables: 16 real values per base
- Analog function blocks: 32 function blocks per base; Add, Subtract, Multiply, Divide, Absolute difference, Maximum, Minimum, Hot swap, Sample and hold, Power, Square root, Log, Ln, Exponential, Select Logic
- Digital function blocks: 32 function blocks per base: AND, OR, XOR, Latch, Equal, Not equal, Greater than, Less than, greater than or equal to, less than or equal to
- Timing functions: 8 Timers 8 Totalizers 8 Counters

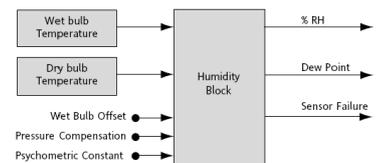
#### 2500 Signal Conditioning

The 2500 signal conditioning "solution provider" for multiple signal inputs offers the answer to complex signal conditioning challenges. The different base sizes and I/O structure enables users to match I/O modules to suit the precise needs of individual applications. Used as a signal-conditioning unit the 2500 can be configured to solve complex signal conditioning problems. It enables easy link access to analog and digital inputs and outputs while still offering high speed industrial standard serial communication, to suit your data acquisition requirements.

- Custom linearization
- Combinational Logic
- High/Low signal select
- First Order Filter
- Ramp function
- Signal conditioning
- Mathematical functions

#### Humidity Function Block

A special Humidity function block calculates the relative humidity or dew point (Process Value) using the wet and dry bulb measurement technique. Pressure compensation can be measured via a transmitter and soft wired to the block from an input or can be set as a fixed parameter.

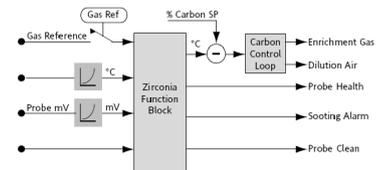


#### Zirconia Function Block

This feature is used to measure carbon potential, furnace dew point or oxygen concentration.

- Temperature Control
- Carbon Potential Control
- Sooting Alarm
- Automatic Probe Cleaning
- Endothermic Gas Correction

**Supported probes:** Bosch Carbon, AACC, Drayton, Accucarb, SSI, MacDhui, Oxygen, Log Oxygen, Bosch, Dewpoint.



#### Communications

The IOC module optionally supports Modbus RTU, DeviceNet, Profibus or Modbus TCP communications.

- Modbus RTU: 3-wire RS232, RJ11 (Normally used for configuration)
- Modbus RTU: Jumper selectable 2 or 4-wire RS485 (Field comms/ configuration) Connectors 2 x RJ45
- Profibus DP: High speed RS485. Up to 12Mb/s Connectors 9 pin D connector or 2 x RJ45
- DeviceNet®: CAN - 500Kb "Open" connector
- Modbus TCP/IP: 10 BASE-T, RJ45



### 2500M-A: Two Channel Analog Input

This analog input module is used to monitor analog signals from a wide range of plant sensors. The mA and TC inputs each require the appropriate terminal unit. The second channel of the AI2 has a special high impedance range for use with zirconia probe inputs.

No of channels:	2
Input types:	TC, RTD, Volts, mA, mV, Potentiometer, Pyrometer, Zirconia probe,
mV range:	-150mV to +150mV at input impedance >100MΩ
mA range:	-25mA to +25mA with 5Ω burden in the terminal unit
Volts range:	-10.2V to +10.2V at input impedance 303kΩ
RTD support:	Support for 2, 3 and 4 wire resistance thermometer devices
Ohms range:	0 to 640Ω 2, 3 or 4-wire lead compensation
Hi Ohms range:	0 to 5kΩ 2, 3 or 4-wire lead compensation
Pot range:	5% to 95% 'rotation' of 100Ω to 5kΩ pot
Resolution:	Better than 0.001% of range
Linearity:	Better than 0.003% of range
Input filtering:	OFF to 999.9 seconds
Input accuracy:	Electrical input factory calibrated to better than 0.1% of reading
System isolation:	300V RMS or dc (double insulation)
Channel isolation:	300V RMS or dc (basic insulation) between thermocouple channels
Series mode rejection:	60dB (50-60Hz)
Common mode rejection:	120dB (50-5kHz)
Power consumption:	2W maximum

#### TC Input specification

Linearization types:	J, K, L, R, B, N, T, S, C, PL2, PT100, Linear, SqRoot, plus custom
CJC system:	Measured by RTD fitted on terminal unit
Initial CJC accuracy:	±0.5°C typical (±1°C maximum)
CJC rejection:	Better than 30:1 over -10°C to +70°C

**Note:** User calibration options can improve performance, limited only by noise and non-linearity.

#### AI2 – ORDER CODE

<b>Module</b>	
2500M-A000	Two Channel - isolated universal input

<b>Terminal Unit</b>	
2500T-AT00	Terminal unit for TC with CJC
2500T-AD00	Terminal unit for Mv, V, PT100, Hiz inputs
2500T-AD20	Terminal unit for 5 ohm shunt fitted for mA



### 2500M-C: Three Channel Analog Input

Provides three isolated current input channels specifically designed to meet the requirements of modern two wire transmitters. Each channel has its own isolated 24V supply for transmitter excitation. Each channel's 24V dc supply is protected against short circuit and utilizes a sophisticated trip and try system in which the module senses over current and cuts the power. After a period the circuit checks for continued circuit malfunction. The module can be optionally fitted with disconnects to allow isolation of an individual input and allow work on the loop to continue safely.

No of channels:	3
Input range:	-28mA to +28mA
Resolution:	Better than 0.5uA (16 bits with 1.6 sec filter time)
Linearity:	Better than 10uA
Initial accuracy:	Factory calibrated to better than ±0.1% of reading
Input filtering:	OFF to 999.9 seconds
Burden resistance:	60Ω nominal, 50mA max current
Channel PSU:	20-25V dc, current limited 30mA nominal, self-resetting
System isolation:	300V RMS or dc (double insulation)
Channel isolation:	300V RMS or dc (basic insulation). No common ground
Power consumption:	4W maximum

#### Notes:

1. User calibration options can improve performance, limited only by noise and non-linearity.
2. Total burden can be increased to 250Ω or HART by removing a link track on the terminal unit.

#### AI3 – ORDER CODE

<b>Module</b>	
2500M-C000	Three channel - isolated 4-20mA analog input with Isolated 24V Tx PSU

<b>Terminal Unit</b>	
2500T-DU00	Terminal unit with dummy cover fitted
2500T-DU30	Terminal unit with disconnect



### 2500M-D: Four Channel Analog Input

This analog input module is used to monitor analog signals from a wide range of plant sensors. The mA and TC inputs each require the appropriate Terminal Unit.

No of channels:	4
Input types:	TC, mV, mA, Pyrometer mV range: -150 - +150mV at input impedance >100MΩ mA range: -25 - +25mA with 5Ω burden in the terminal unit
Resolution:	Better than 0.001% of range
Input filtering:	OFF to 999.9 seconds
Initial input accuracy:	Electrical Input Factory Calibrated to better than 0.1% of reading. mA range with 5Ω burden in the terminal unit, better than 0.2% of reading.
System Isolation:	300V RMS or dc (double insulation)
Channel isolation:	300V RMS or dc (basic insulation); separating Ch1 and Ch2 from Ch3 and Ch4
Series mode rejection:	60dB (50-60Hz, 1mA rms)
Common mode rejection:	120dB (50-5kHz, 50V rms)
Power consumption:	2W maximum

#### TC Input specification

Linearization types:	J, K, L, R, B, N, T, S, C, PL2, linear, SqRoot, plus custom
CJC system:	Measured by RTD fitted on terminal unit
Initial CJC accuracy:	±0.5°C typical (±1°C maximum)
CJC rejection:	Better than 30:1 over -10°C to +70°C

#### Notes:

1. User calibration options can improve performance, limited only by noise and non-linearity.
2. Wiring care and sensor choice should be used to prevent ground loops when using non-isolated TCs.



### 2500M-E: Two Channel Analog Output

This analog output module provides two isolated analog output channels. Each output can be independently configured for current or voltage mode. The module can be optionally fitted with disconnects to allow isolation of an individual output and allow work on the individual loop to continue safely.

No of channels:	2
Current output:	-0.1 to 20.5mA; 10V dc max. Compliance with total burden less than 500Ω
Voltage output:	-0.1V to 10.1V dc; 20mA max. compliance with total load greater than 500Ω -0.3 to 10.3 V dc; 8mA max. compliance with total load greater than 1500Ω
Resolution:	Better than 1 part in 10,000 (0.5mV (15 bit) typical)
System isolation:	300V RMS or dc (double insulation)
Channel isolation:	300V RMS or dc (basic insulation. No common ground)
Power consumption:	2.2W maximum

#### AO2 – ORDER CODE

<b>Module</b>	
2500M-E000	Two channel isolated mA, volts
<b>Terminal Unit</b>	
2500T-NU00	Terminal unit
2500T-NU30	Terminal unit with disconnect

#### AI4 – ORDER CODE

<b>Module</b>	
2500M-D000	Four channel - T/C, mV, mA input
<b>Terminal Unit</b>	
2500T-FT00	Terminal unit for 4 channel TC with CJC
2500T-FM00	Terminal unit for 4 channel mV
2500T-FV00	Terminal unit for 4 channel mA



### 2500M-L-M: Eight Channel Logic/Contact Input

This eight channel digital input module accepts eight logic inputs and is available in two factory option formats for voltage or contact-closure input.

No of channels: 8  
 Input functions: On/Off pulse and de-bounce inputs with input invert  
 System isolation: 300V RMS or dc (double insulation)  
 Channel isolation: 50V RMS or dc (basic insulation) between pairs  
 Power consumption Logic: 1W maximum  
 Contact: 2.5W maximum

#### 'Contact' Variant

Contact closure:  
 ON state: Input resistance threshold 100Ω (<1KΩ typical)  
 OFF state: Input resistance threshold 10KΩ (>7KΩ typical)  
 Wetting current: 4mA typical

#### 'Logic' Variant

Logic inputs:  
 ON state: Input voltage threshold >10.8V dc, 30V max.  
 OFF state: Input voltage threshold <5.0V dc non-overlapping  
 ON transition: 2.5mA approx @ 10.5V; 8.0 mA max. @ 30.0V

### D18 – ORDER CODE

#### Module

2500M-L000 Eight channel - Logic input  
 2500M-M000 Eight channel - Logic input

#### Terminal Unit

2500T-MU00 Terminal unit with dummy cover fitted  
 2500T-MU30 Terminal unit with disconnects

### 2500M-G: Four Channel Digital Input

This digital input module accepts four logic inputs, and can be wired either for voltage input (either polarity) or for contact closure.

No of channels: 4  
 Input functions: On/Off, pulse and de-bounce  
 System isolation: 300V RMS or dc (double insulation)  
 Channel isolation: Channels share a common connection  
 Power consumption: 0.45W maximum

#### 'Contact' Variant

External supply: 18-30V dc wetting power required  
 Contact closure:  
 ON state: Input resistance threshold 100Ω (<1KΩ typical)  
 OFF state: Input resistance threshold 10KΩ (>7KΩ typical)  
 Wetting current: >8mA  
 Wetting voltage: >9V, 12V typical measured open-circuit

#### 'Logic' Variant

Logic inputs:  
 ON state: Input voltage threshold >10.8V dc, 30V max  
 OFF state: Input voltage threshold <5.0V dc non-overlapping  
 Input impedance: 4KΩ approx. (> 3mA drive required for 'ON')

### D14 – ORDER CODE

#### Module

2500M-GE00 Four channel - input

#### Terminal Unit

2500T-JU00 Terminal unit with dummy cover fitted  
 2500T-JU30 Terminal unit with disconnects

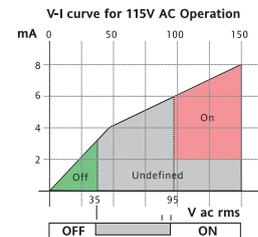
### 2500M-K: Six Channel AC Voltage Input

The six channel digital input module accepts AC voltage inputs and is available in two factory options optimized for 115V ac or 230V ac ranges.

No of channels: 6  
 Input functions: On/Off or de-bounce  
 Frequency: 47Hz-63Hz  
 Transient immunity: EN50082  
 System isolation: 300V RMS or dc (double insulation)  
 Channel isolation: 300 V RMS or dc (basic insulation)  
 Power consumption: 0.5W maximum

#### '115V ac' Variant

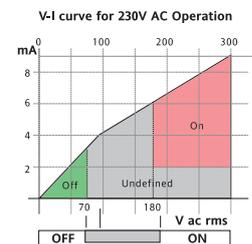
Active On state: >95V ac rms, 150V ac rms maximum  
 Inactive OFF state: <35V ac rms  
 Main input current: More than 2mA required for 'ON'  
 Maximum input current: 8mA



V-I curve for 115V ac operation

#### '230V ac' Variant

Active ON state: >180V ac rms, 264V ac rms maximum  
 Inactive OFF state: <60V ac rms  
 Min input current: More than 2mA required for 'ON'  
 Maximum input current: 9mA



V-I curve for 230V ac operation

\* The threshold may be between Vmaxoff and Vminon loff is defined at the threshold

#### INADVERTENT USE OF THE WRONG RANGE

115V type on 230V ac No damage will result. Power dissipation will be higher than desirable for continued use on all 6 channels simultaneously.

**THIS IS NOT A RECOMMENDED MODE OF OPERATION**

### D16 – ORDER CODE

#### Module

2500M-KA00 Six channel high voltage 230 volt ac logic  
 2500M-KB00 Six channel high voltage 115 volt ac logic

#### Terminal Unit

2500T-LU00 Terminal unit



### 2500M-JE and HE: Four Channel Logic Output

This digital output module provides four logic outputs and is available in two factory option formats for standard or high output.

No. of channels: 4  
 System isolation: 300V RMS or dc (double insulation)  
 Channel isolation: Channels share a common connection  
 Current assumption: 100mA max  
 Output functions: TPO and VP in module

#### 'Logic' Variant

Voltage supply: 18<Vs <30V dc  
 Output current: >8mA high drive per channel (Current limited)  
 Output voltage: At least Voltage supply (Vs) -3V switch drop

#### '24' Variant

External supply: 12 <Vs <30V dc  
 Output current: 100mA maximum high drive per channel (Current & Temperature limited)  
 Output voltage: At least Voltage supply (Vs) -3V switch drop

### DO4 – ORDER CODE

#### Module

2500M-JE00 Four channel digital logic output 10mA max  
 2500M-HE00 Four channel digital 24d switched output

#### Terminal Unit

2500T-RU00 Terminal unit with dummy cover fitted  
 2500T-RU30 Terminal unit with disconnects



### 2500M-F: Four Channel Relay Output

This digital output module provides four relay outputs. The relay contacts are all fitted with removable snubber circuits to reduce contact arcing and prolong contact life.

No of channels: 4 (3 normally open + 1 changeover)  
 Max current rating: 2A at up to 240V ac; 0.5A at 200V dc, increasing to 2A at 50V dc (resistive)  
 Min ratings: AgCdO contacts offer best operating life switching more than 100mA 12V  
 Fuse (option): 3.15A, 20mm ceramic, time lag (T), in terminal unit  
 System isolation: 300V RMS or dc (double insulation)  
 Channel isolation: 300V RMS or dc (basic insulation)  
 Contact life: >10million operations @ 250V ac, 1A rms  
 >600,000 operations @ 250V ac, 2A rms  
 De-rating: The above ratings summarize the performance with resistive loads. With complex loads further derating may be required  
 Power consumption: 1.1W maximum

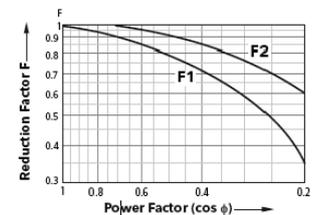
### Relay De-rating

#### AC Voltage

As the AC load becomes more "difficult" a more significant derating factor is required. The graph opposite shows the derating to be applied in terms of contact life, assuming the load requirement is predefined.

F1: Worst case  
 F2: Typical

Reduction factor for inductive ac loads

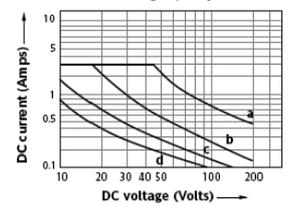


Contact life = resistive contact life x reduction factor

#### DC voltage

DC operation is also limited for difficult loads, particularly where there is significant inductance. Here the working current must be limited as shown where the load time constant (L/R, in ms) is the significant factor.

Max dc load breaking capacity



a = resistive b = 20ms c = 40ms d = 60ms

### RLY4 – ORDER CODE

#### Module

2500M-F000 Four channel isolated relay output

#### Terminal Unit

2500T-T000 Terminal unit  
 2500T-T040 Terminal unit with four 3.15A fuses

## 2500 Controller

### 2500 - COMPOSITE ORDER CODE

2500	1	2	3	4	5	6	7-22	23	24	25
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	<b>Basic Product</b>
2500	Eight Loop Controller & Data Acquisition Unit
<b>1</b>	<b>Basic Size</b>
A	2 module positions
B	4 module positions
C	8 module positions
E	10 module positions
F	12 module positions
D	16 module positions
<b>2</b>	<b>Earthing System</b>
0	Two earth clamps fitted
1	Earthing clamp for a 2 I/O module base
3	Earthing clamp for a 4 I/O module base
4	Earthing clamp for a 8 I/O module base
6	Earthing clamp for a 10 I/O module base
7	Earthing clamp for a 12 I/O module base
5	Earthing clamp for a 16 I/O module base
<b>3</b>	<b>Function</b>
1	Remote I/O acquisition
3	Remote I/O acquisition (55ms)*
2	Toolkit block + acquisition functions
4	Four PID blocks + acquisition
6	Eight PID blocks + acquisition
7	Eight PID blocks + toolkit & acquisition
<b>4</b>	<b>Communications Protocol</b>
A	No extension memory fitted
D	DeviceNet Comms
C	Profibus Comms
B	Profibus DPV1 Comms
E	Modbus TCP/Ethernet
<b>5</b>	<b>Communications Connector Type</b>
1	RJ45 connector for Modbus or Profibus
2	9 pin D connector for Profibus
3	Standard DeviceNet screw connector
4	Ethernet communications
<b>6</b>	<b>Application</b>
0	No application loaded
1*	Pre-configured application loaded

\* 3 only available with field 4 Profibus Comms or Profibus DPV1 Comms

\* Refer to Factory

<b>7-22</b>	<b>Module and Terminations</b>
B	2 ch — isol universal analog I/P with CJC for T/C
C	2 ch — isol universal analog I/P for PT100, Hiz inputs
D	2 ch — isol universal analog I/P - 5 shunt fitted for mA inputs
E	3 ch — isol 4-20mA analog I/P with 24V Tx PSU
F	3 ch — isol 4-20mA analog I/P with 24V Tx PSU with disconnects
G	4 ch — non isol T/C, with CJC
H	4 ch — non isol mV I/P
J	4 ch — non isol mA I/P
K	2 ch — isol analog O/P mA, volts
L	2 ch — isol analog O/P mA, volts with disconnects
M	4 ch — digital I/P
N	4 ch — digital I/P with disconnects
P	6 ch — 230 volt ac logic I/P
Q	6 ch — 115 volt ac logic I/P
R	8 ch — non isol digital I/P (logic I/P only)
S	8 ch — non isol digital I/P (contact I/P only)
T	4 ch. digital O/P logic O/P 10mA max
U	4 ch. digital O/P logic O/P 10mA max with disconnects
V	4 ch. digital O/P 24V dc switched O/P
W	4 ch. digital O/P 24V dc switched O/P with disconnects
X	4 ch — isol relay O/P rated 2A ac
Y	4 ch — isol relay O/P rated 2A ac, with 4 off 3.15A fuses
A	Blank terminal unit
0	No terminal unit or blank fitted
<b>23</b>	<b>Earthing System</b>
N/A	Not Used
<b>24</b>	<b>Configuration Tools</b>
0	CD with manuals
1	CD with manuals, iTools & 2500 configuration lead
2	Shipped without CD
<b>25</b>	<b>Configuration Tools</b>
N/A	Not Used



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