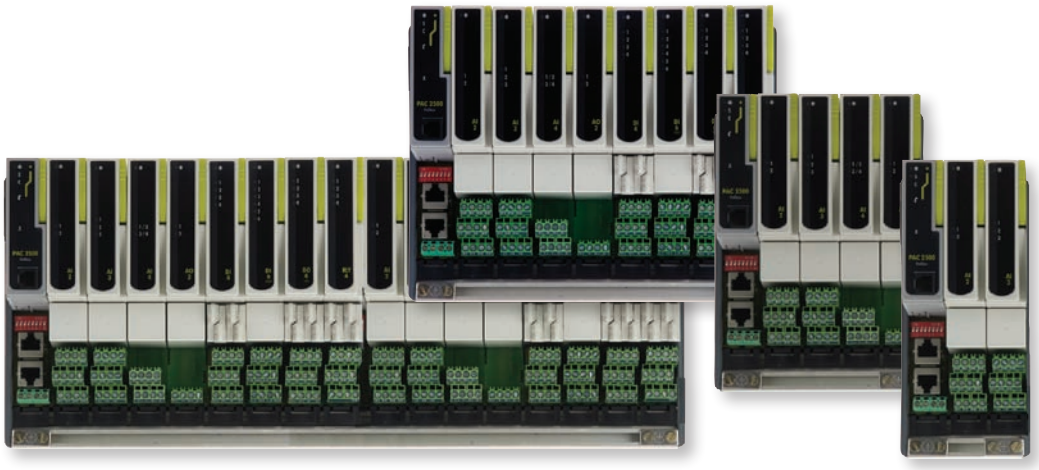
Specification Sheet

2500 Controller

MODEL



Foxboro 2500 Controller

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 Eurotherm® Visual Supervisor, PC-based SCADA packages, 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.

Summary

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

Part of the InFusion Enterprise Control System, the PAC System is ideally suited both for stand-alone applications and for integration into a wider ArchestrA-based control solution.

Business Value

Nonstop 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.

Foxboro®

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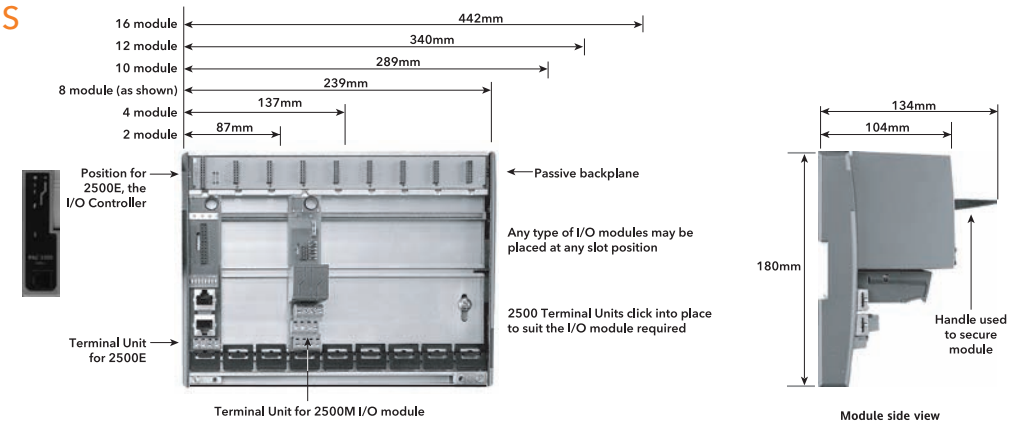
SPECIFICATIONS



GENERAL

Sample rate:	110mSec / Nominal 9Hz
Supply voltage range:	1 8.0 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

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 35 X 15
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

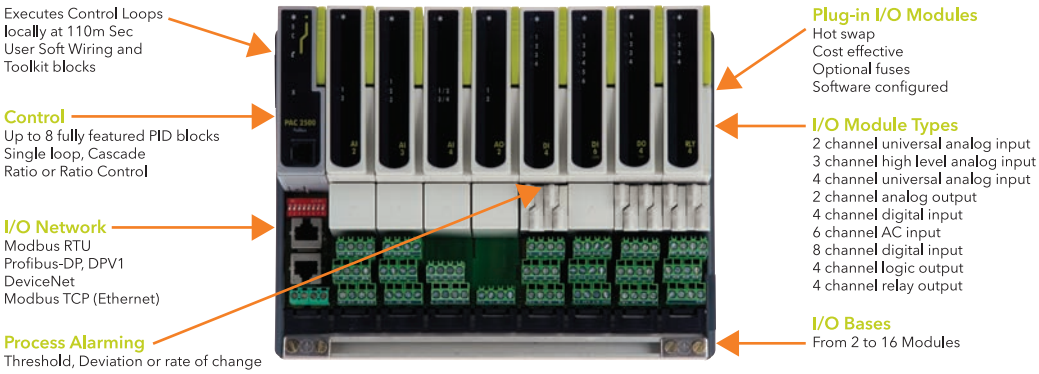
iTools is used to set up the type, range linearization and scaling of analog inputs, the PID control type and parameters, and all other functions and features within the 2500.

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.

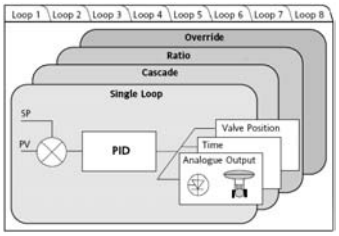
Control Blocks

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

CONTROL

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

2500 Remote I/O (Modbus, DeviceNet or Profibus)

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.

2500 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

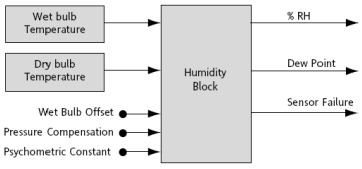
2500 Signal Conditioning

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

Humidity Function Block

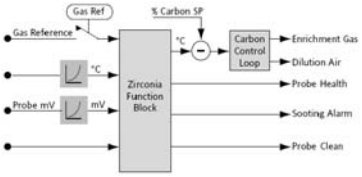
A special Humidity function block calculates the relative humidity or dew point (Process Value) using the wet and dry bulb measurement technique. Pressure compensation can be measured via a transmitter and soft wired to the block from an input or can be set as a fixed parameter.



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:	10baseT, RJ45

2500MF-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:	-22mA to +22mA 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:	0-100% 'rotation' of 100Ω to 7kΩ 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:	Reinforced, 264V ac maximum
Channel isolation:	Reinforced, 264V ac maximum between thermocouple channels
Functional:	264V ac maximum between RTD, volts and mA
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

Module

2500M/AI2UNIV	Two Channel – isolated universal input

Terminal Unit

2500T/AI2/TC/NONE	Terminal unit for TC with CJC
2500T/AI2/DC/NONE	Terminal unit for Mv, V, PT100, Hiz inputs
2500T/AI2/DC/SHUNT	Terminal unit for 5 ohm shunt fitted for mA

2500MF-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 1uA (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:	22-25V dc, current limited 30mA nominal, self-resetting
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 50V ac maximum
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 cutting a link track on the terminal unit.

AI3 – ORDER CODE

Module

2500M/AI3UNIV	Three channel – isolated 4-20mA analog input w/isolated 24V Tx PSU

Terminal Unit

2500T/AI3/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/AI3/UNIV/DCONNECT	Terminal unit with disconnect

2500MF-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: -22 - +22mA 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 units, better than 0.2% of reading
System Isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 264V ac maximum 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.

AI4 – ORDER CODE

Module

2500M/AI4UNIV	Four channel – T/C, mV, mA input

Terminal Unit

2500T/AI4/TC/NONE	Terminal unit for 4 channel TC with CJC
2500T/AI4/mV/NONE	Terminal unit for 4 channel mV
2500T/AI4/mA/NONE	Terminal unit for 4 channel mA

2500MF-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 for isolation of an individual output to 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 to 10.1V dc; 20mA max. compliance with total load greater than 500ohms -0.5 to 10.5 V dc; 8mA max. compliance with total load greater than 1500Ω
Resolution:	Better than 1 part in 10,000 (15 bit typical)
System isolation:	Reinforced, 264V ac
Channel isolation:	Functional, 264V ac
Power consumption:	2.2W maximum

AO2 – ORDER CODE

Module

22500M/AO2UNIV	Two channel isolated mA, volts

Terminal Unit

2500T/AO2/UNIV/NONE	Terminal unit
2500T/AO2/DCONNECT	Terminal unit with disconnect

2500MF-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:	Reinforced, 264V ac maximum
Channel isolation:	50V ac functional isolation, 4 pairs of channels
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
Input impedance:	5KΩ approx. (>2mA drive required for 'ON')

DI8 – ORDER CODE

Module

2500M/DI8logic/NONE	Eight channel – non isolated Logic
2500M/DI8contact/NONE	Eight channel – non isolated Connect

Terminal Unit

2500T/DI8/UNIV/NONE	Terminal unit
2500T/DI8/UNIV/DCONNECT	Terminal unit with disconnects

2500MF-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:	Reinforced, 264V ac
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')

DI4 – ORDER CODE

Module

2500M/DI424V/EXTPWR	Four channel – input

Terminal Unit

2500T/DI4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DI4/UNIV/DCONNECT	Terminal unit with disconnects

2500MF-K: Six Channel AC Voltage Input

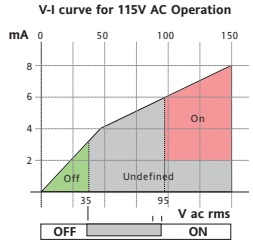
The six channel digital input module accepts AC voltage inputs and is available in two factory options optimized for 115V ac or 230V ac ranges.

No of channels:	6
Input functions:	On/Off or de-bounce
Frequency:	47Hz-63Hz
Transient immunity:	EN50082
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 264V ac maximum
Power consumption:	0.45W maximum

'115V ac' Variant

Active On state:	>95V ac rms, 132V ac rms maximum
Inactive OFF state:	<30V ac rms
Main input current:	More than 2mA required for 'ON'
Maximum input current:	8mA

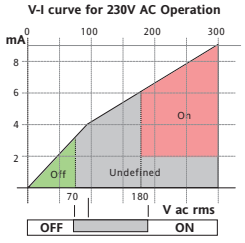
V-I curve for 115V ac operation



'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 Vmion Ioff 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

DI6 – ORDER CODE

Module

2500M/DI6HVAC/230V	Six channel high voltage 230 volt ac logic
2500M/DI6HVAC/115V	Six channel high voltage 115 volt ac logic

Terminal Unit

2500T/DI6/UNIV	Terminal unit

2500MF-G Four Channel Logic Output

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

No of channels:	4
System isolation:	Reinforced, 264V ac max
Channel isolation:	Channels share a common connection
Current consumption:	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/DO4LOGIC/EXTPWR	Four channel digital logic output 10mA max
2500M/DO424V/EXTPWR	Four channel digital 24d switched output

Terminal Unit

2500T/DO4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DO4/UNIV/DCONNECT	Terminal unit with disconnects

2500MF-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:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 264V ac maximum
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

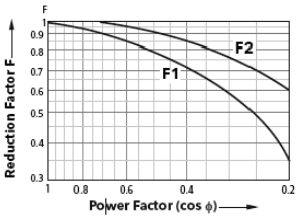
Relay De-rating

AC Voltage

As the AC load becomes more "difficult" a more significant de-rating 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

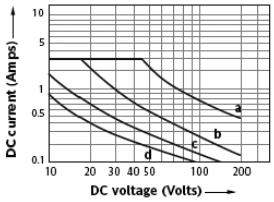


Contact life = resistive contact life x reduction factor

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

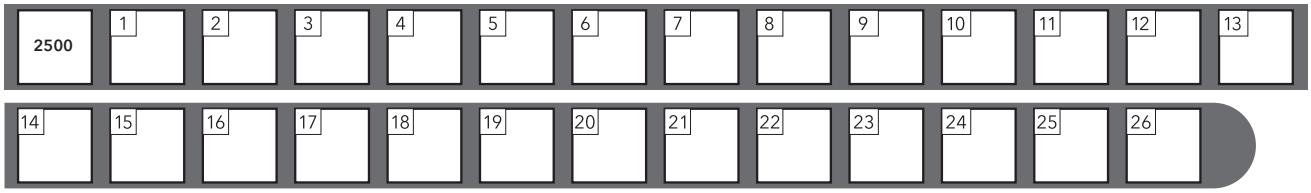
Module

2500M/RLY4	Four channel isolated relay output

Terminal Unit

2500T/RLY4/NOFUSE	Terminal unit
2500T/RL4/FUSE2A	Terminal unit with four 3.15a fuses

ORDERING CODES



	Basic Product
2500	Eight Loop Controller & Data Acquisition Unit

1	Basic Size
S02	2 module positions
S04	4 module positions
S08	8 module positions
S10	10 module positions
S12	12 module positions
S16	16 module positions

2	Earthing System
NONE	Two earth clamps fitted
C02	Earthing clamp for a 2 I/O module base
C04	Earthing clamp for a 4 I/O module base
C08	Earthing clamp for a 8 I/O module base
C10	Earthing clamp for a 10 I/O module base
C12	Earthing clamp for a 12 I/O module base
C16	Earthing clamp for a 16 I/O module base

3	Function
ACQIO	Remote I/O acquisition
SYSIO	Remote I/O acquisition (55ms)*
UW	Toolkit block + acquisition functions
4LOOP	Four PID blocks + acquisition
8LOOP	Eight PID blocks + acquisition
8LOOPPUW	Eight PID blocks + toolkit & acquisition

* SYSIO only available with field 5 Profibus or PBUS DPV 1

4	Communications Protocol
MODBUS	No extension memory fitted
DEVICENET	DeviceNet Comms
PROFIBUS	Profibus Comms
PBUS DPV1	Profibus DPV1 Comms
ENET MBUS	Modbus TCP/Ethernet

5	Communications Connector Type
RJ45	RJ45 connector for Modbus or Profibus
9DTYPE	9 pin D connector for Profibus
DN	Standard DeviceNet screw connector
EN	Ethernet communications

6	Application
NONE	No application loaded
YYYXXX*	Pre-configured application loaded

* Y = Alphanumeric Character, X = Numeric Character

7-22	Module and Terminations
A12-TC	2 ch. isolated universal analog I/P with CJC
A12-DC	2 ch. isolated universal analog I/P for PT100, Hz and volts
A12-MA	2 ch. isolated universal analog I/P - 5 ohm shunt fitted for mA
A13	3 ch. isolated 4-20mA analog I/P with 24V dc Tx PSU
A13-DT	3 ch. isolated 4-20mA analog I/P with 24V dc Tx PSU - Disconnects
A14-TC	4 ch. non isolated T/C, with CJC
A14-MV	4 ch. non isolated mV I/P
A14-MA	4 ch. non isolated mA I/P
A02	2 ch. isolated analog O/P mA, volts
A02-DT	2 ch. isolated analog O/P mA, volts with disconnects
D1424	4 ch. 24V dc digital I/P
D1424-DT	4 ch. 24V dc digital I/P with disconnects
D16-230V	6 ch. 230V ac logic I/P
D16-115V	6 ch. 115V ac logic I/P
D18L	8 ch. non isolated digital I/P (logic I/P only)
D18C	8 ch. non isolated digital I/P (contact I/P only)
D04L	4 ch. digital O/P logic O/P 10mA max
D04L-DT	4 ch. digital O/P logic O/P 10mA max with disconnects
D0424	4 ch. digital O/P 24V dc switched O/P
D0424-DT	4 ch. digital O/P 24V dc switched O/P with disconnects
RLY4	4 ch. relay O/P module
RLY4-FUSE	4 ch. relay O/P module with disconnects
BLANK	Blank terminal unit
NONE	No terminal unit or blank fitted

23	Earthing System
NONE	CD with manuals and latest version of iTools - No iTools product key
iTOOLS	CD with manuals, iTools & STD iTools product key & 2500 configuration lead
NO CD	Shipped without CD

24	Configuration Tools

25	Configuration Tools

26	Manual Language
ENG	English
FRA	France
GER	German

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