# MODEL



# 2500 Data Acquisition and Multi loop PID Control Unit

**Ideal for:** 

- Remote I/O
- Alarm Monitoring
- Signal Conditioning
- Multi-loop PID
  - Single loop
  - •Cascade control
  - •Ratio control
  - Override control
- Furnaces
- Environmental Chambers
- Baking Conveyor Ovens
- Packing Lines
- Conveyor Furnaces

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  $RTU^{TM}$ ,  $Profibus^{TM}$ ,  $DeviceNet^{TM}$  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 PLC's.

Eight PID blocks, provide an extensive range of control strategies. Each block offers one-shot auto tuning to optimise 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 analogue, time proportioned or valve position output.

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 multiloop control solutions with up to 128 loops.

DIN rail mounting allows the 2500 to be located where the control action is required, minimising 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 centralised control cubicles.

A friendly Windows configurator package, 'iTools' is used to set up the 2500. 'iTools' parameterises 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.

**Benefits:** 

- Advanced PID control
- Single loop integrity
- Physical distribution
- Local processing
- Direct interface to temperature sensors
- Plug-in modules
- Expandable
- Three-year warranty

Accurate control, independent of PLC scan times Greater fault tolerance. Simple fault finding Reduces wiring cost Minimises communications to the master

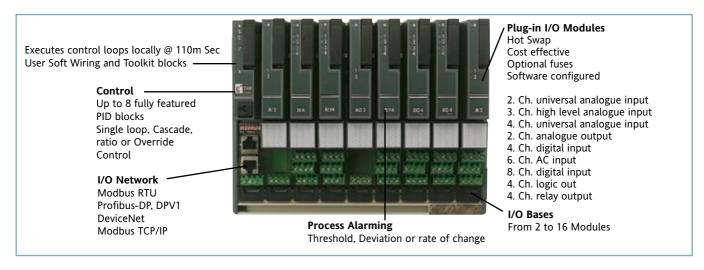
Minimises communications to the master More accuracy less cost

Reduces downtime
Only pay for the I/O required
Low ownership cost









#### 2500 Signal Conditioning

#### **Toolkit Block Functions**

Add **Subtract** Multiply Divide **Absolute difference Maximum Minimum** Hot swap Sample and hold Power **Square root** Log Ln **Exponential Select Logic AND** OR **XOR LAtch** Equal Not equal **Greater than** Less than Greater than, or equal

Less than or equal

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 analogue and digital inputs and outputs while still offering high speed industrial standard serial communication, to suit your data acquisition requirements.

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

#### 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. Rates of change alarms are also available.

# Analogue modules

Each input module 4 x Absolute High 4 x Absolute Low

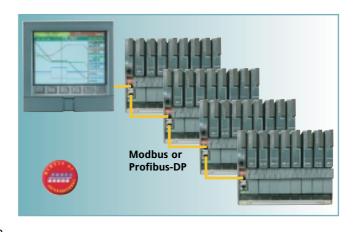
Digital modules
Each input module
Istrue
Isfalse
Gotrue
Gofalse
Change of state

#### PID and User alarms

Up to 4 per block
Absolute High
Absolute Low
Deviation Band
Deviation High
Deviation Low
Rate of Change

## 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 multiloop 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, drives...



#### **Control**

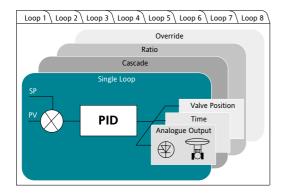
#### 2500E - Control module for a base unit

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 its I/O modules which are connected to an internal IO bus, via a passive Module Interconnection printed circuit board. This also provides the internal power required by the I/O modules.



#### **Control Blocks**

COLLEGE DIOCHS	
Control Loops	Up to 8 control blocks
Control modes	On/Off, single PID, Cascaded PID,
	Ratio Control or Override Control
Control outputs	Analogue, Time Proportioned or
	Motorised 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 output available
Setpoint rate limit	Ramp in units per sec, per min or per hour



#### **PID and User Alarms**

All Analogue inputs and outputs share a common, comprehensive alarm capability in addition to the  ${\rm I/O}$  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.
	Energised or de-energised in alarm

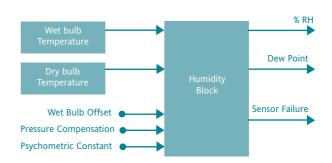
#### **Communications**

The IOC module optionally supports MODBUS RTU, DEVICENET, PROFIBUS or MODBUS TCP/IP 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

#### **Humidity Function Block**

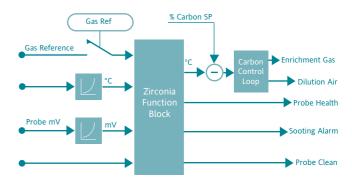
A special Humidity function block calculates the relative humidity or dew point (Process Value) using the wet and dry bulb measurement technique. Pressure compensation can be measured via a transmitter and soft wired to the block from an input or can be set as a fixed parameter.



#### **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:

Probe mV, Bosch Carbon, AACC, Drayton, Accucarb, SSI, MacDhui, Oxygen, Log Oxygen, Bosch, Dewpoint.

#### **Toolkit block**

User variables	16 real values per base:
Analogue 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:
- 10.000	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 Totalisers
	8 Counters

# 'iTools' the configurator

#### What does it do?

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

#### Trending How do I use it?

Simply plug the configuration cable into the RJ11 socket on the 2500C module. Let 'iTools' scan for the device. The module can then be put into configuration mode.

Simply click on the explorer 'folder' to select a parameter page, then click the parameter you wish to edit. A select list will appear for the variable, either a helpful multi choice, pick list or numeric data entry box will pop up.

On-line and off-line configuration

Cloning, File Load, Save and Copy

**User Wiring Editor** 

**Simple Recipes** 

**Watch Window** 

Application
Documentation
HTML or CSV format

Download User Linearisations

**OPC** client/server

OPC Scope commissioning utility

**Trending and Logging** 

#### How many values can I select?

Every parameter can be selected and may be set as required.

#### How do I save and document my configuration?

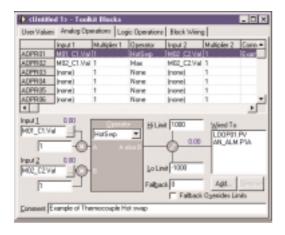
Once the 2500 configuration has been completed then the application can be saved as a 'clone' file for repeat application. Clone files can be loaded, copied, saved and edited both on and off line.

#### **Soft wiring**

Available on all 2500's, soft wiring enables interconnection between Inputs, Alarms, Maths and Logic 'Toolkit Blocks', PID and Outputs, in fact it links the control application.

#### **Toolkit Blocks**

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



#### **Parameter Find Search function:**

With just over 8500 parameters in each 2500, 'iTools' provides a helpful search and find utility A search can be made on Parameter name, descriptions, address or a user comment.

#### **Simple Recipes**

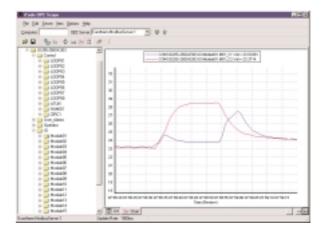
Processes often produce a range of products requiring different settings to be entered into the control system. At commissioning time, if these 'parameter sets' can be held in a series of recipes, a rapid and accurate way of setting up the process can be easily achieved.

'iTools' stores recipes in customised sets of parameters that can be named, stored and downloaded to the control. A simple system 'Snap-Shot' feature allows easy capture of the currently set-up data in the system.

#### 'iTools' Open Connectivity

'iTools' is a powerful configuration tool and in communications support of this functionality is Eurotherm's OPC compliant 'EuroMBus' MODBUS driver. The 'EuroMBus' OPC server provides a client/server relationship between the Modbus communications port and 'iTools' and allows other OPC compliant clients to simultaneously link to the driver. 'EuroMBus' OPC provides access for:

- SCADA integration, e.g. Wonderware, without additional drivers.
- OPC Scope 'iTools' Commissioning Utility



#### **OPC Scope - 'iTools' Commissioning Utility**

Provides a simple but effective commissioning interface powerful enough for analysing and tuning the most complex control loops.

- Trending multi pen real time trends for Loop Tuning 10000 point buffer with variable sample rate.
- Data Logging CSV file format
- Support for DDE included in 'OPC Scope' for linking to other windows applications e.g. Excel, Word, etc.

#### What does it run on?

Minimum specification

Windows 95, 98 Pentium 90 with 16Mb of RAM (32Mb recommended).

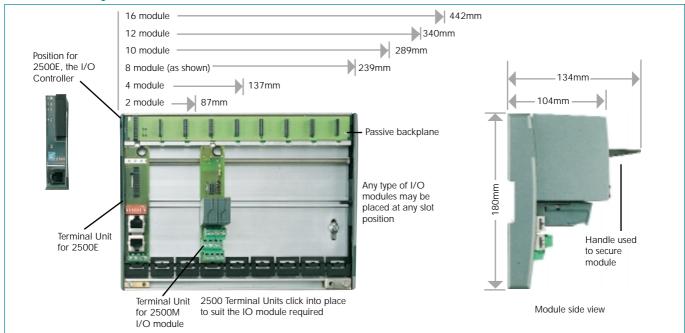
Windows NT 4.0 Pentium 166 with 24Mb of RAM

(48Mb recommended). Findows 2000 Pentium II 266 with 64Mb o

Windows 2000 Pentium II 266 with 64Mb of RAM. Disk space 40Mb free required on all systems.

For additional information on iTools please ask for Data Sheet HA026177.

# **General Specification**



	i/O module
General	
Sample rate	110mSec / Nominal 9Hz.
Supply voltage range	18.0 to 28.8Vdc.
VA requirements	< 80W max. for fully loaded rack
Non Replaceable Fuse	4A time lag
Rating	
IOC power	MODBUS RTU 1.5W max
consumption	PROFIBUS 2W max.
	DEVICENET 2W max.
	MODBUS TCP/IP
Module power	
consumption	See module specification below.
EMC	
Emissions	EN50081-2: 1994
Immunity	EN50082-2: 1992
Vibration	EN60068-2, test FC
Safety	
	EN61010-1: 1993/A2: 1995
	Installation cat II, Pollution degree 2
Safety earth and screen	Are made to clearly marked earth
connections	terminals at the bottom of the base.
Environmental	
Operating Temperature	0 to 55°C
Storage Temperature	-20 to 70°C

#### Live plug-in

Relative Humidity

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 minimising disturbance to other signal conditioning strategies.

5 to 95 % non-condensing

#### **Diagnostic LED's**

Diagnostic LED's indicate module diagnostic status.

All modules	A green LED at the top indicates the module is powered and operating correctly
2500E Controller module	3 Yellow LED's show configuration or standby status, and communications activity. A red LED indicates failure of the internal self-diagnostic routines.
2500M Analogue module	Red LED's for each channel to indicate channel failure
2500M Digital module	Yellow LED's for each channel to indicate the channel state.

#### 2500B - Base unit

The base consists of an aluminium extrusion, the internal I/O bus and mounting supports. The base is designed to be DIN rail mounted, within an enclosure. If preferred, however, 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 three standard sizes to suit the number of modules required in a particular system. The dimensions and weights of the four standard bases are detailed in table below.

#### Mechanical

Micchailicat						
Module capacity	2	4	8	10	12	16
Width (mm)	87	137	239	289	340	442
Weight Kg (No modules)	0.4	0.6	1.1	1.3	2.2	2.1
Weight Kg (all modules)	0.6	1.0	1.7	1.4	2.3	2.7

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

#### **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 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.

# **Analogue Modules**

#### 2500M/AI2 Two channel analogue input module

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

No of channels	2
Input types	TC, RTD, Volts, mA, mV, Potentiometer,
	Pyrometer, Zirconia probe
mV range	-150mV to +150mV at input
	impedance>100M $\Omega$
mA range	-22mA to +22mA with $5\Omega$ burden in the
	Terminal Unit
Volts range	-10.2V to +10.2V at input impedance
	303kΩ
Ohms range	0 to $600\Omega$ 3- or 4-wire lead
	compensation
Hi Ohms range	0 to $5k\Omega$ 3- or 4-wire lead compensation
Pot range	5% to 95% 'rotation' of $100\Omega$ to $5k\Omega$ pot
Resolution	Better than 0.001% of range
Linearity	Better than 0.003% of range
Input filtering	OFF to 999.9 seconds
Inital input accuracy	Electrical input factory calibrated to
	better than 0.1% of reading
System isolation	Reinforced, 264Vac max
Channel isolation	Reinforced, 264Vac max between
	thermocouple channels
	Functional, 264Vac max between RTD,
	volts and mA
Current consumption	100mA max

#### TC Input specification:

. •pac op eeea	
Linearisation types	J, K, L, R, B, N, T, S, PL2, C, PT100, linear,
	SqRoot, plus 3 custom
CJC System	Measured by RTD fitted on Terminal
	Unit
CJC Accuracy	±0.5°C, over -10°C to +70°C
CJC Rejection	Better than 30:1
Initial accuracy	±1°C or ±0.2% of reading whichever is
	greater (standard thermocouples)

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

#### 2500M/AI3 Three channel analogue input module

Provides 3 isolated current input channels specifically designed to meet the requirements of modern two wire transmitters. Each channel has its own isolated 24V supply for 3-wire transmitter excitation.

No of channels	3
Input range	-22mA to +22mA
Resolution	Better than 1uA (16 bits with 1.6 second 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	100Ω nom, 50mA max current
Channel PSU	22 to 25Vdc, current limited 30mA nom, self-resetting
System isolation	Reinforced, 264Vac max
Channel isolation	Functional, 50Vac max
Current consumption	100mA max

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

Note: Total burden can be increased to 250  $\!\Omega$  for HART by cutting a link track on the Terminal Unit.

#### 2500M/AI4 Four channel analogue input module

This analogue input module is used to monitor analogue 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	-150mV to +150mV at input impedance
	>100MΩ
mA range	-22mA to +22mA with $5\Omega$ 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
System Isolation	Reinforced, 264Vac max
Channel isolation	Functional, 264Vac max separating Ch1
	& Ch2 from Ch3 & Ch4
Current consumption	100mA max
TC Input specification	
Linearisation types	J, K, L, R, B, N, T, S, PL2, C, linear,
	SqRoot, plus 3 custom
CJC System	Measured by RTD fitted on Terminal
	Unit
CJC Accuracy	±0.5°C, over -10°C to +70°C

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

Better than 30:1

±1°C or ±0.2% of reading whichever is greater (standard thermocouples)

#### 2500M/A02 Two channel analogue output module

CJC Rejection

Initial accuracy

This analogue output module provides two isolated analogue output channels. Each output may be independently configured for current or voltage mode.

No of channels	2
Current output	0 to 20mA; 12Vdc max compliance with
	total burden less than $600\Omega$
Voltage output	-0.1 to 10Vdc; 20mA max compliance
	with total load greater than $500\Omega$
Resolution	Better than 1 part in 10,000 (15 bit
	typical)
System isolation	Reinforced, 264Vac
Channel isolation	Functional, 264Vac max
Current consumption	120mA max

# **Digital Modules**

#### 2500M/DI4 Four channel digital input module

This digital input module accepts four logic inputs, and may 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, 2604Vac
Channel isolation	Channels share a common connection
Current consumption	100mA max
'Contact' Wired	
External supply	18-30Vdc wetting power required
Contact closure inputs	ON state: input resistance threshold
	100 $\Omega$ (<1k $\Omega$ typical)
	OFF state: input resisitance threshold
	10k $\Omega$ (>7k $\Omega$ typical)
Wetting curent	>8mA
Wetting voltage	>9V, 12V typ measured open-circuit
'Logic' Wired	
Logc inputs	ON state: input Voltage threshold
	10.8Vdc, 30V max
	OFF state: input Voltage threshold
	5.0Vdc non-overlapping
Input impedance	$4k\Omega$ approx (at least 2mA drive required for 'ON')

#### 2500M/DI6 Six channel AC voltage input module

The six channel digital input module accepts six AC voltage inputs and is available in two factory option formats optimized for 115Vac or 230Vac input ranges.

No of channels	6
Input functions	On/Off or de-bounce
Frequency	47Hz-63Hz
Transiant immunity	EN50082
System isolation	Reinforced, 264Vac max
Channel isolation	Functional, 264Vac max
Current consumption	100mA max
'115Vac' Variant	
Active On state	>95Vac RMS, 132Vac RMS max
Inactive OFF state	<30Vac RMS
Main input current	More than 2mA required for 'ON'
Max input current	8mA
'230Vac' Variant	
Active ON state	>180Vac RMS, 264Vac RMS max
Inactive OFF state	<60Vac RMS
Min input current	More than 2mA required for 'ON'
Max input current	8mA

#### 2500M/DI8 Eight channel logic input module

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, 264Vac max
Channel isolation	50Vac functional isolation between 4 pairs of channels
Current consumption	100mA max
'Contact' Variant	
Contact closure inputs	ON state: input resistance threshold $100\Omega$ (<1k $\Omega$ typical) OFF state: input resistance threshold $10k\Omega$ (>7k $\Omega$ typical)
Wetting current	4mA typ
Wetting voltage	>9V, 12V typ, measured open-circuit
'Logic' Variant	
Logic inputs	ON state: input Voltage threshold 10.8Vdc, 30V max OFF state: inout Voltage threshold 5.0Vdc non-overlapping
Input impedance	$5k\Omega$ approx (at least 2mA drive required for 'ON')

#### 2500M/DO4 Four channel logic output module

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

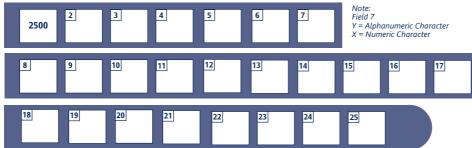
No of channels	4
System isolation	Reinforced, 264Vac max
Channel isolation	Channels share a common connection
Current consumption	100mA max
'Logic' Variant	
Voltage supply	18 <vs <30vdc<="" td=""></vs>
Output current	>8mA high drive per channel (Current
	limited)
Output Voltage	At least Voltage supply (Vs) less 3V
	switch drop
'24' Variant	
External Voltage supply	12 <vs <30vdc<="" td=""></vs>
Output current	100mA maximum high drive per channel
	(Current & Temperature limited)
Output Voltage	At least Voltage supply (Vs) less 3V
	switch drop

#### 2500M/RLY4 Four channel relay output module

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 240Vac; 0.5A at 200Vdc,
	increasing to 2A at 50Vdc (resistive)
Min ratings	AgCdO contacts offer best operating life
	switching more than 100mA 12V
Fuse	3.15A, 20mm ceramic, time lag (T)
System isolation	Reinforced, 264Vac max
Channel insulation	Functional, 264Vac max

# **Coding**



#### 2 Base Size 502 504 508 510 2 module positions 4 module positions 8 module positions

10 module positions 12 module positions 16 module positions

#### 3 **Earthing Sysytem**

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

#### 4 Function

Remote IO acquisition
Toolkit block + acq'n functions
Four PID blocks + acquisition **ACOIO** ACQIO Remote IO acquisition
UW Toolkit block + acq'in functions
4LOOP Four PID blocks + acquisition
4LOOPUW Four blocks + acquisition
8LOOP Eight PID blocks + acquisition
8LOOPUW Eight PID blocks + toolkit & acq'in

SYSIO Only available with Profibus or PBUSDPV1
SYSIO Remote IO acquisition

#### 5 **Comms Protocol**

MODBUS No extension memory fitted DEVICENET PROFIBUS PBUS DPv1 DeviceNet Comms Profibus Comms Profibus DPv1 Comms ENET MBUS Modbus TCP/Ethernet

#### 6 **Comms Connector Type**

RJ45 RJ45 conn. for Modbus or Profibus
9Dtype 9 pin D connector for Profibus
Standard DeviceNet screw connector
EN Ethernet communications

## Application

NONE No application loaded YYYXXX Pre-configured application loaded

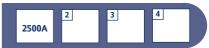
8-24	Terminations		
AI2-TC	2 ch. isolated universal analog IP with CJC		
AI2-DC	2 ch. isolated universal analog IP for PT100,		
AI2-MA	Hiz and volts 2 ch. isolated universal analogue input		
AIZ-IVIA	- 5 ohm shunt fitted for mA		
AI3	3 ch. isolated 4-20mA analog IP with 24Vdc		
	Tx PSU		
AI3-DT	3 ch. isolated 4-20mA analog IP with 24Vdc		
AI4-TC	Tx PSU - Disconnects 4 ch. non isolated T/C, with CIC		
A14-IC	4 ch. non isolated mV input		
AI4-MA	4 ch. non isolated mA input		
A02	2 ch. isolated analogue output mA, volts		
A02-DT	2 ch. isolated analogue output mA, volts with		
	disconnects		
DI424 DI424-DT	4 ch. 24Vdc digital input		
DI6-230V	4 ch. 24Vdc digital input with disconnects 6 ch. 230 volt ac. logic input		
D16-115V	6 ch. 115 volt ac, logic input		
D18L	8 ch. non isolated digital IP (Logic Inputs only)		
D18C	8 ch. non isolated digital IP (Contact Inputs		
	only)		
DO4L	4 ch. digital output		
DO4L-DT	Logic output 10mA max 4 ch. digital output		
DO4L-D1	Logic output 10mA max with disconnects		
DO424	4 ch. digital output 24Vdc switched output		
DO424-DT			
	with disconnects		
RLY4	4 ch. relay output module		
RLY4-FUSE BLANK	4 ch. relay output module with disconnects  Blank terminal unit		
NONE	No terminal unit or blank fitted		
HOHE	140 terminal anic or blank fitted		

Module and

#### 25 **Configuration Tools** NONE CD with manuals and latest version of iTools - No iTools product key CD with manuals, iTools & STD iTools product key and 2500 configuration lead Shipped without CD iTools

NOCD

#### Accessories



2 Type	
CABLE CFGPSU	Communications cable 24vdc Power supply for use with configuration lead
TERM	Terminator for end of RS 485 multi- drop link
CFGKEY	RJ11 start up key - forces IOC to start in Configuration
BLANK	Blank terminal assembly

3 Cable Options	
Options with cable only	
CONFIG	Used for configuration of 2500
MODBUS	Modbus screened cable (Base to multi-drop)
PROFIBUS	Profibus DP screened cable (Base to base multi-drop)

Options with CFGPSU only	
NONE UKLEAD	No mains lead supplied UK 5A mains leads

Options with TERM only		
MODBUS	Terminator for Modbus link - RJ45	
	only	
PROFIBUS	Terminator for Profibus DP link - RJ45	
	only	

2500A cable length	
4	Options with Modbus/Profibus
RJ45/RJ45/0M5	0.5m long
RJ45/RJ45/3M0	3.0 m long

#### **Power Supplies**



2	Rating
1A3	30 watt, 1.3 amp supply
2A5	60 watt, 2.5 amp supply
5A0	120 watt, 5.0 amp supply
10A	240 watt, 10.0 amp supply

3	Manuals
ENG	English manuals
FRA	French manuals
GER	German manuals
XXX	No manual

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