

2500 Multi PID Controller and Data Acquisition Unit



Features

- alarm monitoring
- advanced PID control
- modular concept ensures optimum flexibility
- distributes I/O and signal conditioning

Specifications

PID blocks:

up to 8 loops per base, with simple loop, Cascade, Override and Ratio types.

Analog inputs:

All common thermocouple types, PT100, 0-100mV, 0-10Vdc, 4-20mA, Potentiometric, 3 downloadable user linearizations

Accuracy:

<0.2%

Resolution:

<2 μ V, <0.2°C

Alarms:

8 alarms per module, 4 high, 4 low

Digital channels:

8 alarms

Toolkit Blocks:

32 analog and 32 digital operations, timers, counters, totalizers

I/O and PID sample rate:

9Hz (110mS)/acquisition (55mS)

Communications:

Modbus RTU, Profibus DP & DPVI, DeviceNet, Modbus TCP/IP

Supply voltage:

18.0 to 28.8Vdc

Operating temperature:

0 - 55°C, 5 - 95%RH

Dimensions:

<i>Vertical Height:</i>	180mm
<i>Width:</i>	2 I/O modules 87mm
	4 I/O modules 137mm
	8 I/O modules 239mm
	10 I/O modules 290mm
	12 I/O modules 340mm
	16 I/O modules 442mm
<i>Depth:</i>	105mm

2500 Communicating controller

The 2500 high performance multiple loop PID controller with self-tune provides simple loop, Cascade, Override and Ratio control functions as standard. The 2500 can perform combinational logic, remote data acquisition, monitoring and alarming on its analog and digital inputs and outputs. A library of Toolkit blocks performs Mathematical logic control and integration functions, providing a powerful calculations capability that adds power and versatility to the unit.

The 2500 communicates with any device supporting Modbus® RTU, Profibus®-DP, DeviceNet or Modbus TCP/IP master communications, such as 5000 Series Recorders, Eurotherm Visual Supervisor, PC based SCADA packages or PLC's.

Six base sizes allow for cost effective acquisition of up to 64 analog or 128 digital inputs. The base can be mounted on a DIN rail or panel mounted and takes between 2 and 16 plug-in I/O modules. This allows the 2500 to be mounted where the control action is required, reducing the cost of wiring since only twisted pair communication cable need be taken to the user interface. The 2500 can also be mounted directly onto the machine, saving the cost of central control cubicles.

Benefits

Advanced PID control: Accurate, reliable, repeatable process control provides consistent product quality

Loop integrity: Greater fault tolerance - Simpler fault finding

Physical distribution: Reduce wiring costs

Toolkit blocks: Single solution for PID and logic control

Local processing: Minimize communications

Quality measurements: Direct interface, more accuracy, less cost

Plug in modules (live): Minimize downtime, low MTTR

Expandable: Pay only for the I/O you require

Ordering codes

2500 Intelligent Alarm Monitor

Alarm Outputs (contact trips) can 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 sensed input or from a calculated value. Rate of change alarms are also available.

2500 Remote I/O

The modularity of the 2500 makes it easy to create an I/O block with just the correct mix of Inputs and Outputs, enabling you to physically distribute the acquisition equipment, saving the cost of expensive multicore or compensation cables. Up to sixteen 2500 base units can be daisy-chained.

Configuration tools

"iTools," a Windows based configuration package (see page 1-14) is used to set up the I/O and PID parameters using a graphical configuration tool. Inputs, Outputs, Alarms, PID and Toolkit functions are all internally wired using drag and drop techniques, allowing the user to solve complex control problems with simplicity.

2500	2	3	4	5	6	7									
8	9	10	11	12	13	14	15	16	17	18	19	20	21		
22	23	24	25												

Note:
Field 7
Y = Alphanumeric Character
X = Numeric Character

2	Base 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

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

4	Function
ACQIO	Remote IO acquisition
UW	Toolkit block + acquisition functions
4LOOP	Four PID blocks + acquisition
4LOOPUW	Four blocks + acquisition
8LOOP	Eight PID blocks + acquisition
8LOOPUW	Eight PID blocks + toolkit & acquisition
<i>SYSIO Only available with Profibus or PBUSDPV1</i>	
SYSIO	Remote IO acquisition

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

6	Comms Connector Type
RJ45	RJ45 connector for Modbus or Profibus
9Dtype	9 pin D connector for Profibus
DN	Standard DeviceNet screw connector
EN	Ethernet communications

7	Application
NONE	No application loaded
YYYYXX	Pre-configured application loaded

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

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

Ordering codes

IOC

2000E/S	3	4	5
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3 Functions

ACQIO	Remote IO acquisition
SYSIO	Remote IO acquisition (55msec scan)
UW	Toolkit block + acquisition functions
4LOOP	Four local PID blocks + acquisition
4LOOPUW	Four local PID blocks + Toolkit & acquisition
8LOOP	Eight loop
8LOOPUW	Eight local PID Blocks + Toolkit & acquisition

1) SYSIO only available with Profibus or PBusDPv1

4 Communications

MODBUS	Modbus communications
DEVICENET	DeviceNet communications
PROFIBUS	Profibus DP communications
PBUS DPv1	Eurotherm 'E' Suite comms (Profibus DPv1)
ENET MBUS	Modbus TCP/Ethernet

5 Start-Up Key

NONE	No start-up key supplied
CONFIGKEY	RJ11 start up key - forces IOC to start in configuration mode after a power cycle

IOC Terminal Units

2500T/IOC/S	4	5
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4 5 Communications Protocol/Comms Connector Type

4	5	
MODBUS	RJ45	Modbus Comms RJ45 connection for Modbus
DEVICENET	DN	DeviceNet Comms Standard DeviceNet screw connector
PROFIBUS	RJ45 9Dtype	Profibus or PbusDPv1 Communications RJ45 connector for Profibus 9 pin D connector for Profibus
ENET MBUS		MODBUS TCP/Ethernet

Power Supplies

2500P	2	3
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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

Modules

2500M	2	3
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2 Module Type

A12UNIV	2 ch isolated universal analog input
A13	3 ch isolated 4-20mA analog input
A14UNIV	4 ch non isolated T/C, mV, mA input
AO2	2 ch isolated analog output mA, volts
DI424V	4 ch 24Vdc digital input
DI6HVAC	6 ch high voltage logic input
DI8logic	8 ch non isolated Digital input (Logic inputs)
DI8contact	8 ch non isolated Digital input (Contact input)
D04LOGIC	4 ch digital output Logic 10mA max
DO424V	4 ch digital output 24Vdc switched output
RLY4	4 ch relay output

3 Voltage Rating (DI6 Only)

230v	230Vac logic input
115v	115Vac logic input

Terminal Units

2500T	2	3	4
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2 3 4 Termination Type/Fuse/Disconnect Type

2 & 3	4	
A12/TC	NONE SHUNT	2 ch isolated TC with CJC
A12/DC		2 ch isolated mV For PT100, Htz inputs
A13/UNIV		50hms shunt fitted for mA inputs
A14/UNIV		3 ch. isolated 4-20mA analog input
A14/TC		4 ch. isolated TC input with CJC
A14/mV		4 ch. isolated mV input
A14/mA		4 ch. isolated mA input
AO2/UNIV		2 ch analog output
DI4/UNIV		Terminal unit for 4 ch digital input module
DI6/UNIV		Terminal unit for 6 ch. mains isolated digital input
DI8/UNIV		Terminal unit for 8 ch digital input
D04/UNIV		2 ch isolated analog output module mA. volts
RLY4		4 channel relay OP

Disconnect option only available with A13, AO2, DI4 and DO4

NONE DCONNECT	Dummy cover fitted Disconnects
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Fuse option only available with RLY4

NO FUSE FUSE2A	Dummy cover fitted 4 off 3. 15A fuses
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Base Units

2500B	2	3	4
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2 Base Size

S02	IOC base, 2 module positions
S04	IOC base, 4 module positions
S08	IOC base, 8 module positions
S10	IOC base, 10 module positions
S12	IOC base, 12 module positions
S16	IOC base, 16 module positions

3 Earthing System

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

4 Manuals

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FRA	French manuals
GER	German manuals
XXX	No manuals

Accessories

2500A	2	3	4
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2 Type

CABLE	Communications cable
CFGPSU	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

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

<i>Options with CFGPSU only</i>	
NONE	No mains lead supplied
UKLEAD	UK 5A mains lead

<i>Options with TERM only</i>	
MODBUS	Terminator for Modbus link - RJ45 only
PROFIBUS	Terminator for Profibus DP link - RJ45 only

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