

**404 08
505 33
3 MODELS**

MODELS



Dual Loop Controller/Programmer Specification Sheet

- 2 PID loops
 - 50 Programs
 - Precision PV input
 - Carbon potential
 - Maths/logic/timers
 - Custom user interface
 - Recipes
 - Digital communications
 - Modbus RTU
 - Ethernet Modbus TCP
 - Profibus DP network
 - DeviceNet® network
 - OEM Security

The latest range of advanced process controllers from Eurotherm® provide precision control of temperature and a host of other process variables together with an abundance of advanced options making it the most adaptable product in its class.

The emphasis is on flexibility yet the 3500 controllers still maintain ease of use. A simple 'Quick Start' code is used to configure all the basic functions essential to controlling your process. This includes input sensor type, measurement range, control options and alarms making 'Out the Box' operation truly achievable. More advanced features are configured using a PC based graphical configuration tool enabling users to pick function blocks from a library then connect them together using soft wiring.

The large 5-digit display provides a clear and unambiguous indication of the process value. A four-line message centre provides custom or standard views of important information to the user while vertical and horizontal bargraphs provide at a glance visual indication of the process.

OEM Security enables a user to protect their intellectual property by preventing unauthorised cloning of the configuration.

Dual loop

Two independent PID loops make the 3500 ideal for interactive processes such as those found in carburising furnaces, environmental chambers and autoclaves. The loops may also be 'soft' wired together in creative ways to create cascade, ratio or other intelligent control strategies

Setpoint programmer

Heat treatment and other processes often require the ability to change setpoints with time. The dual loop 3500 has two programmers which can be configured as synchronised or independent programs. 50 programs with up to two channels can be stored with a total of 500 segments.

Input/output flexibility

A range of plug-in I/O modules caters for individual application requirements minimising stock and spares holding. A total of sixteen module types, including relay, logic, triac and analogue, are available to fit into either three slots on 3508 or six slots on 3504.

Carbon potential

The 3500 calculates carbon potential from measuring both the oxygen concentration and temperature of a furnace using a zirconia probe. This enables a dual loop 3500 to be used to control both carbon potential and temperature in an atmosphere controlled furnace.



Customised solutions

The 3500 is more than just a process controller. It also provides a selection of application blocks including maths, logic and timing functions offering the ability to develop custom solutions and create cost effective machine controllers. The custom User Page feature allows an operator to view current information in a style most suitable to the process and terminology of the industry.

Communications

The 3500 is designed to integrate seamlessly with programmable logic controllers and other supervisory systems. A wide range of serial communication options are catered for including EIA232 and EIA485 using the Modbus RTU protocol along with Profibus DP and DeviceNet. Ethernet connectivity is achieved using the Modbus TCP protocol.

Recipes

Using a PC tool recipes can be created that can be used to change the operating parameters of the 3500 simply by selecting a new recipe via the HMI. This is very useful where multiple products are processed using the same controller but require different parameters to be set.

Infrared configuration adaptor

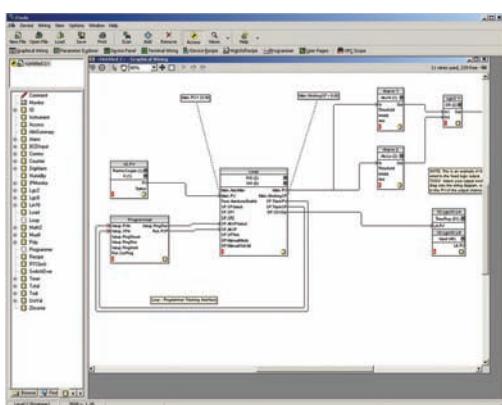
Communications to the 3500 can be achieved by using an infrared adaptor. Clipping onto the front fascia it provides iTools communications allowing configuration and commissioning to be performed without the need to access the rear terminals of the controller.



Infrared clip connected to the 3504

iTools Graphical Wiring Editor

The GWE is an extremely easy way to create applications. It allows users to select the function blocks they wish to use in their application then connect them together using 'Soft Wiring'. The GWE gives the user a pictorial view of exactly what he has configured and can also be used to monitor runtime conditions.



IO Expander

Extra IO can be provided by the IO Expander. Options are available for 10in 10out and 20in 20out.

SPECIFICATION

General

Environmental performance

Temperature limits	Operation: 0 to 50°C Storage: -10 to 70°C
Humidity limits	Operation: 5 to 95% RH non condensing Storage: 5 to 95% RH non condensing
Panel sealing:	IP65, Nema 4X
Vibration:	2g peak, 10 to 150Hz
Altitude:	<2000 metres
Atmospheres:	Not suitable for use in explosive or corrosive atmosphere

Electromagnetic compatibility (EMC)

Emissions and immunity:	BS EN61326
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Suitable for domestic, commercial and light industrial as well as heavy industrial. (Domestic/light (Class B) emissions. Industrial (Class A) environmental immunity emissions.

With Ethernet module fitted product only suitable for Class A emissions.

Electrical safety

BS EN61010:	Installation cat. II; Pollution degree 2
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INSTALLATION CATEGORY II

The rated impulse voltage for equipment on nominal 230V mains is 2500V.

POLLUTION DEGREE 2

Normally, only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation shall be expected

Physical

Panel mounting:	3508: 1/8 DIN 3504: 1/4 DIN
Weight:	3508: 400g 3504: 600g
Panel cut-out dims:	3508: 45W x 92Hmm 3504: 92W x 92Hmm
Panel depth:	Both 148mm

Operator interface

Type:	STN LCD with backlight
Main PV display	3508: 4 1/2 digits, green 3504: 5 digits, green
Message display	3508: 8 character header and 3 lines of 10 characters 3504: 16 character header and 3 lines of 20 characters
Status beacons:	Units, outputs, alarms, program status, program events, active setpoint, manual, remote SP
Access levels:	3 operator plus config. Password protected

User pages

Number:	8
Parameters:	64 total
Functions:	Text, conditional text, values, bargraph
Access level:	User selectable (level 1, 2 or 3)

Power requirements

Supply voltage:	85 to 264V ac, -15%, +10%, 48 to 62Hz, max 20W (3508 15W) 24Vac, -15%, +10%. 24Vdc, -15% +20% ±5% ripple voltage max 20W (3508 15W)
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Inrush current

High Voltage (VH): 30A duration <100µS
Low Voltage (VL): 15A duration <100µS

Approvals

CE, cUL listed (file E57766), Gost
Suitable for use in Nadcap and
AMS2750D applications under System
Accuracy Test calibration conditions

Communications

No of ports:	2 modules can be fitted
Slot allocation:	Modbus RTU or I/O expander only in J comms port

Serial communications option	Modbus RTU Slave Profibus DP DeviceNet El-Bisync (818 style mnemonics) Modbus RTU master broadcast (1 parameter) I/O Expander Isolation: Transmission standard:	-1.4V to +2.0V <90µV with 1.6sec filter 16 bits <0.015% (best fit straight line) <420µV, ±0.044% of measurement at 25°C <±125µV/C, ±28ppm/C of measurement from 25°C >155dB (maximum of 264Vrms) >101dB (maximum of 4.5V pk-pk) ±14nA 100M
Ethernet communications option	Protocol: Modbus TCP, 10baseT Isolation: 264V ac, double insulated Transmission standard: 802.3 Features: DHCP client, 4 simultaneous masters,	
Main process variable input	Calibration accuracy: <±0.1% of reading ±1LSD (Note 1) Sample rate: 9Hz(110ms) Isolation: 264Vac double insulation from the PSU and communication Input filter: Off to 59.9s. Default 1.6s Zero offset: User adjustable over full range User calibration: 2-point gain & offset	Range: -3.0V to +10.0V <550µV with 1.6sec filter 16 bits <0.007% of reading for zero source resistance. Add 0.003% for each 10Ω of source plus lead resistance <±1.5mV, ±0.063% of measurement at 25°C <±66µV/C, ±60ppm/C of measurement from 25°C >145dB (maximum of 264Vrms allowed) >92dB ((maximum of 5V pk-pk allowed) 62.5kΩ to 667kΩ depending on input voltage
Thermocouple	Range: Uses 40mV and 80mV ranges dependent on type Types: K, J, N, R, S, B, L, T, C, PL2, custom download x 2 Resolution: 16 bits Linearisation accuracy: <0.2% of reading Cold junction compensation: >40:1 rejection of ambient change External reference of 0°C, 45°C and 50°C Cold junction accuracy: <±1°C at 25°C ambient	Notes (1) Calibration accuracy quoted over full ambient operating range and for all input linearisation types (2) Contact Eurotherm for details of availability of custom downloads for alternative sensors
Digital IO (LA and LB)	Isolation: Not isolated from each other. 264V ac double insulation from the PSU and communication	
Input	Rating: Voltage level: Closed 0 to 7.3Vdc Open 10.8 to 24Vdc Contact closure: Open >1200Ω Closed <480Ω Functions: Includes program control, alarm acknowledge, SP2 select, manual, keylock, RSP select, standby	
Output	Rating: 18Vdc >9mA <15mA Functions: Includes control outputs, alarms, events, status	
AA Relay	Type: Form C (changeover) Rating: Min 1mA @ 1V dc, Max 2A @ 264V ac resistive Isolation: 1,000,000 operations with external snubber 264Vac double insulation Functions: Includes control outputs, alarms, events, status	
Input / Output modules	IO Modules 3508: 3 modules can be fitted 3504: 6 modules can be fitted IO Expander: 20 Digital inputs, 20 relay outputs	
Analogue input module	Calibration accuracy: ±0.2% of reading ±1LSD Sample rate: 9Hz (110ms) Isolation: 264Vac double insulation Input filter: Off to 59.9s. Default 1.6s Zero offset: User adjustable over full range User calibration: 2-point gain & offset Functions: Includes process input, remote setpoint, power limit	
Thermocouple	Range: -100mV to +100mV Types: K, J, N, R, S, B, L, T, C, PL2, custom Resolution (µV): <3.3µV @ 1.6s filter time Effective resolution: 15.9 bits Linearisation accuracy: <0.2% of reading Cold junction compensation: >25:1 rejection of ambient change External reference of 0°C, 45°C and 50°C Cold junction accuracy: <±1°C at 25°C ambient	

Resistance thermometer

Range:	0-400Ω (-200°C to +850°C)
Resistance thermometer types:	3-wire Pt100 DIN 43760
Resolution (°C):	<±0.08°C with 1.6sec filter
Effective resolution:	13.7 bits
Linearity error:	<0.033% (best fit straight line)
Calibration error:	<±(0.4°C + 0.15% of reading in °C)
Drift with temperature:	<±(0.015°C + 0.005% of reading in °C) per °C
Common mode rejection:	<0.000085°C/V (maximum of 264Vrms)
Series mode rejection:	<0.240°C/V (maximum of 280mV pk-pk)
Lead resistance:	0Ω to 22Ω, matched lead resistance
Bulb current:	300µA

100mV Range

Range:	-100mV to +100mV
Resolution (µV):	<3.3µV with 1.6s filter time
Effective resolution:	15.9 bits
Linearity error:	<0.033% (best fit straight line)
Calibration error:	<±10µV, ± 0.2% of measurement at 25°C
Drift with temperature:	<±0.2µV + 0.004% of reading per °C
Common mode rejection:	>146dB (maximum of 264Vrms)
Series mode rejection:	>90dB (maximum of 280mV pk-pk)
Input leakage current:	<1nA
Input impedance:	>100M

2V Range

Range:	-0.2V to +2.0V
Resolution (µV):	30µV with 1.6s filter time
Effective resolution:	16.2bits
Linearity error:	<0.033% (best fit straight line)
Calibration error:	<±2mV + 0.2% of reading
Drift with temperature:	<±0.1mV + 0.004% of reading per °C
Common mode rejection:	>155dB (maximum of 264Vrms)
Series mode rejection:	>101dB (maximum of 4.5V pk-pk)
Input leakage current:	<10nA
Input impedance:	>100M

10V Range

Range:	-3.0V to +10.0V
Resolution (µV):	<200µV with 1.6sec filter
Effective resolution:	15.4 bits
Linearity error:	<0.033% (best fit straight line)
Calibration error:	<±0.1mV + 0.02% of reading per °C
Drift with temperature:	<± 0.1mV + 0.02% of reading per °C
Common mode rejection:	>145dB (maximum of 264Vrms)
Series mode rejection:	>92dB (maximum of 5V pk-pk)
Input impedance:	>69kΩ

Potentiometer input

Type:	Single channel
Resistance:	100Ω to 15kΩ
Excitation:	0.5Vdc supplied by module
Isolation:	264Vac double insulation
Functions:	Includes valve position and remote setpoint

Analogue control output

Type:	Single channel
Rating:	0-20mA <600Ω
	0-10Vdc >500Ω
Accuracy:	<±2.5%
Resolution:	10 bits
Isolation:	264Vac double insulation

Analogue retransmission output

Type:	Single channel
Rating:	0-20mA <600Ω
	0-10Vdc >500Ω
Accuracy:	<±0.5%
Resolution:	11 bits
Isolation:	264Vac double insulation

Dual 4-20mA OP/24V dc TxPSU

Type:	Dual channel
Rating	Output: 4-20mAdc, <1kΩ
	TxPSU: 24Vdc, 22mA
Isolation:	264Vac double insulation between channels
Functions:	Either channel can be control output or TxPSU
Accuracy:	<±1%
Resolution:	11 bits

Logic input modules

Module types:	Triple contact closure, triple logic level
Isolation:	No channel isolation. 264V ac double insulation from other modules and system
Rating	Voltage level: Open -3 to 5V dc @ <-0.4mA
	Closed 10.8 to 30Vdc @ 2.5mA
Contact closure:	Open >28kΩ
	Closed <100Ω
Functions:	Includes program control, alarm acknowledge, SP2 select, manual, keylock, RSP select, standby

Logic output modules

Module types:	Single channel, triple channel
Isolation:	No channel isolation. 264V ac double insulation from other modules and system
Rating	Single: 12Vdc >20mA <29mA
	Triple: 12Vdc >9mA <12mA
Functions:	Includes control outputs, alarms, events, status

Relay modules

Module types:	Single channel Form A, Single channel Form C, dual channel Form A
Isolation:	264Vac double insulation
Rating:	Min 100mA @ 12V dc, Max 2A @ 264V ac resistive
	Min 400,000 (max load) operations with external snubber
Functions:	Includes control outputs, alarms, events, status

Triac modules

Module types:	Single channel, dual channel
Isolation:	264Vac double insulation
Rating:	<0.75A @ 264V ac resistive
Functions:	Includes control outputs, alarms, events, status

Transmitter PSU module

Type:	Single channel
Isolation:	264V ac double insulation
Rating:	24V dc @ 20mA

Transducer PSU module

Type:	Single channel
Isolation:	264V ac double insulation
Bridge voltage:	Software selectable 5Vdc or 10Vdc
Bridge resistance:	300Ω to 15kΩ
Internal shunt resistor:	30.1Ω @0.25%, used for calibration of 350Ω bridge at 80%

I/O Expander

Type	20 I/O: 4 Form C relays, 6 Form A relays, 10 logic inputs
	40 I/O: 4 Form C relays, 16 Form A relays, 20 logic inputs
Isolation:	264V ac double insulation between channels
Ratings	Relay: Min 100mA @ 12Vdc, Max 2A @ 264 Vac resistive
	Logic Input: Open -3 to 5V dc @ <-0.4mA
	Closed 10.8 to 30V dc @ 2.5mA
Communications:	Using EX comms module in comms slot J

Software features

Control

Number of loops:	2
Loop update:	110ms
Control types:	PID, OnOff, VP, Dual VP
Cooling types:	Linear, fan, oil, water
Modes:	Auto, manual, forced manual, control inhibit
Overshoot inhibition:	High and low cutbacks
Number of PID sets:	3, selectable on PV, SP, OP, On Demand, program segment and remote input
Control options:	Supply voltage compensation, feedforward, output tracking, OP power limiting, SBR safe output
Setpoint options:	Remote SP with trim, SP rate limit, 2nd Setpoint, tracking modes

Setpoint programmer

Program function:	50 programs, max 500 segments
Program names:	User defined up to 16 characters
No of profile channels:	2 (1 if single loop)
Operation:	Full or partially synchronised
Events:	8 per channel (8 when fully synchronised)
Segment types:	1 timed event, 1 PV event
Digital inputs:	Rate, dwell, time, call, goback and wait
Servo action:	Run, Hold, Reset, RunHold, RunReset, Adv Seg, Skip Seg
Power failure modes:	Process value, setpoint
Other functions:	Continue, ramp, reset Guaranteed soak, holdback, segment user values, wait inputs, PV hot start

Process alarms

Number:	8
Type:	High, low, devhi, devlo, devband
Latching:	None, auto, manual, event
Other features:	Delay, inhibit, blocking, display message, 3 priority levels

Digital alarms

Number:	8
Type:	PosEdge, negEdge, edge, high, low
Latching:	None, auto, manual, event
Other features:	Delay, blocking, inhibit, display message, 3 priority levels

Zirconia

Number:	1
Functions:	Carbon potential, dewpoint, %O ₂ , LogO ₂ , probe mV
Supported probes:	Barber Colman, Drayton, MMICarbon, AACC, Accucarb, SSI, MacDhui, BoschO ₂ , BoschCarbon
Gas reference:	Internal or remote analogue input
Probe diagnostics:	Clean recovery time, impedance measurement
Probe burn-off:	Automatic or manual
Other features:	Sooting alarm with tolerance setting, PV

Humidity

Number:	1
Functions:	Relative humidity, dewpoint
Measurement:	Psychrometric (wet & dry) inputs
Atmosphere compensation:	Internal or remote analogue input
Other features:	Psychrometric constant adjust

Recipes

Number:	8
Parameters:	24 per recipe
Length of name:	8 Characters
Selection:	HMI, comms, strategy

Transducer calibration

Number:	2
Type:	Shunt, load cell, comparision
Other features:	Autotare

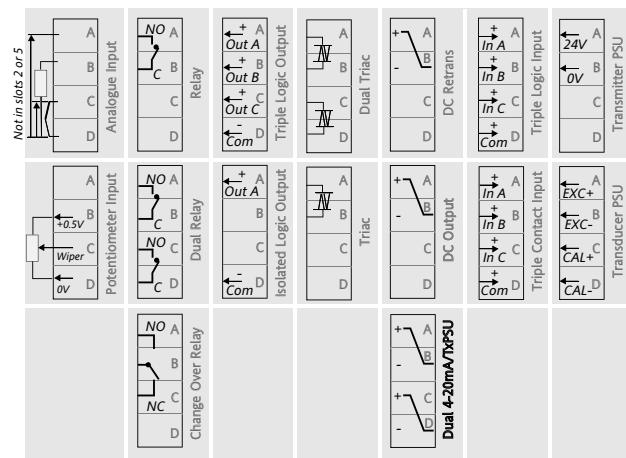
Communication tables

Number:	250
Function:	Modbus remapping (indirection)
Data formats:	Integer, IEEE (full resolution)

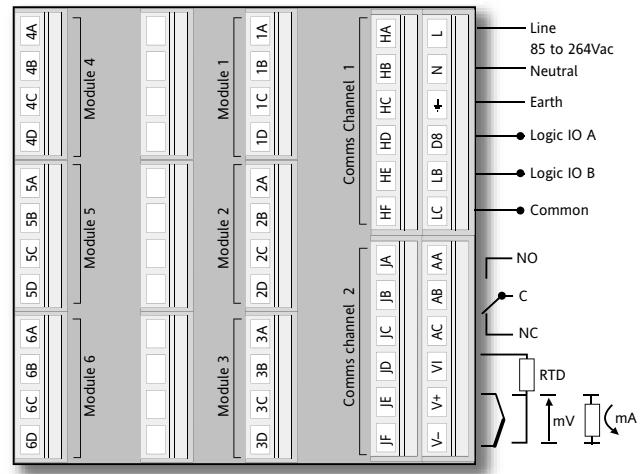
Application blocks

Soft wiring:	Orderable options of 30, 60 120 or 250
User values:	16 real numbers with decimal point
2 Input maths:	24 blocks, add, subtract, multiply, divide, absolute difference, max, min, hot swap, sample and hold, power, square root, Log, Ln, exponential, switch
2 Input logic:	24 blocks, AND, OR, XOR, latch, equal, not equal, greater than, less than, greater than or equal to, less
8 Input logic:	2 blocks. AND, OR, XOR
8 Input multiplexor:	4 blocks. 8 sets of 8 values selected by input parameter
8 Input multiple input:	3 blocks, average, min, max sum
BCD Input:	2 blocks, 2 Decades
Input monitor:	2 blocks, max, min, time above threshold
16 Point linearisation:	2 blocks, 16-point linearisation fit
Polynomial fit:	2 blocks, characterisation by Poly Fit table
Switchover:	1 block, smooth transition between two values
Timer blocks:	4 blocks, OnPulse, OnDelay, OneShot, MinOn Time
Counter blocks:	2 blocks, Up or down, directional flag
Totaliser blocks:	2 blocks, alarm at threshold value
Real time clock:	1 block, day & time, 2 time based alarms

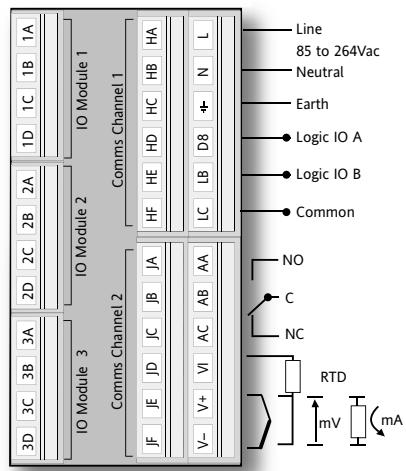
Rear Terminal Connections



3504



3508



ORDERING CODE

Hardware/options coding

	1	2	3	4	5	6	7	8	9	10	11	12	13
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14	15	16	17	18	19	20	20	22
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Basic Product	
3508	48 x 96mm unit
3504	96 x 96mm unit

1 Function	
CC	Standard
F	Profibus

2 Supply Voltage	
VH	85-264V ac
VL	20-29V ac or dc

3 Loops	
1	One loop
2	Two loops

4 Application	
XX	Standard
VP	Dual Valve Positioning (Note 3)
ZC	Two loops

5 Programs	
1	1 Progs - 20 Segments
10	10 Progs - 500 Segments
25	25 Progs - 500 Segments
50	50 Progs - 500 Segments

6 Recipes	
X	No recipes
1	1 Recipe
4	4 Recipes
8	8 Recipes

7 Toolkit Wires	
XXX	30 Wires
60	60 Wires
120	120 Wires
250	250 Wires

8 Fascia	
G	Eurotherm green
S	Silver

9-14 IO Slots 1, 2, 3, 4 (Note 2), 5 (Note 2), 6 (Note 2)	
XX	No module fitted
R4	Change over relay
R2	2 Pin relay
RR	Dual relay
T2	Triac
TT	Dual triac
D4	Analogue control output
AM	Analogue input (not slot 2 or 5)
D6	Analogue retransmission output
TK	Triple contact input
TL	Triple logic input
TP	Triple logic output
VU	Potentiometer input
MS	24Vdc Transmitter PSU
G3	Transducer PSU 5 or 10Vdc
LO	Isolated single logic OP
DO	Dual 4-20mA OP/24Vdc TxPSU (not slot 3, 5 or 6)

17 Configuration Tools	
XX	None
IT	Standard iTools (CD only)

18 Product Language	
ENG	English
FRA	French
GER	German
SPA	Spanish
ITA	Italian

19 Manual Language	
ENG	English
FRA	French
GER	German
SPA	Spanish
ITA	Italian

20 Warranty	
XXXXX	Standard
WL005	Extended

21 Calibration Certificate	
XXXXX	None
CERT1	Certificate of Conformity
CERT2	Factory I/P cal per I/P

22 Special	
XXXXX	Standard
EU0722	OEM Security

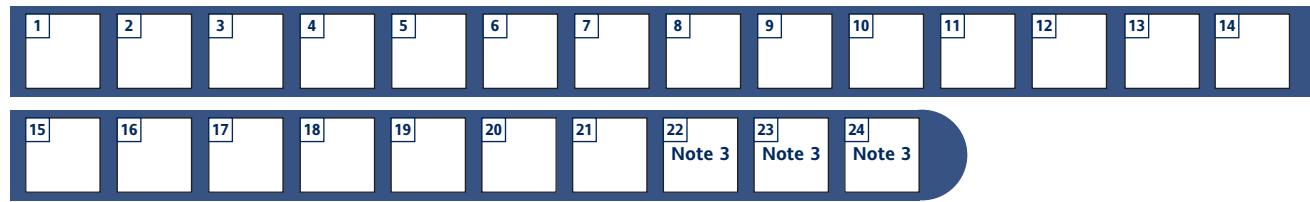
3500 Accessories

HA027987	User guide
HA027988	Engineering manual
SUB35/ACCESS/249R.1	2.49R Precision resistor
iTools/None/3000IR	Configuration IR clip
iTools/None/3000CK	Configuration clip
2000IO/VL/10LR/XXXX	10IN,10OUT Expander
2000IO/VL/20LR/20LR	20IN,20OUT Expander

Notes

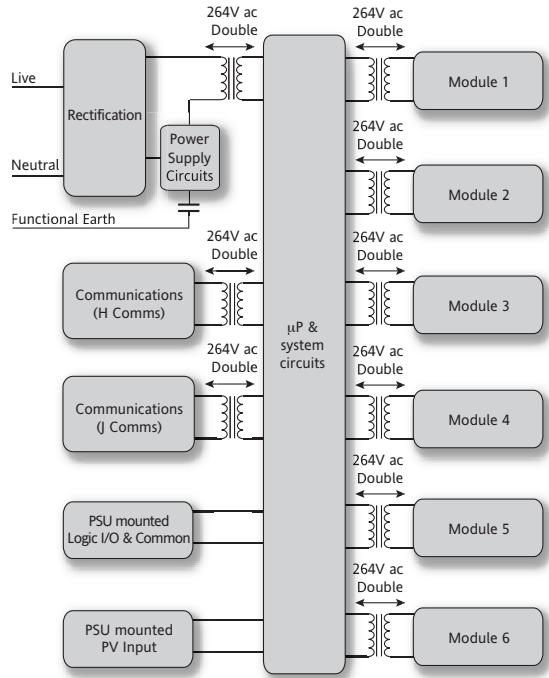
- Only available with the Profibus Controller
- I/O slots 4, 5 and 6 are only available on the 3504
- Provides Valve Position option in Heat/Cool applications. Single channel VP included as standard

Configuration coding

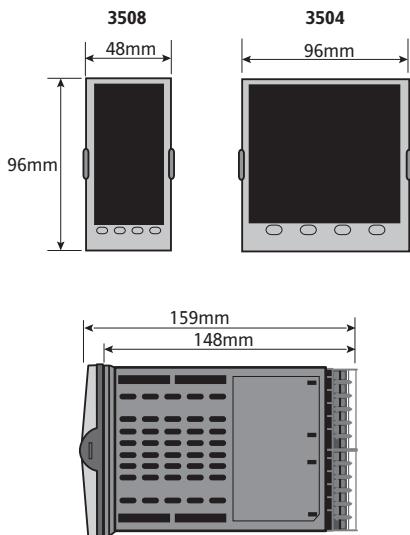


1 Configuration	8 Loop 2 Units	15 Alarm 4	19-24 Slot Functions 1-6 (Note 4)
STD Standard config. (Note 1) CFG Factory configured	C Centigrade (Note 2) F Fahrenheit (Note 2) % Percent H %RH P PSI B Bar M mBar X None	XXX Unconfigured 1 Loop 1 2 Loop 2 FH Full scale high FL Full scale low DH Deviation high DL Deviation low DB Deviation band	XXX Unconfigured 1 - Loop 1 2 - Loop 2 Changeover Relay - HX Control Ch1 O/P - CX Control Ch2 O/P - BX Sensor Break 2-Pin Relay - HX Control Ch1 O/P - CX Control Ch2 O/P - BX Sensor Break Single Logic - HX Control Ch1 O/P - CX Control Ch2 O/P Single Triac - HX Control Ch1 O/P - CX Control Ch2 O/P Dual Relay - HC Ch1 O/P & Ch2 - VT VP Ch1 - VR VP Ch2 P12 Prog Event 1 & 2 P34 Prog Event 3 & 3 P56 Prog Event 5 & 6 P78 Prog Event 7 & 8 A12 Alarm 1 & 2 O/P A34 Alarm 3 & 4 O/P HHX Ch1 O/P for loops 1 & 2 CCX Ch2 O/P for loops 1 & 2 SBR Sensor Break both loops Dual 4-20mA/TxPSU XXX Unconfigured Dual Triac - HC Ch1 O/P & Ch2 - VT VP Ch1 - VR VP Ch2 P12 Prog Ch1 Event 1 & 2 P34 Prog Ch1 Event 3 & 3 P56 Prog Ch1 Event 5 & 6 P78 Prog Ch1 Event 7 & 8 A12 Alarm 1 & 2 O/P A34 Alarm 3 & 4 O/P HHX Ch1 O/P for loops 1 & 2 CCX Ch2 O/P for loops 1 & 2 DC Control <i>For range select third digit from Table 1</i> - H Ch1 O/P - C Ch2 O/P DC Retransmission <i>For range select third digit from Table 1</i> Analogue Input <i>For range select third digit from Table 1</i> 2PV Loop 2 PV - R Remote SP Potentiometer Input - RS Remote SP - VF VP Feedback Ch1 - VG VP Feedback Ch2 Triple Logic Input Select function below for each ch X -- Unconfigured M Loop 1 Manual N Loop 2 Manual Q Loop 1 Remote SP V Loop 2 Remote SP S Loop 1 Setpoint 2 T Loop 2 Setpoint 2 E Acknowledge All Alarms P Program Run R Program Reset H Program Hold Triple Logic OP Select function below for each ch X -- Unconfigured F Loop 1 Ch1 O/P G Loop 1 Ch2 O/P K Loop 2 Ch1 O/P L Loop 2 Control Ch2 O/P A Alarm 1 O/P B Alarm 2 O/P C Alarm 3 O/P D Alarm 4 O/P 1 Program Event 1 2 Program Event 2 3 Program Event 3 4 Program Event 4 5 Program Event 5 6 Program Event 6 7 Program Event 7 8 Program Event 8
2 Loop 1 Units	9 Loop 2 PV	16 Logic LA	
C Centigrade F Fahrenheit % Percent H %RH P PSI B Bar M mBar X None	X Unconfigured J J Thermocouple K K Thermocouple T T Thermocouple L L Thermocouple N N Thermocouple R R Thermocouple S S Thermocouple B B Thermocouple P Platinell II C C Thermocouple Z Pt 100 A 4-20mA Linear Y 0-20mA Linear W 0-5Vdc Linear G 1-5Vdc Linear V 0-10Vdc Linear Q Custom Curve	XX Unconfigured 1 Loop 1 2 Loop 2 B Sensor Break M Manual Select H Control Ch1 O/P C Control Ch2 O/P R Remote SP S Setpoint 2 Enable A Alarm A Acknowledge All Alarms 1 Alarm 1 O/P 2 Alarm 2 O/P P Programmer R Run H Hold A Reset 1 Prog Ch1 Event 1 2 Prog Ch1 Event 2	
3 Loop 1 Function	10 Loop 2 Range Low	17 Logic LB	
PX Single Channel PID FX Single Ch VP with Feedback VX Single Ch VP without Feedback NX Single Ch On/Off PP Dual Channel PID PN Dual Ch PID/OnOff FF Dual Ch VP with Feedback VV Dual Ch VP without Feedback PF Dual Ch PID/VP with Feedback PV Dual Ch PID/VP without Feedback	XXXX Enter value with decimal point		
4 Loop 1 PV	11 Loop 2 Range High	18 Relay AA	
X Unconfigured J J Thermocouple K K Thermocouple T T Thermocouple L L Thermocouple N N Thermocouple R R Thermocouple S S Thermocouple B B Thermocouple P Platinell II C C Thermocouple Z Pt 100 A 4-20mA Linear Y 0-20mA Linear W 0-5V dc Linear G 1-5V dc Linear V 0-10V dc Linear Q Custom Curve	XXXX Enter value with decimal point	XX Unconfigured 1 Loop 1 2 Loop 2 B Sensor Break M Manual Select H Control Ch1 O/P C Control Ch2 O/P R Remote SP S Setpoint 2 Enable A Alarm A Acknowledge All Alarms 1 Alarm 1 O/P 2 Alarm 2 O/P P Programmer R Run H Hold A Reset 1 Prog Ch1 Event 1 2 Prog Ch1 Event 2	
5 Loop 1 Range Low	12 Alarm 1		
XXXX Enter value with decimal point	XXXX Enter value with decimal point		
6 Loop 1 Range High	13 Alarm 2		
XXXX Enter value with decimal point	XXXX Enter value with decimal point		
7 Loop 2 Function	14 Alarm 3		
XX Single Loop Only PX Single Channel PID FX Single Ch VP with Feedback VX Single Ch VP without Feedback NX Single Ch On/Off PP Dual Channel PID PN Dual Ch PID/OnOff FF Dual Ch VP with Feedback VV Dual Ch VP without Feedback PF Dual Ch PID/VP with Feedback PV Dual Ch PID/VP without Feedback	XXX Unconfigured 1 Loop 1 2 Loop 2 FH Full scale high FL Full scale low DH Deviation high DL Deviation low DB Deviation band	XX Unconfigured 1 Loop 1 2 Loop 2 H Control Ch1 O/P C Control Ch2 O/P B Sensor Break SB Setpoint Break (any loop) A Alarm A Any Alarm Active N New Alarm Active 1 Alarm 1 O/P 2 Alarm 2 O/P P Programmer 1 Prog Event 1 2 Prog Event 2	
Notes		Table 1	
1. If standard config is selected an instrument without configuration will be supplied. 2. If C or F units are selected they must be the same for both loops. <i>If C or F are not selected for Loop 1 they cannot be selected for Loop 2.</i> 3. I/O slots 4, 5 and 6 are only available on the 3504. 4. CH1 = Heat, CH2 = Cool		A 4-20mA Linear Y 0-20mA Linear W 0-5V dc Linear G 1-5V dc Linear V 0-10V dc Linear	

Isolation diagram



Mechanical Details



3508 Panel cut-out 92mm (-0.0 +0.8) x 45mm (-0.0 +0.6)

3504 Panel cut-out 92mm (-0.0 +0.8) x 92mm (-0.0 +0.8)

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