

EUROTHERM PROCESS AUTOMATION

T754X series control enclosures

Product Specification

HIGH AVAILABILITY PROCESS CONTROL ENCLOSURE

- Capacity 512 I/O points based on T103/T303 control units
- Redundant options with live replacement of all components
- Standard construction and wiring minimises cost
- Floor standing and wall mounting versions
- Front access minimises space required
- Panel workstation and controller options
- Supplied tested and documented against simple order codes and I/O layout sheet
- CE compliant
- Protected up to IP55
- Application specific configurations on request

The T754X series of standard enclosures has been designed to accommodate up to four T103 Unit controllers and associated I/O termination units. The preconfigured design keeps build time and implementation costs to a minimum and all active components are easily removable to facilitate maintenance. Enclosures are CE compliant which is a major benefit compared to alternative bespoke offerings. Careful attention has been given to power distribution with a range of redundancy and backup options to provide a high degree of fault tolerance.



TA122/mA I/O termination



TA180/1p I/O termination



Enclosures may accommodate a T1500 panel workstation on the front door as a local operator interface and up to six T640 Controllers.

Enclosures may be interconnected to form a suite with a peer-to-peer network connection as well as a communication link to the control room.

I/O TERMINATIONS

Connection between the T103 input/output modules and the termination assemblies is by colour coded multicore flat cables with plug on connector. The termination assemblies provide wiring for transmitter and contact wetting supplies, as well as fuses or test disconnect jumpers and plug in relays for digital outputs.

HIGH INTEGRITY POWER SUPPLY SYSTEM

All main control units are powered by 24V dc for simplicity and safety. With an ac mains primary supply the 24V dc is provided by a module assembly comprising several PSUs with a "1 for N" redundancy option; if any power supply fails then the load is provided by the remaining ones. A secondary dc supply may be used as backup. An auxiliary mains supply can be used for the internal fan (and light, if fitted) if the primary supply is dc.

Control unit memory is protected against loss of power by a RAM backup battery option and charger.

NETWORK CONNECTIONS

Internal communications is via ALIN which may be connected in a bussed or star configuration, the latter using a passive hub. The simple bus connection may be used for direct external communication up to a 100m total length. Both bussed and star connected systems may be connected via T221 bridges to a LIN network which may run up to 1000m. A bussed ALIN electrical segment supports a total of 16 nodes including external workstations etc. An active hub then allows ALIN expansion either via twisted pair cables or fibre-optic. A passive hub based cabinet with star connection supports up to 12 nodes internally, including T221 bridge and test points.

Communications wiring is via a feed-through connector on a dedicated gland plate for floor standing versions.

SYSTEM AVAILABILITY

High availability of the control system is assured by the fundamental reliability of the Control units and redundant CPU options, plus the following features built into the enclosure design:

- Optional redundant power supplies with additional standby input
- Live replacement of all active components, including relays
- Extensive health monitoring and diagnostics with indicator LEDs/watchdog relays
- ALIN integrity enhanced by optional passive hub with up to 12 network drops protected against short circuit on any line
- Dual T221 bridges for redundant LIN connection, or dual active hub for connection to dual server-workstation

COMPONENTS

Power supply and auxiliary components are either bulkhead or DIN rail mounting and may be supplied without the enclosure to system integrators and customers with specific installation requirements.

DOCUMENTATION

The cabinets are supplied with standard drawings available on paper or disk in AutoCAD format.



CUSTOMISED ENCLOSURES

Enclosures may be customised to accommodate additional equipment or variants in wiring standards but this will require a specific quotation and incur an engineering charge.

SUPPORT SERVICES

Eurotherm Process Automation Customer Services Department offers a variety of on site support services, including verification of network wiring and assistance with commissioning.

SPECIFICATIONS

Noveling T7540 T7541 T7542 T7545 Neters Mounting: Hoor Hoor Hoor Woll Hoor Woll Hoor Woll Hoor Woll Hoor Hoor <th>Physical (version dependent)</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Physical (version dependent)					
Meaning:FileFileFileFileWallYear<		T7540	T7541	T7542	T7545	Notes
External dimensions (mm): B00M × 2100H × 6000 B00M × 210H × 6000 × 600 B00M × 210H × 6000 × 600 × 600	Mounting:	Floor	Floor	Floor	Wall	
Door Internal equipmentSingleDoubleSingleSingleSingleT00: T00: T00: T350: T350: Coorder J410:2/31441/211. Additional T003 subjectT03: T350: T460: Coorder J410:122111000 coorder J410T60: Coorder J410: Coorder J410: Coo	External dimensions (mm):	800W × 2100H × 600D	1200W×2100H×600D	800W × 2100H × 800D	$800W \times 1200H \times 400D$	
	Door	Single	Double	Single	Single	
103: 2/3 ¹ 4 4 1/2 ¹ 1. Additional T103 subject T030: 2 2 1 to specified I/O capacity to specified I/	Internal equipment					
1303: 2 2 2 1 to specified I/O copacity T1500: 1 1 1 1 1 T460: 6 6 6 6 6 2. In lieu of second T103 Spaciny ALIN nodes: 16/12* <t< td=""><td>T103:</td><td>2/31</td><td>4</td><td>4</td><td>1/21</td><td>1. Additional T103 subject</td></t<>	T103:	2/31	4	4	1/21	1. Additional T103 subject
1500: 1 1 1 1 1 T640: 6 6 6 6? 2. In large shear 0.103 Capacity ALIN nodes: 16/12*	T303:	2	2	2	1	to specified I/O capacity
T440: 6 6 6 6 6 6 6 6 7 2. In lieu of second T103 15 boring option: 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 16/12* 12 28 Power roting (maximum): 250% 430W 430W 430W 190V Induding T1500 Protection category: 1955 1955 1955 1955 1955 Deroide to 18/3 when Cable trunking (mm) 80 × 80 80 × 80 80 × 80 60 × 60 ventilation fon fitted; consult factory regarding panel mounted equipment Power supply Stype point: 120 V oc 230 V oc 24 V d c input voltage range: 92-132V RMS 184-264V RMS 18-36V input voltage range: input voltage ran	T1500:	1	1	1	1	
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and Low Voltage Directive 72/23/EEC	Conforms to EMC Di	rective 89/336/EEC				
	and Low Voltage Dire	ective 72/23/EEC				

Construction standards

Enclosures are built to EPA guidelines for construction and EMC precautions. These are detailed in the following documents:-

HL083637
HW083636
HG08365U001



Notes: Plan views show main components and terminal rail trunking only. Floor standing enclosures are fitted with lifting eyes at the top. Wall mounting units supplied with fixing brackets. 1 or 2 active hubs may take the place of lowest T103 and T303.

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ORDERING INFORMATION

T754X enclosures

Base unit	Primary supply	Auxiliary ac supply	Secondary dc supply	Power supply	RAM back-up battery	ALIN Hub	T103	T303	D241
T7541	230V	230V	-	RD	BATT	-	3T103D	1T303	-
1T221	-	-	SF	L	BE	DBL	100	-	-
ALIN Bridge	T1500	T640	Cooling fan	Internal lamp	Cable entry	Door hinge	Plinth	Drawings	Test record
									Exampl

Base unit	Footprint	#1103/303	#I/O	Code
Floor standing (2100H)	800W × 600D	3/2	256	T7540
	1200W × 600D	4/2	512	T7541
	800W × 800D	4/2	512	T7542
Wall mounted (1200H)	$800W \times 400D$	2/1	128	T7545
Primary supply				
184-264V 50/60Hz				230V
92-132V 50/60Hz				120V
18-36V dc				DC
Auxiliary ac supply for	r fan etc.			
184-264V 50/60Hz				230V
92-132V 50/60Hz				120V
None				-
Secondary dc supply (backup to prim	ary supply)		
Secondary dc supply fitted	b			SD
Not fitted <i>default</i>				-
Power supply backup	ac/24V			
Redundant (N + 1) ac pr	imary supply only			RD
Not fitted				_
RAM backup battery a	option and char	qer		
Fitted		•		BATT
Not fitted				_
ALIN hub fitting				
1 S9572 passive hub fitte	d – takes place o	f T303		1 PHB
2 S9572 passive hubs fitt	ed* – takes place	of T303		2PHB
1 S9574 active hub fitted	* – takes place of	T103		1AHB
2 \$9574 active hubs fitter	d – takes place of	T103 and T303	}	2AHB
Not fitted				
T103 fitting (4 max, b	ase unit depend	lent)		
Quantity n Simplex units	fitted			nT103S
Quantity n Duplex units f	itted			nT103D
Not fitted				_
T303 fitting (4 max, b	ase unit/hub de	ependent)		
Quantity n units fitted				nT303
Not fitted				
D241 fitting (4 max)				
Quantity n units fitted				n D241
Not fitted				_
ALIN bridge fitting				
Single T221				1T221
Dual T221				2T221
Quad T221 (not T7545)*				4T221

T1500 Operator station fitting	Code
Fitted	T1500
Not fitted	_
T640 Loop processor fitting	
Quantity n (specify $n = 0$ to 6)* T745 with exceptions	nT640
Not fitted	
Cooling fan	
Ventilation fan fitted	VF
Stirrer fan <i>default</i>	SF
Not fitted	
Internal lamp	
Lamp fitted (not T7545)	L
No lamp fitted	_
Cable entry	
Тор	TE
Bottom default	BE
Top module (T7540/1 only, adds 200mm overall height)	TM
Door hinge	
	LHS
On right (not 17541) default others	KHS
	DBL
Plinth	
0mm	-
100mm (not T7545) default	100
200mm (not T7545)	200
Drawings	
Standard	-
Custom	CD
Test record	
None	_
Supplied	TR

* Consult factory

How to order T754X enclosure A Specify installed equiment:

	,							
T103,	Т303,	T1XX I/O	modules,	T221,	D241,	S9572/	′S9574,	T1500
T640	(consul	It factory)						

B Specify enclosure

Includes power supplies, mounting and wiring (but not supply) of installed equipment

C Specify I/O terminations

Internal layout Complete layout form on back page, noting rules: Analogue modules at LHS, Digital at RHS to allow cable

segregation while allowing expansion **I/O configuration** (chargeable extra)

Specify ranges, linearisation and units for all I/O

Consult factory for EXCEL-based order specification package

ORDERING INFORMATION (continued)

TA1XX I/O terminations – Includes subassemblies per Sales Specification HA 08736U 001

Temperature and low level analogue inputs	Code
T111 1-channel RTD	TA111/RTD
T112 8-channel T/C or mV – direct (unwired)	TA112/-
T112 8-channel T/C or mV – via terms/comp cable ¹	TA112/TC
T113 6-channel RTD – via terms ²	TA113/-
High level analogue inputs	
T120 1-channel AI V or mA (self powered)	TA120/-
T122 8-channel Al V	TA122/V
T122 8-channel AI mA – ext or loop supply (individual fuse)	TA122/mA
Termination unit LA082755	
T122 8-channel AI mA – ext or loop supply (single fuse)	TA122/mAS
Termination unit LA083450	
T123 8-channel AI mA – ext or bulk loop supply	TA123/mA
Termination unit LA082755	
T123 8-channel AI mA isolated external powered	TA123/mAT
T124 6-channel isolated mA – individual loop power ²	TA124/mA
Termination unit LA083872	
Frequency inputs	
T130 1-channel Pulse/Freq (self powered)	TA130/-

Digital inputs	Code
T140 8-channel DI – logic	TA140/log
T140 8-channel DI – LEDs 24V dc	TA140/DC
Termination unit LA083350	
T140 8-channel DI – LED/24V dc and test disconnect	TA140/TDC
Termination unit LA083383	
T140 8-channel DI – LED/OPTO 120V ac	TA140/120
Termination unit LA083611U120	
T140 8-channel DI – LED/OPTO 230V ac	TA140/230
Termination unit LA083611U230	
T140 8-channel DI – LED/OPTO 24V dc	TA140/24
Analogue outputs	
T150 1-channel AO 0-10V or 0-20mA	TA150/-
T151 8-channel AO 0-20mA	TA151/-
Digital outputs	
T180 8-channel DO – logic	TA180/log
T180 8-channel DO – LED/relay SPCO	TA180/1p
Termination unit LA083451U008	

TA180/2p

Notes

1 Single T/C (or mV) type to be specified

T180 8-channel DO – LED/relay DPCO

Termination unit LA083608

2 Consult factory

Installed equipment – typical order codes; see relevant Sales Specification for further detail

103 011	t controll	er	Sales specifico	ition H	A 083671U 001				
Base unit	CPU options	Software options	Base unit identification	Mounting	Factory installation				
T103	T920/T920	CTRL	-	-	-				
									Examp
303 Uni	t supervi	sor	Sales specifico	ition H	A 083671U 001				
Base unit	CPU 1 options	Software 1 options	CPU 2 options	Software options	Base unit identification				
T303	T921	SEQU	T920B	-	-				
	•		•		• • • •		1	•	Examp
Base unit	modules	5	Sales specifico	ition H	A 083736U 001				
T140									
	!	!	-				-	++	Examp
221 LIN	/ALIN bri	idge :	Sales specificatio	n l	HA 082716U 00	1			
Base unit	Power supply	Serial comms	LIN	Modem	Sleeve				
T221	DC	-	RLIN	-	T720				
	•				•		1		Examp
D241 Cor Base Unit	mms isolo	ator	Sales specificatio	n l	HA 081096U 00	1			
D241(101)									
								+ +	Examp
	.IN hub								
69572 AI									
9572 AI	tive hub		Sales specifico	ition H	A 083904U 001				
9572 AI 9574 Ac 1500 Pc	tive hub nel work	station	Sales specifico Sales specifico	ition H.	A 083904U 001 A 083566U 001				



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