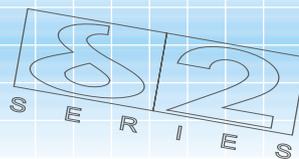
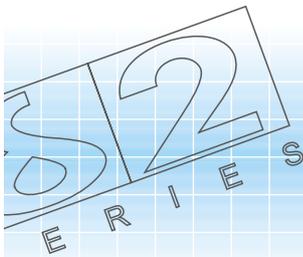
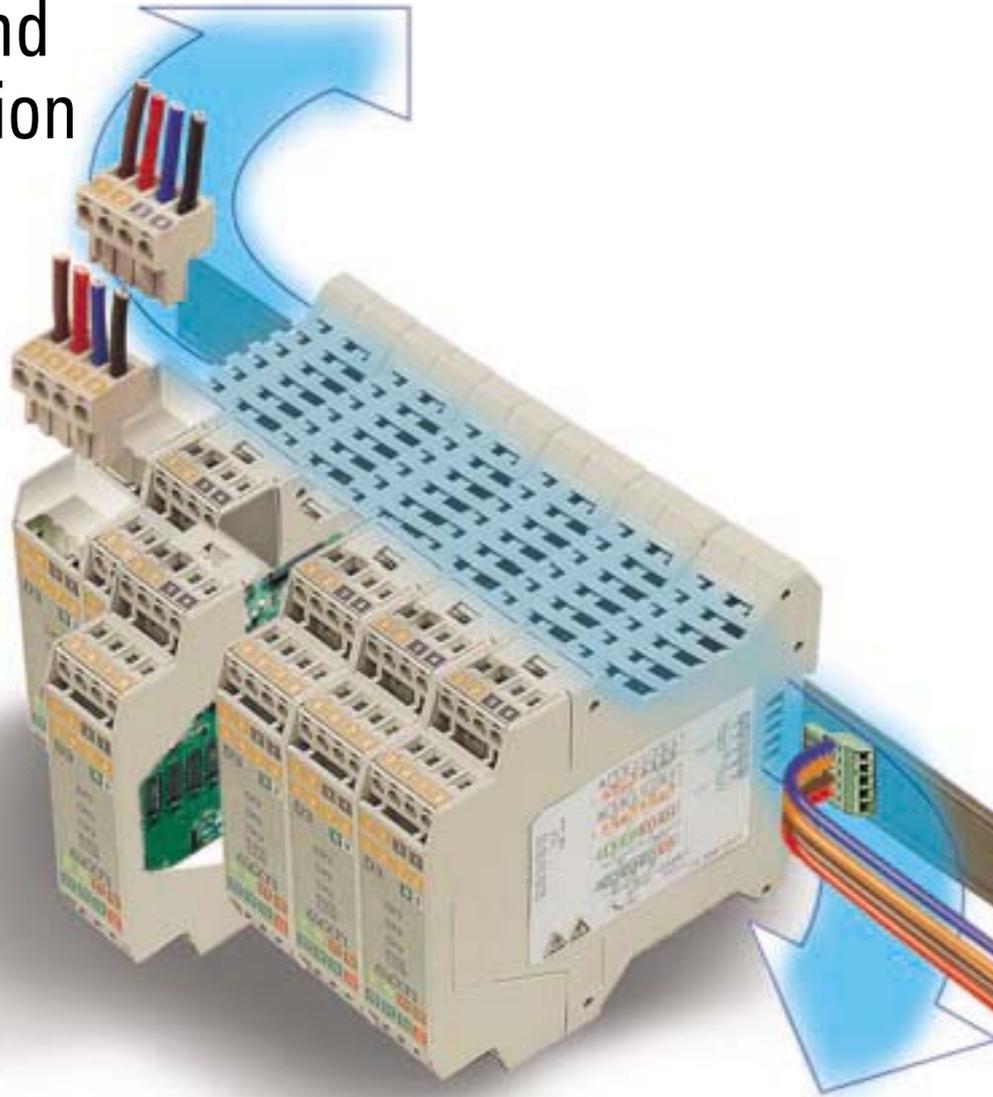




deltadue® series DIN rail mounting modules for control and data acquisition



- Process controllers
- Temperature controllers
- Transmitters with alarms
- I/O modules



A few possible solutions

delta^{due}® series DIN rail mounting modules for control and data acquisition

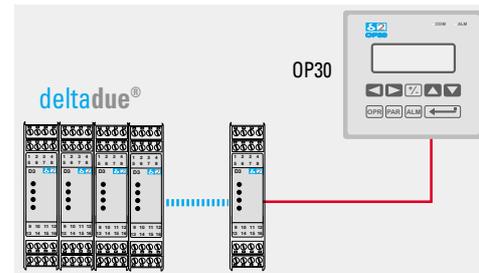
ASCON process control experience, together with the constant need for integration and the evolution of distributed control strategies have brought to a new product series, delta^{due}®, combining control and acquisition modules with transmitters.

These modules can accomplish different functions and are easily integrated, as they can be either mounted in control panels or on the machine, favouring both the development of more compact control panels and a better "geographic" distribution. Thanks to the filed bus technology, these modules can be easily combined with Operator Panels, PLCs, and PCs.

An easy to use and intuitive software is provided for module configuration from PC.

Distributed Control – Local Control

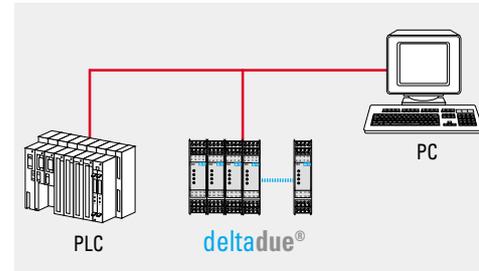
- Machines and small plants control
- Control and monitoring through dedicated Operator's Panel
 - Alarm management and trip logics
 - Modularity and flexibility
 - Easy mounting and wiring



Distributed Control – Central Control

Plants automation with highly integrated control functions

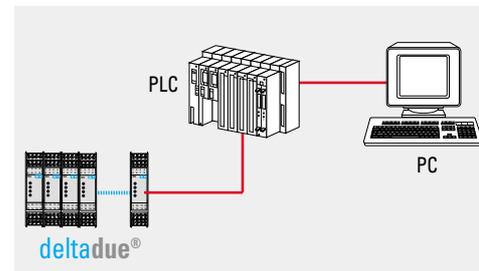
- Dedicated modules for critical controls
- Advanced process controls
- Hot swapping modules
- Standard protocol communication buses



High Integration – Distributed Control

Integrated automation of complex plants

- Control system optimised dimensioning
- Geographic distribution of system components
- Integration of control and automation functions
- Managing of safety and redundancy strategies



As all ASCON's products series, delta^{due}® is manufactured in accordance with the ISO 9001 Certified Total Quality System. High immunity to electromagnetic disturbance, together with ASCON products reliability, have enabled us to extend product warranty up to three years.

delta^{due}®

S E R I E S 2

D I S T R I B U T E

Allows great versatility

- Small size integrated modules
- Multiple functions in a single unit
- Identical positions of terminals/signals
- One only configuration software for all models
- TC-TR-mV-mA universal input
- Auxiliary power supply for transmitters.

Temperature controllers
 Process controllers
 Transmitters
 I/O modules
 Communication interfaces



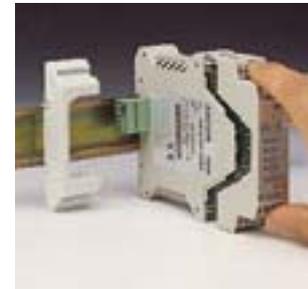
...and total integration...

- Inside control panel/machine-mounted
- Remote/centralized
- RS485/CanBus
- Communication interface.



... reduces wiring errors and installation time ...

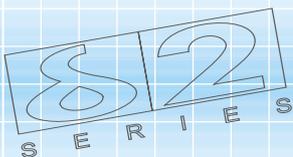
- DIN-rail quick mounting
- Less connections thanks to a single Bus for both power supply and communications
- Less connections thanks to a single Bus for both power supply and communication
- Reduced wiring errors thanks to polarized plugs and coloured tags, for a much easier signal identification
- Electrical safety increased by low voltage power supply and high immunity from noises
- Quickly and easily replaceable, even with instruments under power, without the interruption of communications (Hot Swapping).



... beats down costs



- Reduces the total volume of the panel thanks to its compact size
- Significant reduction in man/hours for installation, maintenance and training
- Unified operator interface
- Optimisation of the PLC without no addition of expensive auxiliary modules.



D C O N T R O L

Control modules

Universal inputs and outputs

The modules can be connected to any type of sensor (including infrared) and signal 0/4...20 mA or 50 mV, linear and non linear, also with custom linearisation. All types of outputs are provided (relay, SSR, digital, mA). They can be used for control, re-transmission, and alarms. The control function is guaranteed by a PID algorithm with overshoot control for discontinuous control, continuous control, or for valve drive, with two alarms that can be configured in the normal, latching, or blocking mode.

Digital input

A digital input "IL", which can be freely associated with one of the following functions, is always available to increase the level of automation:

- Measure hold
- Stored Setpoint selection
- Auto/Man mode change
- Timer activation.

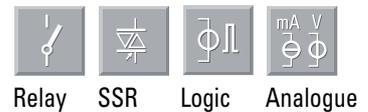
Current transformer input

The input from CT option allows to read the load current and in case of defects to activate an alarm.

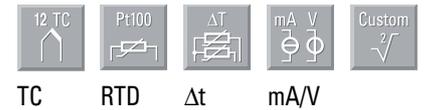
The alarm is activated both if the load current drops below the threshold in the "on" phase, and in the presence of current in the off phase (>3% of the scale field).



Outputs



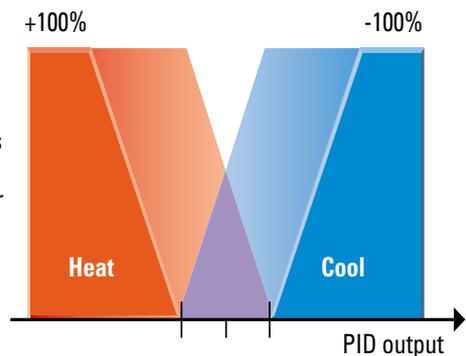
Inputs



Heat/cool control

The PID algorithm controls two separate independent outputs, one of which controls heating while the other controls cooling.

Heating and cooling can be separated or overlapped. The cool action can be corrected through the relative cool gain. The two outputs can be limited separately



Fuzzy-Tuning

Is the most reliable way to set initial P.I.D. parameters. Two different types of tuning calculations are available.

Fuzzy Tuning recognizes operating conditions and then selects the appropriate initial tuning. The Adaptive Tuning continually adjusts parameters to changing process characteristics.

Fuzzy-Tuning

The highly sophisticated Fuzzy tuning feature has two initial "one shot" tuning modalities and an automatic system, which selects the optimal solution based on process conditions.

Special functions

The **deltaDue**® line incorporates the two special optional functions of Start-up and Timer, avoiding the use of additional timers and reducing direct (Timer) and indirect (installation and cabling) costs. What is more, the output inhibition function can be activated, allowing to interrupt control at any time (from the serial communications), while maintaining the acquired variable indication without having to remove the current.

Start-up

SP Start-up < SP



SP Start-up >= SP



Timer



Compact and... more



Time proportioning, continuous and valve drive control



Fuzzy tuning, automatic selection of the best tuning method



Continuous isolated control (D3) or retransmission output



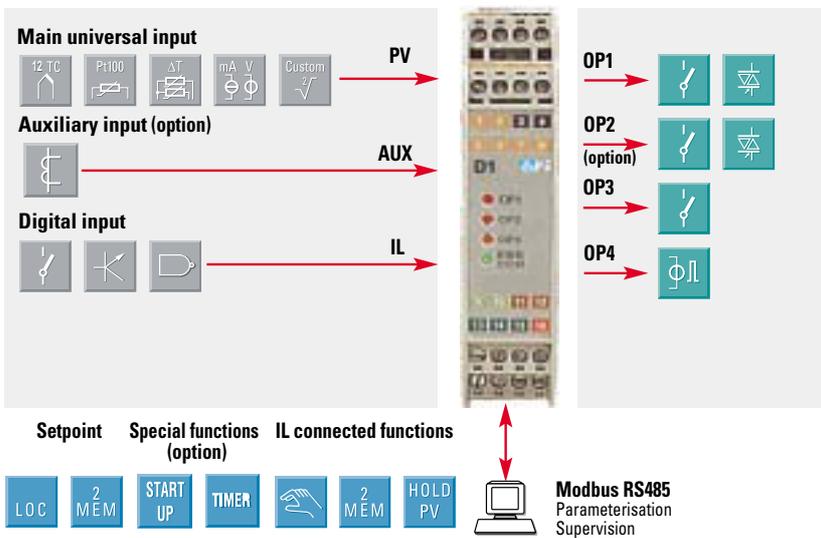
Start-up



Timer

D1 line

Resources



Operating mode

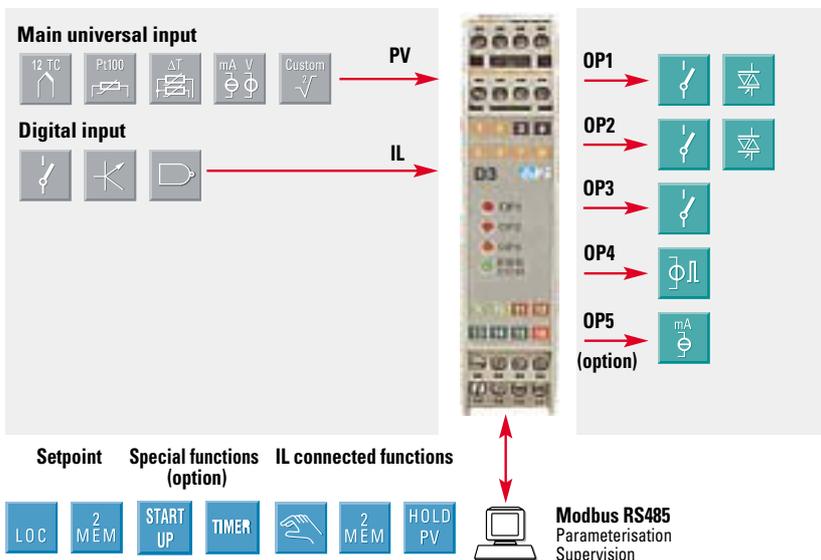
	Control	Alarms		
1	Single action	OP1	OP2	OP3
2		OP4	OP1	OP2
4	Double action (option)	OP1	OP2	OP3
5		OP1	OP4	OP2
6		OP4	OP2	OP1

Fuzzy tuning with automatic selection



D3 line

Resources



Operating mode

	Control	Alarms	Retransmission	
1	Single action	OP1	OP2	OP3
2		OP4	OP1	OP2
3		OP5	OP1	OP2
4	Double action	OP1	OP2	OP3
5		OP1	OP4	OP2
6		OP4	OP2	OP1
7		OP1	OP5	OP2
8		OP5	OP2	OP1
9		OP5	OP4	OP1
10	Valve (Opt.)	OP1	OP2	OP3

Fuzzy tuning with automatic selection



Data acquisition modules

The acquisition modules can be used as a simple digital **interface**.
If provided with the 0/4...20 mA output option, they can be used as **transmitters** or as **isolators** of analogic signals.

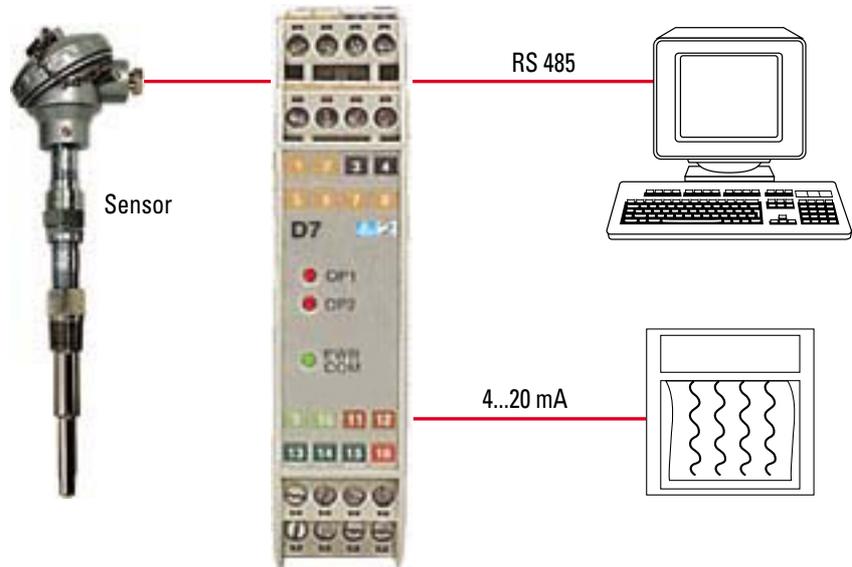
Universal input ...

They can be connected to any type of sensor (including infrared) or to 0/4...20mA or 50 mV linear signals, also with custom linearization. They are also provided with supply for external transmitter and digital input for the measure hold

... an insulated output ...
The 0/4...20 mA output is galvanically isolated by plating: 500V~/min, it has a resolution of 12 bit with an 0.1% accuracy

... and alarm thresholds
The 2 optional relay outputs can be used as absolute alarm thresholds with latching, blocking,

and sensor breaking functions



Not only a digital interface



Isolated output transmitter-isolator

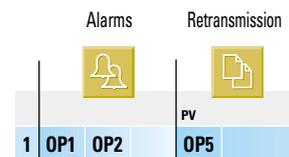
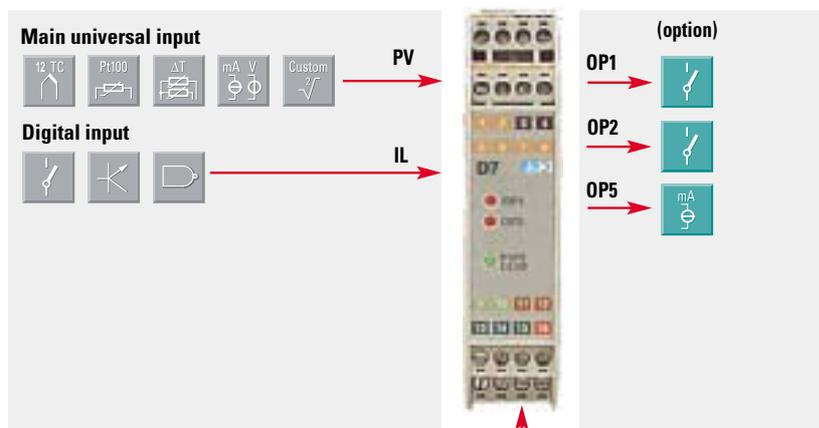


2 configurable relay alarms

D7 line

Resources

Outputs (option)



IL connected function



Modbus RS485
Parameterisation
Supervision

Application fields

The **deltadue®** line is so versatile that it covers many possible

applications in the field of distributed control, from simple digital

acquisition to the more complex process control function, and lends itself

to many different sectors, such as



Aeronautics and Automotive



Food and Beverage



Light chemical and Pharmaceutical



HVAC



Power generating



Rubber and Plastic



Heat treatments



Ceramic



Air, water and waste water treatments



Glass

Characteristics

General	D1	D3	D7
Universal power supply 24 V~ 50/60 Hz or 24 V-. Noise immunity level IV, CE	●	●	●
Measure input, auxiliary and digital inputs			
Measure update time in ms	200	200	200
Sampling time (maximum output update time in ms)	500	500	500
Input configurable for TC, RTD, mA, mV, DT, "custom" linearization, and IR sensor	●	●	●
Power supply for external transmitter	●	●	●
Auxiliary input for CT	○		
Digital input for Auto/Man, stored Setpoint selection, hold PV, and Timer launch	●	●	● (only hold PV)
Control			
PID with overshoot control, Hot/Cold double action, "Soft Start" on output	● (C/F only with OP2)	●	
For valve drive (floating), analogue in mA		○ (no Pot)	
Tuning			
FUZZY-TUNING in 2 modalities and automatic selection	●	●	
Outputs			
Relay or SSR outputs	1+1 (opt.)	2	2 (opt.)
Relay Output (alarm), Logic Output (control)	1+1	1+1	
Analogue output in mA (Control or Retransmission)		○	○ (only Retransm.)
Alarms			
Band, Deviation or Absolute, led On/Off	3	3	3 (only Absolute)
Latching/Blocking Modality	●	●	●
Loop break alarm	●	●	
Heater break alarm with CT input	○		
Setpoint			
Stored	2	2	
Start-up and Timer functions	○	○	
Upper/lower limit and up/down Ramp can be set separately	●	●	
Serial communication			
RS485 isolated up to 9600 baud with Modbus/Jbus Slave protocol	●	●	●
CanBus (alternatively to RS485)	○	○	○
Configuration and parametrization from PC			
	●	●	●

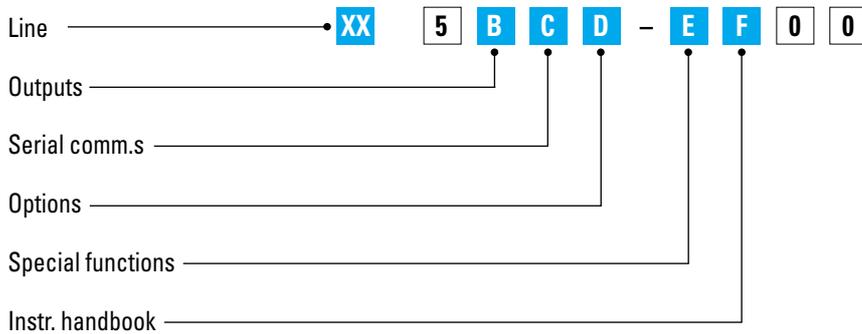
● = Standard

○ = Option



S E R I E S

Ordering codes



Line					XX	
Temperature controller with CT					D1	
Double action controller with analogue output					D3	
Acquisitor, Transmitter-Isolator with alarms					D7	
Outputs	OP1	OP2	D1	D3	D7	B
	None				✓	0
	Relay	Not available	✓			0
	Relay	Relay	✓	✓	✓	1
	SSR	Not available	✓			3
	SSR	SSR	✓	✓		5
Serial comm.s					C	
CanBus					3	
RS 485 Modbus/Jbus SLAVE					5	
Options		D1	D3	D7	D	
None		✓	✓	✓	0	
Valve drive output (no potentiometer)			✓		2	
Current transformer input		✓			3	
OP5 control (D3 only) or retransmission			✓	✓	5	
Valve drive output (no potentiometer) + OP5 retransmission			✓		7	
Special functions		D1	D3	D7	E	
Not fitted		✓	✓	✓	0	
Start-up + Timer		✓	✓		2	
Instruction handbook: user manual + installation					F	
Italian-English (standard)					0	
French-English					1	
German-English					2	
Spanish-English					3	

Mesa Industrie-Elektronik GmbH

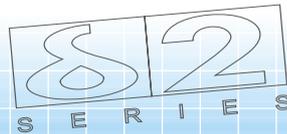
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