

# delta**due**<sup>®</sup> series Control and acquisition modules with fieldbus for DIN rail mounting

Not just I/O modules

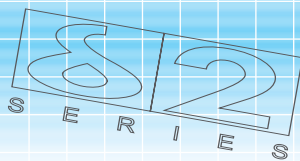
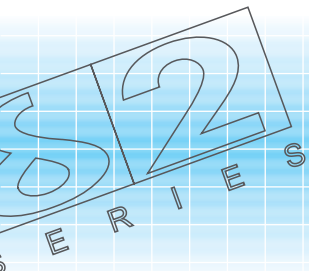
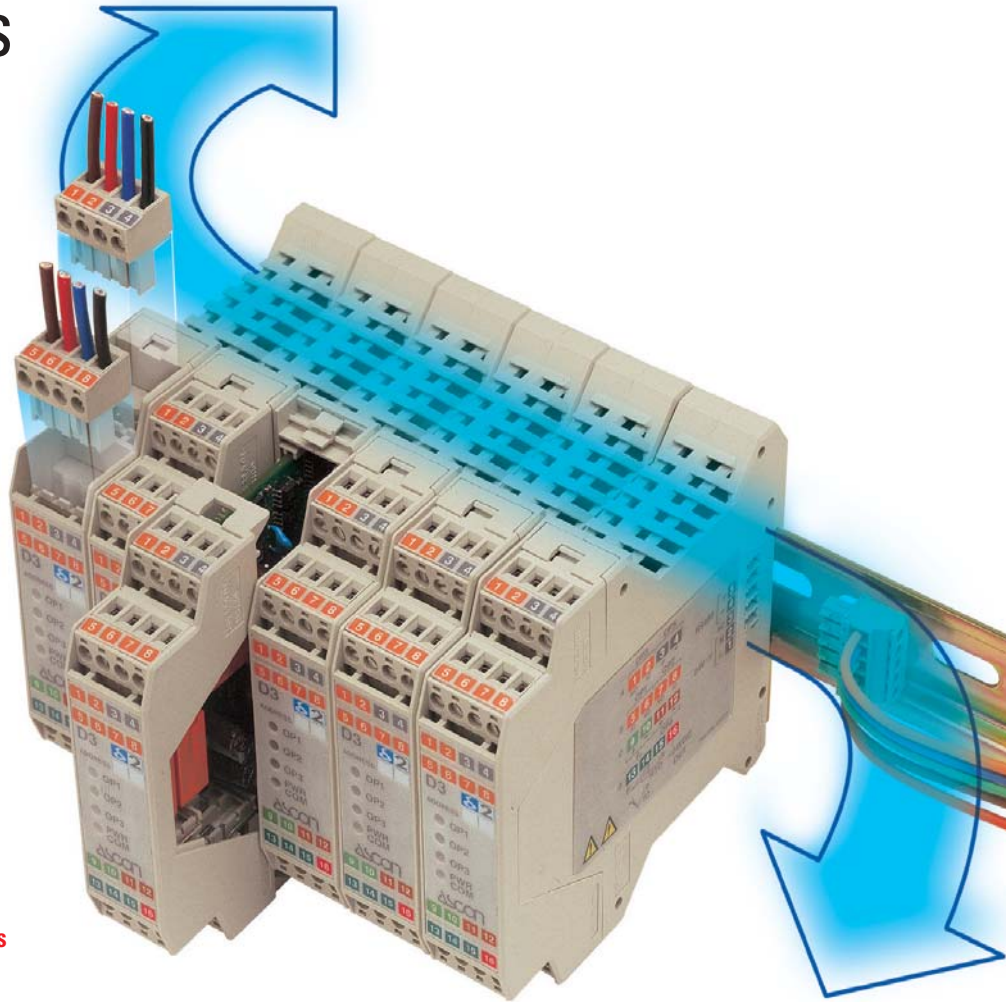
Process and Temperature  
controllers

Analogue and digital  
I/O modules

Transmitters with alarm  
thresholds

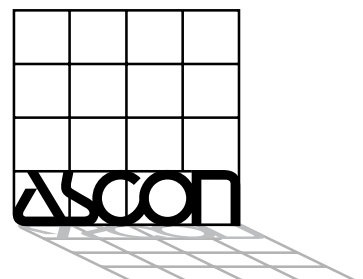
PROFIBUS DP / DeviceNet /  
CANOpen / Modbus TCP /  
Modbus RTU fieldbus  
Interfaces

- A complete range of compact and flexible modules
- PC configurable
- Wide choice of Operator Panels
- Built-in RS 485 Modbus
- Fits the most common architectures



E

ISO 9001 Certified



# ASCON'S CONTROL AND ACQUISITION

## delta**due**® series

ASCON's process control experience and the increasing need for integration of the control systems have brought to the development of the new delta**due**® series, consisting in control and acquisition modules.

The delta**due**® modules can either be rear panel or on-machine mounted. This way, control panels can be more compact and distribution on the plant or on the machine can be optimized. The modules are independent. Each module can work as a single unit or within a set of modules as a part of a stand-alone control system, or integrated in PLC or PC systems. Integration into PROFIBUS DP or DeviceNet or CANOpen or Modbus TCP or Modbus RTU is assured by the Gateway modules.

User friendly software assists rapid PC configuration of delta**due**®.

### A complete range of modules...

- PID single loop and dual loop controllers with universal input and with time proportioning, valve drive and analogue outputs
- Modular Multi loop controllers up to 31 or more zones
- Analogue and digital data acquisition for:
  - PC based systems field interface (front-end)
  - Expansion of PLCs or other data processing units.

### ...compact and flexible...

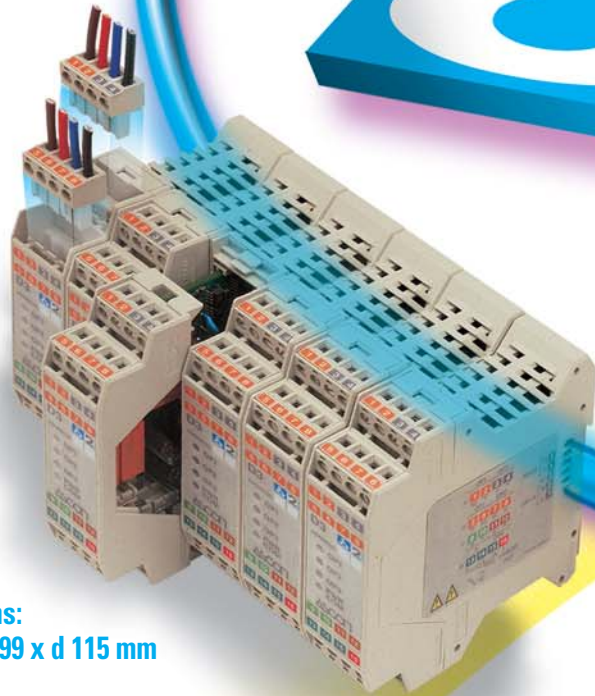
- Universal input: T/C, RTD (Pt100), mA, mV, Hz, IR sensors and a special Custom linearisation
- Auxiliary power supply for 2-wire transmitters
- Relay, SSR and SSR drive.
- Special functions, Start-up, Timer, etc.
- Hot-swapping
- Common bus for serial communications and 24Vdc power supply
- DIN rail mounting
- Polarized terminal plugs.



## Modular Multiloop



3 YEARS WARRANTY



Dimensions:  
w 22.5 x h 99 x d 115 mm



MODBUS TCP

MODBUS RTU





# NEW MODULES FOR DIN RAIL MOUNTING



**D1, D2, D3  
Controllers**

- Universal single loop controllers
- Independent dual loop controllers

- 1-channel or 2-channel universal analogue input modules
- 6 DI plus 2 DO modules



**D7, D8, D9  
Acquisition and  
Transmitter modules**



**...open to the external world...**

All modules have RS485 and Modbus protocol for direct connection to most common Operator Panels and SCADAs. Integration into PROFIBUS DP or DeviceNet or CANOpen or Modbus TCP or Modbus RTU by means of the Gateway modules DX and DY.

**...with the "Manager-Gateway"...**

The optional DX module includes two important functions

- management of the connected **delta<sup>due</sup>** modules for offline configuration, data back up and hot swapping
- serial interface and adaptor for integration on fieldbus.

**...with a wide range of HMIs**

The **delta<sup>due</sup>** series includes self-configuring HMIs, from simple compact alphanumeric Operator Panels to Touch Screen Graphic panels. Connected **delta<sup>due</sup>** modules are automatically recognized and their configuration uploaded.

**RS 485**



**DX Manager-Gateway**

**485/232**

**AutoLink<sup>®</sup>**  
**SCADA software  
for machines  
and/or small plants**

- Windows environment
- Self-configuration for up to 32 **delta<sup>due</sup>** and **gamma<sup>due</sup>** instruments; simple and flexible
- Overview, trend and alarm pre-formatted pages
- Plant synoptics
- Data archiving and report generation.

**Nopen**



## Icons table:

### PV input

- Thermocouple
- RTD Pt100
- Delta temperature (2xRTD)
- mA and mV
- "Custom"

### Auxiliary inputs

- Current transformer

### Digital inputs

- Isolated contact
- NPN open collector
- TTL open collector

### Hz

### Digital outputs

- SPST relay
- SSR
- PNP open collector
- SSR drive

### Analogue output

- mA
- ### Fuzzy tuning
- One shot Auto tuning
  - One shot Natural frequency

### Setpoint

- Local
- Memorised

### Special functions

- Start-up
- Timer

### Digital input connected functions

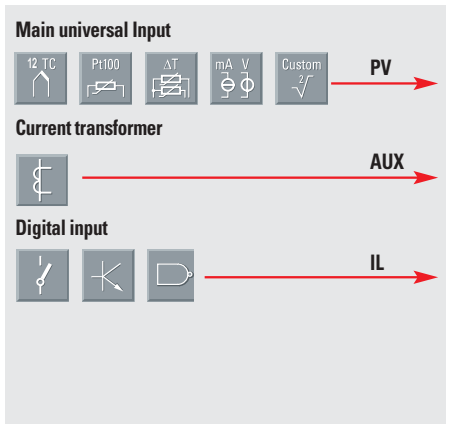
- Auto/Man
- Memorised setpoint activation
- PV Hold
- Alarm acknowledgement
- Not
- Toggle
- Flip-Flop

### Digital output connected functions

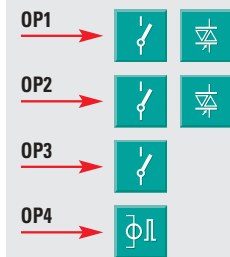
- Not
- Hold
- PWM

# PID CONTROL MODULES

## D1 Line - Temperature controller



### Outputs



### Fuzzy tuning with automatic selection

- One shot Auto tuning
- One shot Natural frequency

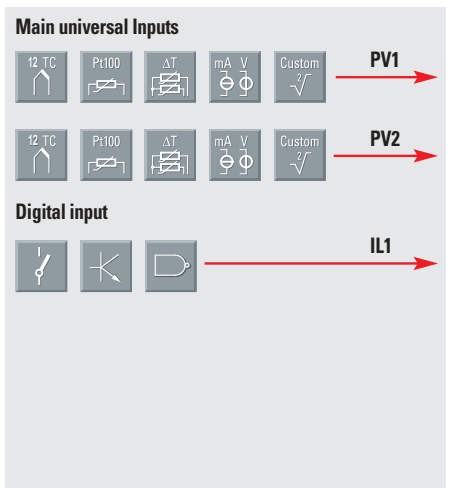
### Serial communications

- RS485 Modbus Slave** for configuration and supervision purposes

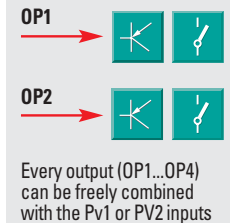
### Setpoint Special functions Digital input functions



## D2 Line - Dual loop control/acquisition module



### Digital outputs



### Fuzzy tuning with automatic selection

- One shot Auto tuning
- One shot Natural frequency

### Serial communications

- RS485 Modbus Slave** for configuration and supervision purposes

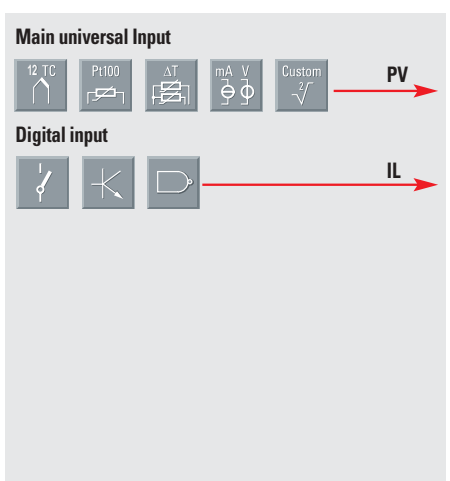
### Setpoint Digital input functions



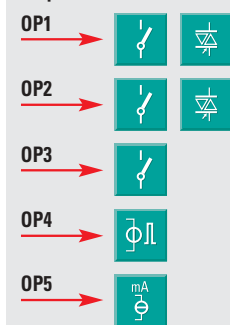
### Available functions



## D3 Line - Heat/Cool controller with analogue output



### Outputs



### Fuzzy tuning with automatic selection

- One shot Auto tuning
- One shot Natural frequency

### Serial communications

- RS485 Modbus Slave** for configuration and supervision purposes

### Setpoint Special functions Digital input functions



# ACQUISITION MODULES


## D7 Line - Analogue acquisition, alarm thresholds and transmitter module

**Main universal Input**

12 TC, Pt100, ΔT, mA V, Custom → **PV**

**Digital input**

Switch, Relay, D → **IL**




**Outputs (option)**

**OP1** → [Switch]

**OP2** → [Switch]

**OP5** → [mA]

**Serial communications**



**RS485 Modbus Slave**  
for configuration and supervision purposes

**Digital input functions**



## D9 Line - 2-channel analogue acquisition module


**Main universal Inputs**

12 TC, Pt100, ΔT, mA V, Custom → **PV1**

12 TC, Pt100, ΔT, mA V, Custom → **PV2**

**Digital input**

Switch, Relay, D → **IL1**



**Digital outputs**

**OP1** → [Relay], [Switch], [Diode]

**OP2** → [Relay], [Switch], [Diode]


Every output (OP1...OP4) can be freely combined with the Pv1 or Pv2 inputs

**Digital outputs can also be used as digital inputs**

**OP3** → [Relay]

**OP4** → [Relay]

**Serial communications**



**RS485 Modbus Slave**  
for configuration and supervision purposes

**Digital input functions**



**Available functions**



## D8 Line - Digital I/O acquisition module with 6 Inputs and 2 Outputs

**Digital inputs**

Switch, Relay, D, Hz → **D11**


Switch, Relay, D, Hz → **D12**

Switch, Relay, D → **D13**

Switch, Relay, D → **D14**

Switch, Relay, D → **D15**

Switch, Relay, D → **D16**




**Output**

**D01** → [Switch], [Diode], [Relay]

**D02** → [Switch], [Diode], [Relay]

**Serial communications**



**RS485 Modbus Slave**  
for configuration and supervision purposes

**Available functions**



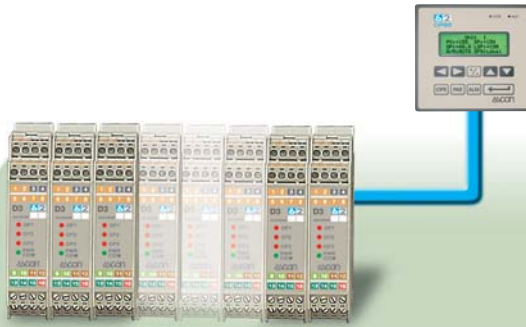
**Available functions**



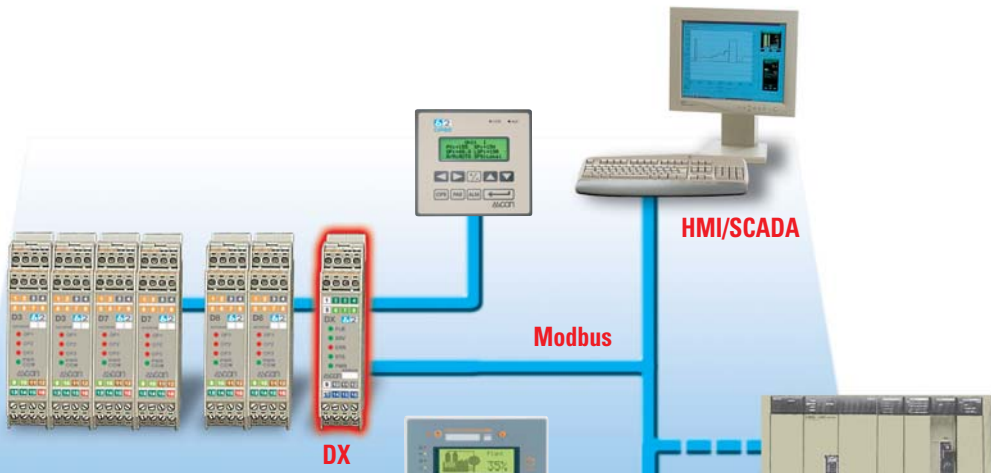


# ARCHITECTURES A

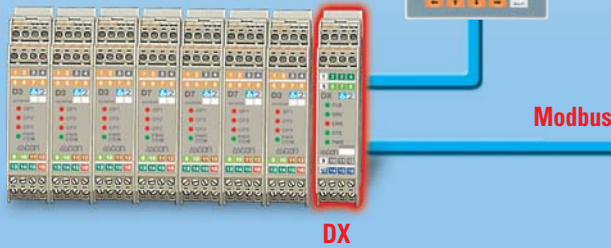
Modular multiloop  
PID controller with  
local Operator Panel.



Distributed control  
and acquisition system with  
DX module (manager and bus  
interface) for hot swapping  
and connection to local  
Operator Panel and remote  
SCADA.



Modular multiloop  
PID controller with local  
Operator Panel interfaced  
with remote SCADA.



Distributed I/O modules  
for acquisition,  
data logging  
and centralised  
supervision of analogue  
and digital signals with  
the possibility of alarms  
and local commands.



## Industries and Applications

**Plastic and Rubber:** Injection, Extrusion,  
Hot-Runners

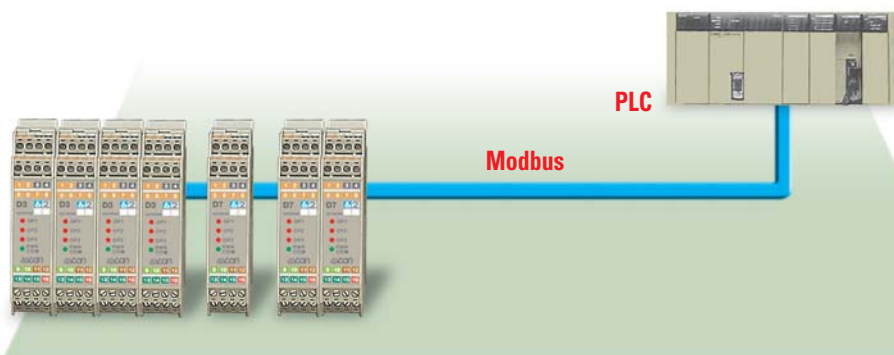
**Packaging:** Thermowelding, Thermoforming

**Food:** Dairy products, Food Packaging,  
Bottling, dried and fresh Pasta,  
oven Products, cereal Silos,  
preserving-ripening stores

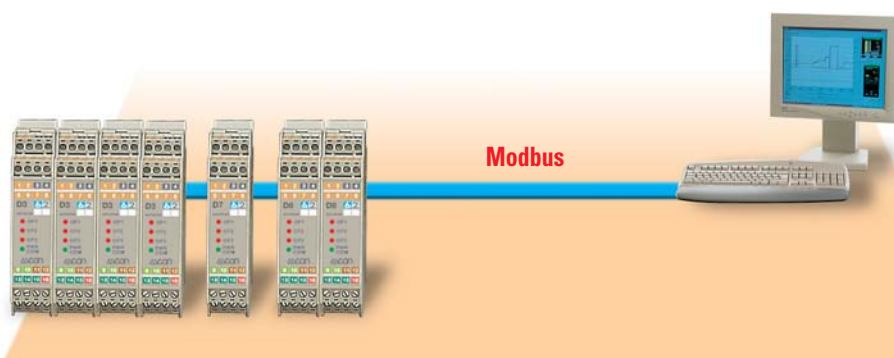
**Vehicles:** engine testing Counters,  
painting Plants, plate welding Plants  
**Ceramic and Brick Works:** continuous  
Furnaces, intermittent Furnaces, Driers



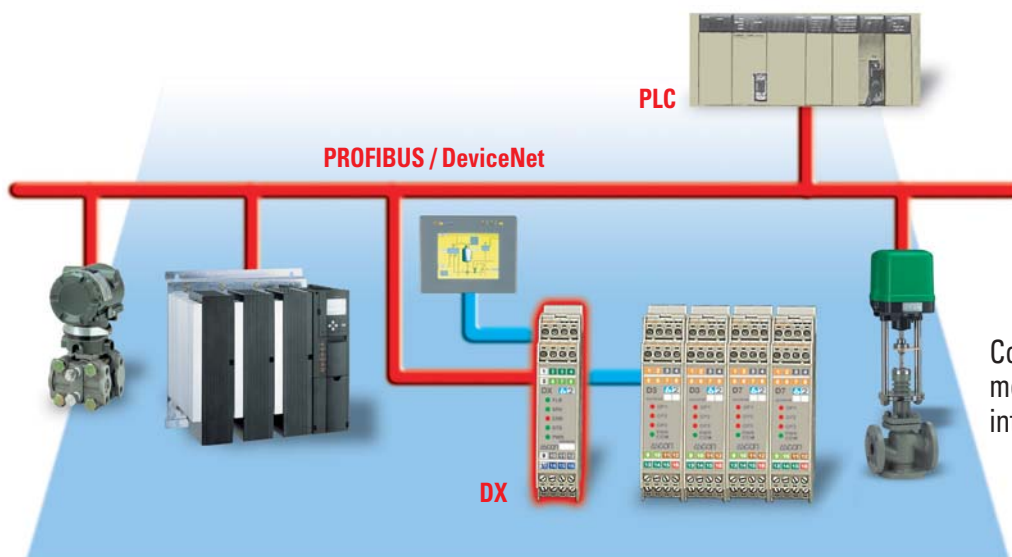
# AND APPLICATIONS



Integration of PLC systems with external distributed PID controls and I/O modules.



Distributed I/O modules for PC based systems.



Control and acquisition modules with DX fieldbus interface module.

**Metal Works:** blast Furnaces, thermal treatment Furnaces  
**Glass:** blast Furnaces; Furnaces for the treatment of flat, hollow, curved glass

**Chemistry and Pharmaceuticals:** Fine chemistry, Pharmaceuticals, Cosmetics, Paints and Enamels  
**Power:** Boilers, Burners

**Industrial Air Conditioning and Refrigeration:** climatic Chambers, Chillers  
**Shipyards:** hull Automation  
**Water Treatment:** waste Waters, Primary Waters, Semi-Conductors.



## DX - Manager-Gateway Line

The DX module has 3 serial ports and includes two important functions:

- Manager
- Gateway.

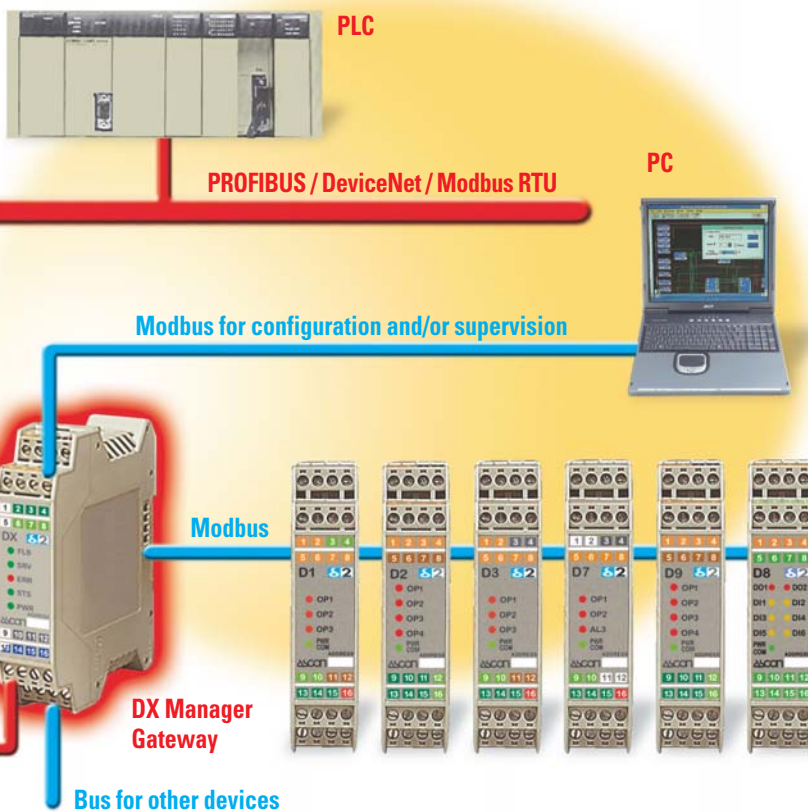
The "Manager" memorises the configuration and parameters of each module and monitors that the latter functions correctly.

Any time a module is substituted, this is recognised by the DX-Manager, which

automatically reconfigures and parametrises the substituted module.

The Gateway includes: one fieldbus slave port for the conversion Modbus/PROFIBUS DP, Modbus/DeviceNet and Modbus RTU; two RS485 Modbus Master ports for the connection to the **delta**due® modules and to other Ascon's,

or other manufacturer's devices; one RS485/RS232 Modbus Slave port for the connection to Operator Panels, Supervision PCs and for the configuration of the **delta**due® modules via PC.



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