

delta**due**[®] series Control and acquisition modules with fieldbus for DIN rail mounting

Not just I/O modules

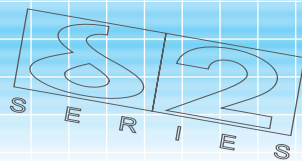
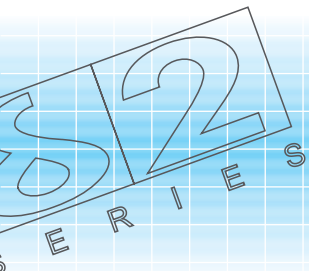
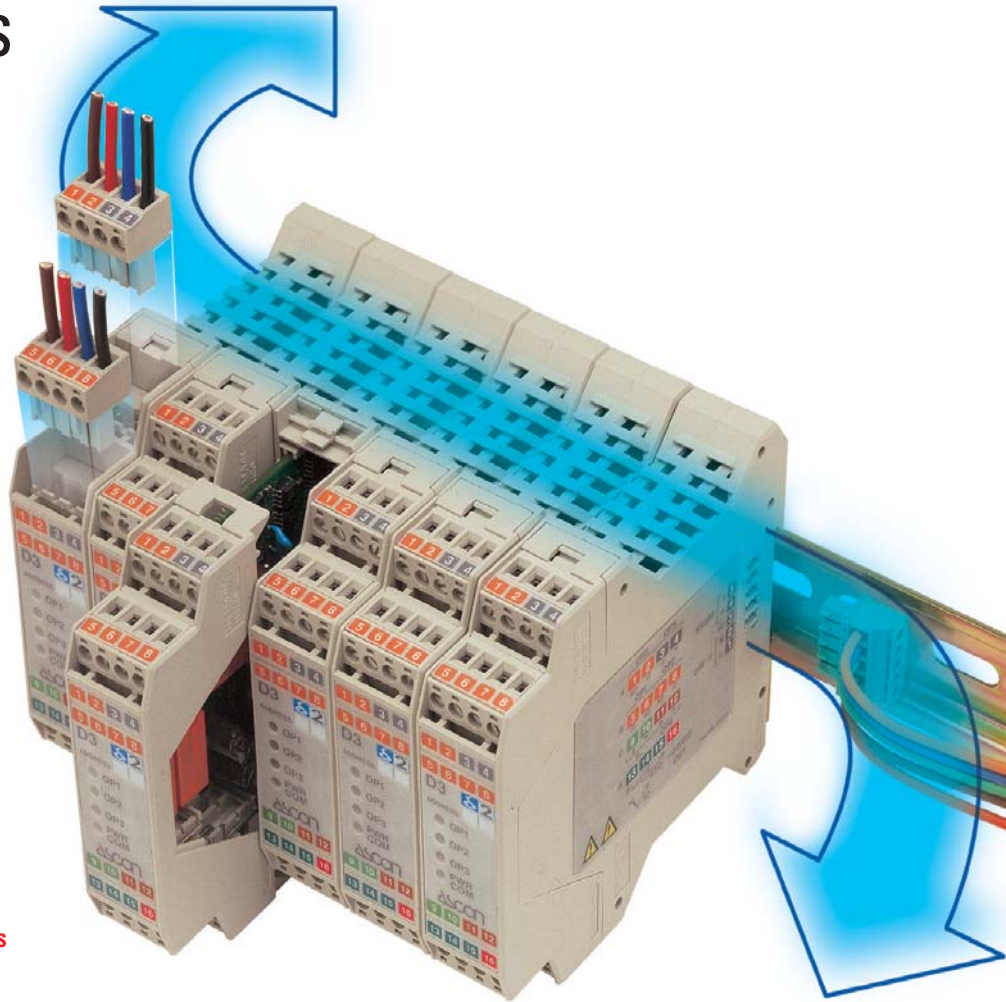
Process and Temperature
controllers

Analogue and digital
I/O modules

Transmitters with alarm
thresholds

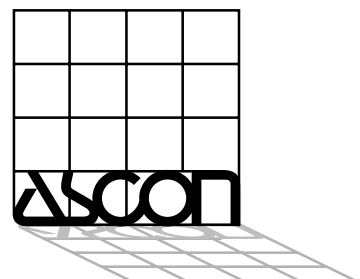
PROFIBUS DP / DeviceNet /
CANOpen / Modbus TCP /
Modbus RTU fieldbus
Interfaces

- 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...

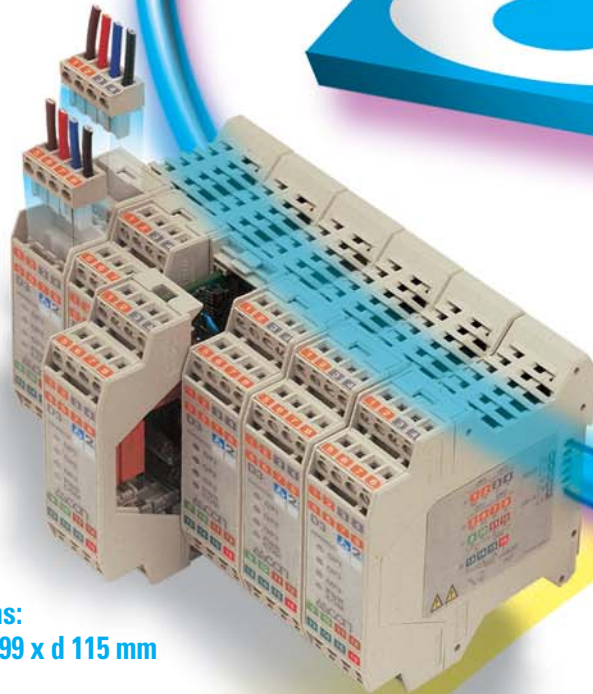
- Universal input: T/C, RTD (Pt100), mA, mV, Hz, IR sensors and a special Custom linearisation
- Auxiliary power supply for 2-wire transmitters
- Relay, SSR and SSR drive.
- Special functions, Start-up, Timer, etc.
- Hot-swapping
- Common bus for serial communications and 24Vdc power supply
- DIN rail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



Modular Multiloop



3 YEARS WARRANTY



Dimensions:
w 22.5 x h 99 x d 115 mm



MODBUS TCP

MODBUS RTU

CA



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^{due}** 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^{due}** series includes self-configuring HMIs, from simple compact alphanumeric Operator Panels to Touch Screen Graphic panels. Connected **delta^{due}** modules are automatically recognized and their configuration uploaded.

RS 485



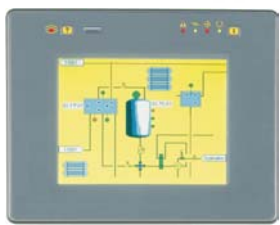
DX Manager-Gateway

485/232

**AutoLink[®]
SCADA software
for machines
and/or small plants**

- Windows environment
- Self-configuration for up to 32 **delta^{due}** and **gamma^{due}** 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

- Frequency

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

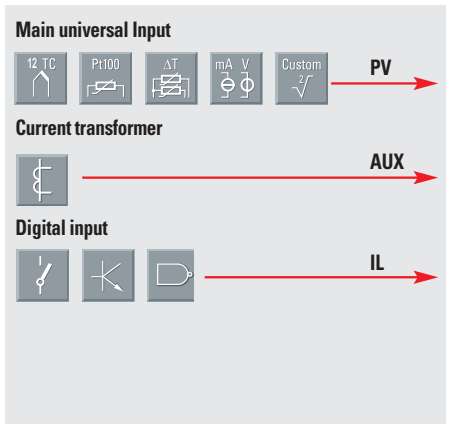
- Auto/Man
- Memorised setpoint activation
- PV Hold
- Alarm acknowledgement
- Not
- Toggle
- Flip-Flop

Digital output connected functions

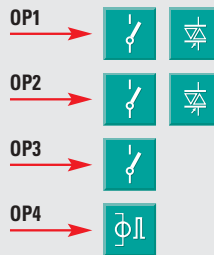
- Not
- Hold
- PWM

PID CONTROL MODULES

D1 Line - Temperature controller



Outputs



Fuzzy tuning with automatic selection

- One shot Auto tuning
- One shot Natural frequency

Serial communications

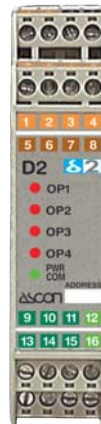
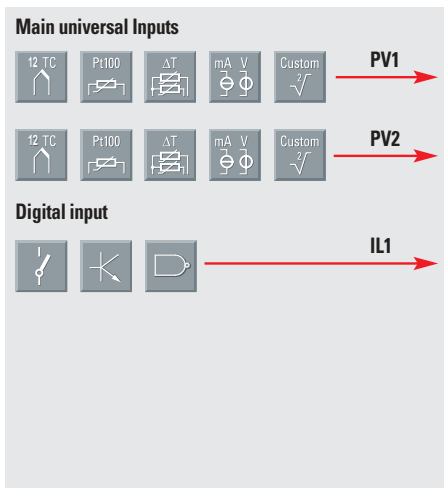


RS485 Modbus Slave
for configuration and supervision purposes

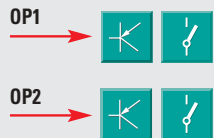
Setpoint Special functions Digital input functions



D2 Line - Dual loop control/acquisition module



Digital outputs



Every output (OP1...OP4) can be freely combined with the PV1 or PV2 inputs

Digital outputs can also be used as digital inputs



Fuzzy tuning with automatic selection

- One shot Auto tuning
- One shot Natural frequency

Serial communications



RS485 Modbus Slave
for configuration and supervision purposes

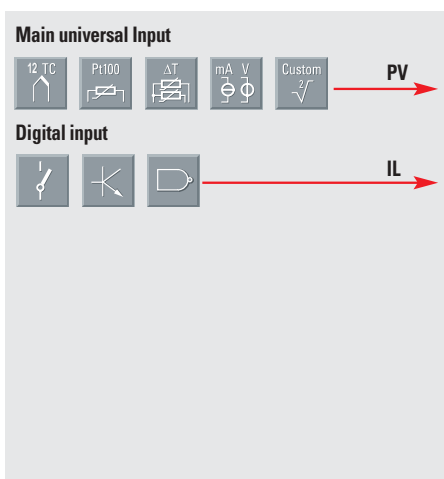
Setpoint Digital input functions



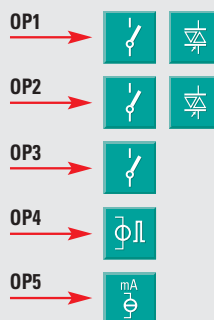
Available functions



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, Inverter → **IL**




Outputs (option)

OP1 → [Switch]

OP2 → [Switch]

OP5 → [mA]

Serial communications



RS485 Modbus Slave
for configuration and supervision purposes

Digital input functions

HOLD PV

D9 Line - 2-channel analogue acquisition module

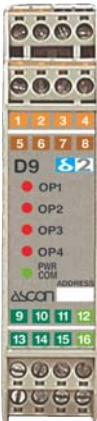
Main universal Inputs

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

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

Digital input

Switch, Relay, Inverter → **IL1**



Digital outputs

OP1 → [Switch], [Relay], [Diode]

OP2 → [Switch], [Relay], [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 → [Switch]

OP4 → [Switch]

Serial communications



RS485 Modbus Slave
for configuration and supervision purposes

Digital input functions

HOLD PV, ACK

Available functions

[Inverter] Not

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

Digital inputs

Switch, Relay, Inverter, Hz → **D11**


Switch, Relay, Inverter, Hz → **D12**

Switch, Relay, Inverter → **D13**

Switch, Relay, Inverter → **D14**

Switch, Relay, Inverter → **D15**

Switch, Relay, Inverter → **D16**




Output

D01 → [Switch], [Relay], [Diode]

D02 → [Switch], [Relay], [Diode]

Serial communications



RS485 Modbus Slave
for configuration and supervision purposes

Available functions

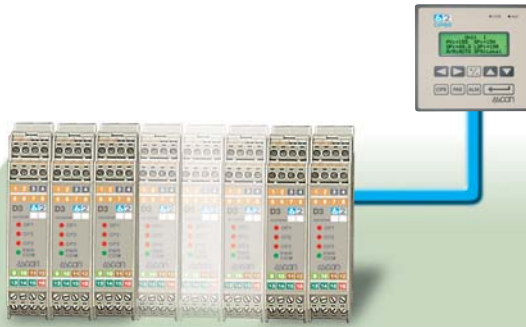
[Inverter] Not, [Toggle] Toggle, [Flip-Flop] Flip-Flop

Available functions

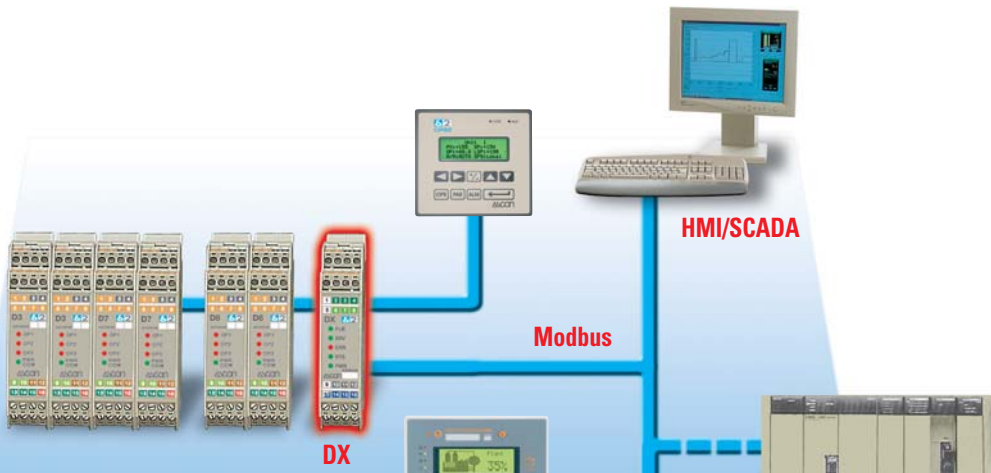
[Inverter] Not, [HOLD] Hold, [PWM] PWM

ARCHITECTURES A

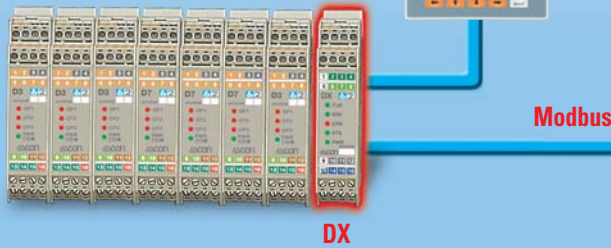
Modular multiloop
PID controller with
local Operator Panel.



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

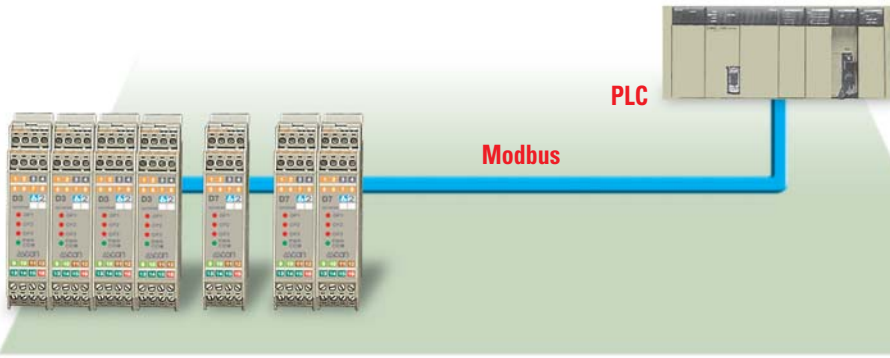
Packaging: Thermowelding, Thermoforming

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

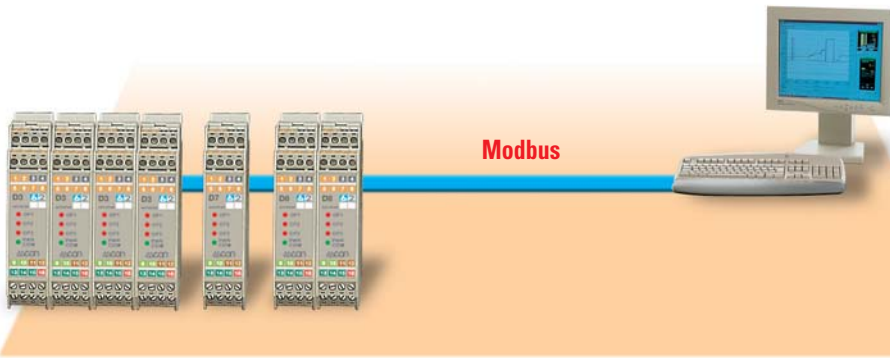
Vehicles: engine testing Counters,
painting Plants, plate welding Plants
Ceramic and Brick Works: continuous
Furnaces, intermittent Furnaces, Driers



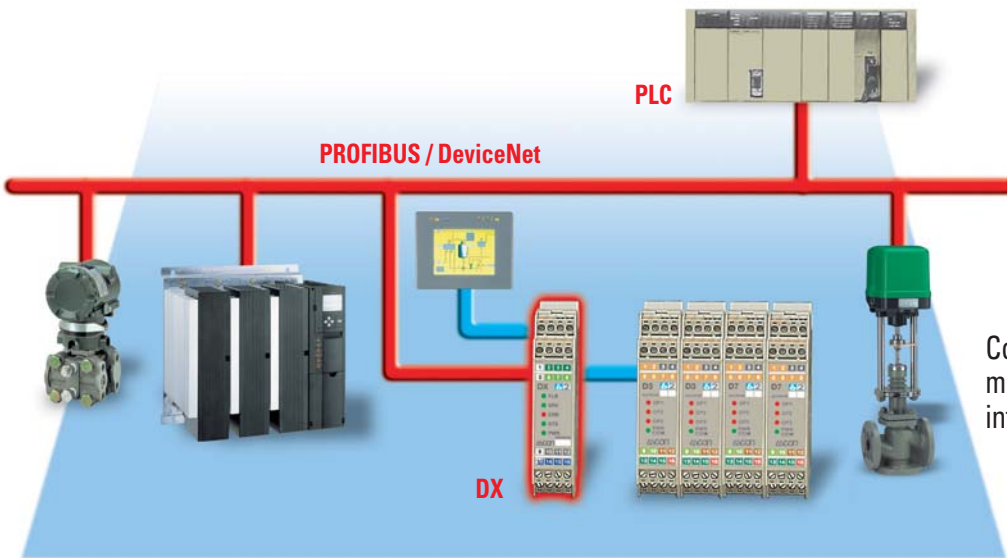
AND APPLICATIONS



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.

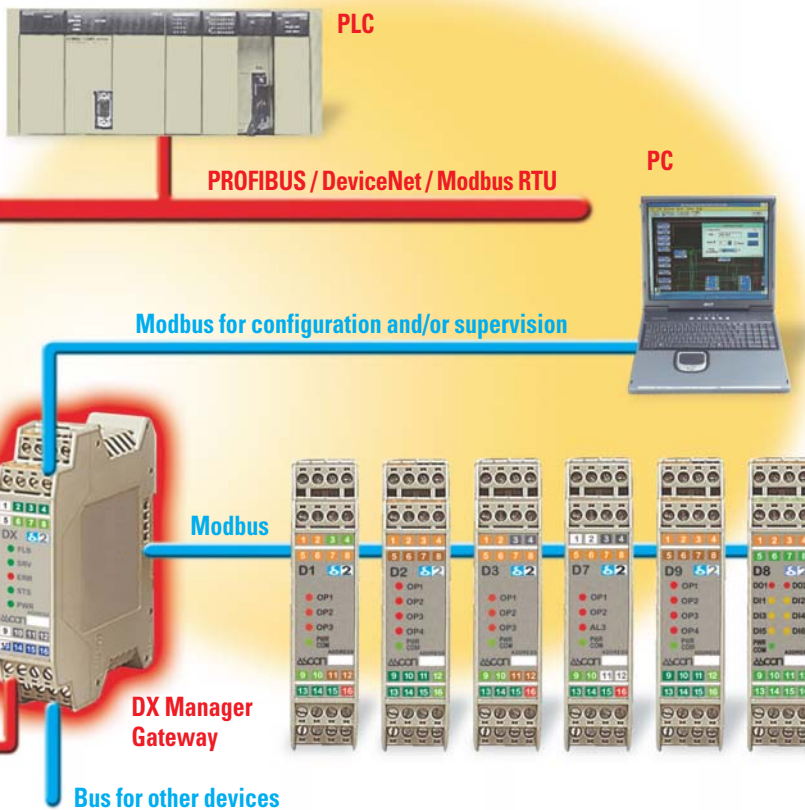
The "Manager" memorises the configuration and parameters of each module and monitors that the latter functions correctly.

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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