**82**
S E R I E S

gamma**due**® series
Universal Controllers,
Setpoint Programmers-Controllers
and Indicators

- **All sizes, from 1/32 DIN to 1/4 DIN**
- **Many additional features available:**
  Timer, Start-up, Current transformer input
- **Open to the external world: Modbus,**
  PROFIBUS DP and Modbus Master
- **PC configurable**
- **Memory chip for data copying/archiving**
- **Simple and safe to start up and use**
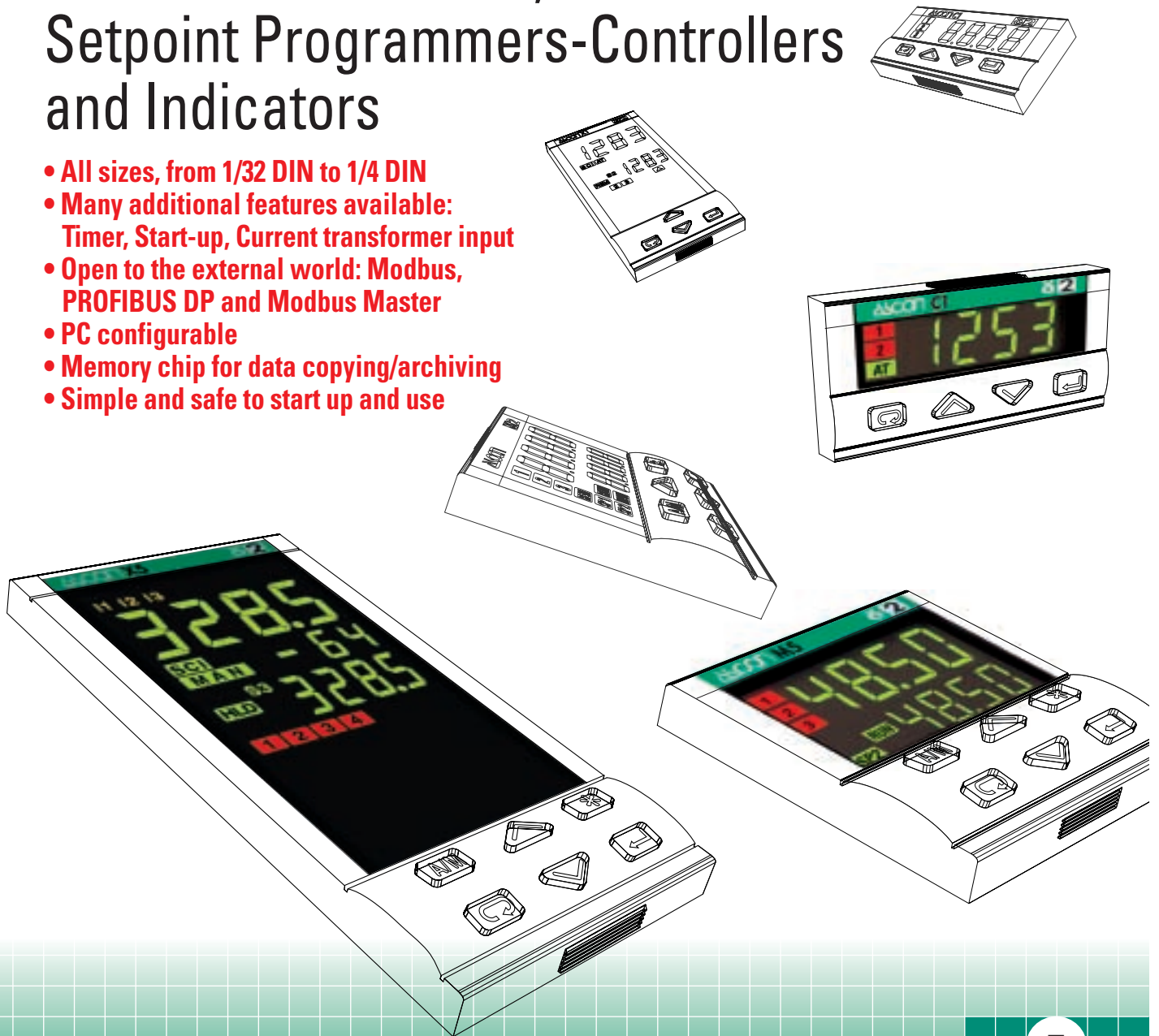
E

ISO 9001 Certified
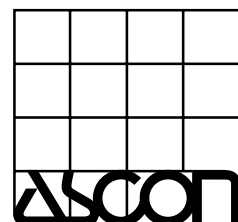
ASCON

gamma**due**® series

gamma**due**® is the result of Ascon's experience in designing and manufacturing compact, powerful and reliable controllers and indicators

A universal instrument tailor-made...
The wide available range of formats, functions and services allows the instrument most suitable to the process needs to be chosen.

gamma**due**® can be used with any type of sensor (thermocouples, thermoresistances, infra-red thermometres) and linear signal (mA, Volt, Hz), as well as with non-linear signals, thanks to a special Custom linearisation.

Additional inputs are also available:
- 1 analogue input for remote Setpoint, current load control (by CT), valve drive position potentiometer
- 3 digital inputs for Auto/Man, Loc/Rem, Start/Stop, etc.

Furthermore, all types of output are available: Relay, SSR, SSR drive, mA and Volt, that can freely be configured for control, re-transmission or alarms.

Control functions are ensured through a PID algorithm developed for:
- Time proportioniong output with single or double action control
- Analogue output control
- Valve drive output control
Additional functions further provide:
- 4 alarms configurable as normal, latching or blocking, that can be grouped in OR
- Local, Remote and Programmed Setpoint management
- Both "master" and "slave" serial communications
- Mathematical package.

AutoLink®
SCADA software for machines and/or small plants
- Windows environment
- Self-configuration of up to 32 gamma**due**® and delta**due**® instruments; simple and flexible
- Overview, trend and alarm pre-formatted pages
- Plant synoptics
- Data archiving and report generation.

- All sizes, from 1/32 DIN to 1/4 DIN
- Withdrawable from front
- 2 front colours available

IP65

- Front protection IP 65
- CE, UL and cUL certification

...open to the external world...
Interfacing with the outside world is ensured through the three types of serial communications which, using two of the most established standard protocols - **Modbus** and **PROFIBUS DP** - allow gamma**due**® to be integrated in control, supervision and monitoring systems.
Furthermore, the presence of **Modbus Master**, integrated with the mathematical package,

...adaptable to the process...

gamma**due**® 's **Fuzzy-Tuning** is very sophisticated: it avails of two initial "one-shot" tuning methods and an automatic system which, on the basis of the process conditions, selects the optimal one. The **Adaptive-Tuning** function optimises the control of processes whose characteristics are continuously changing.

...and to the operator...

A particular customisable, password protected viewing procedure (**fast view**) allows the operator to reach rapidly the functions and information considered most important, while the option of hiding parameters or preventing their alteration prevents misuse of the instrument.

A **memory chip** is available to aid start-up operations. This chip is capable of memorising all data concerning one controller and downloading them into other controllers or archiving them. Furthermore, there is also a software package for configuring and parametrising by PC.

3 YEARS WARRANTY

...includes additional services...

The integration of special Setpoint manipulation functions, such as **Start-up** and **Timer**, in addition to the most classical programmed Setpoint, makes the gamma**due**® instruments far more complete than a simple controller. Furthermore, gamma**due**® reduces direct (timer) and indirect (wiring) costs by avoiding the need to install additional equipment to carry out the above timing functions.

Fast view
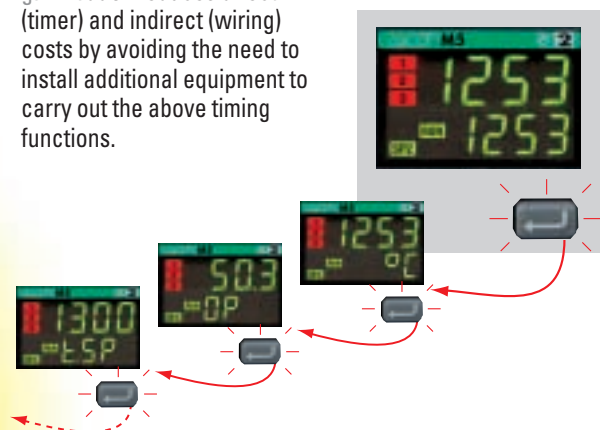
allows the top range instrument to receive, process and send data (for example the Setpoint) to other controllers belonging to the gamma**due**® series or simply equipped with **Modbus Slave** serial communications.

PROFI
PROCESS FIELD BUS
BUS

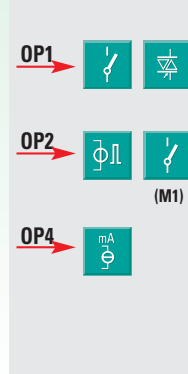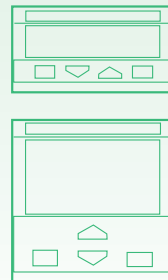# Controller-Indicator-Transmitter

- **C1 line** - 1/32 DIN - 48 x 24 x 120 mm
- **M1 line** - 1/16 DIN - 48 x 48 x 120 mm
- Single action PID or On-Off algorithm with overshoot control
- Up to 2 configurable alarms
- Isolated analogue output for re-transmission
- Auxiliary power supply for 2-wire transmitter

- Configurable as controller, Indicator with or without alarm thresholds, Indicator/Transmitter
- Safety Limiter function (C1 only) FM approved, PED compliant.
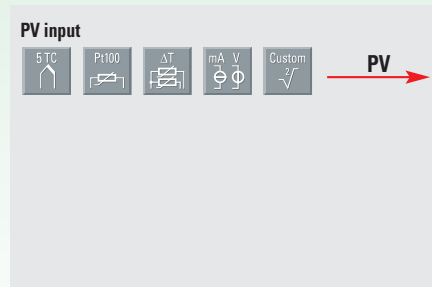
PV input

5 TC	Pt100	ΔT	mA V	Custom	→ PV

Setpoint

LOC

OP1 →
OP2 →
OP4 → mA
(M1)

Fuzzy tuning with automatic selection
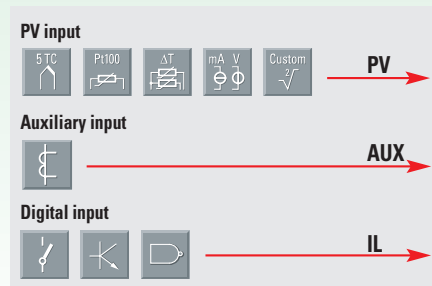- One shot Auto tuning
- One shot Natural Frequency

Serial communications

RS485 Modbus Slave
for configuration and supervision purposes

Hot-Runner controller

- **M2 line** - 1/16 DIN 48 x 48 x 120 mm
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- Current transformer input for load control
- Simultaneous change of the Setpoint by remote control, up to 48 instruments
- Maintaining the optimal value of the control output, even in emergencies
- Up to 2 configurable alarms

- 1 digital input for Auto/Man, Loc/Stand-by, keypad lock
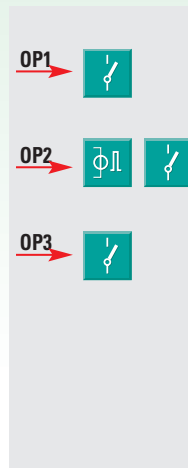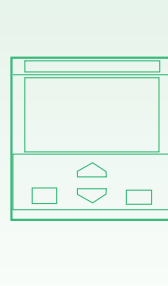- Auxiliary power supply for 2-wire transmitter.

PV input

5 TC	Pt100	ΔT	mA V	Custom	→ PV

Auxiliary input

→ AUX

Digital input

→ IL

OP1 →
OP2 →
OP3 →

Setpoint

LOC   STAND BY

Special functions

Digital input functions

STAND BY   SP UP   SP DOWN
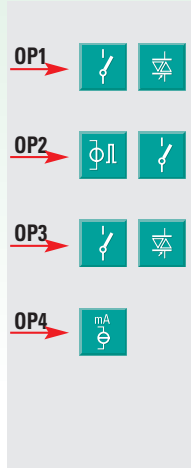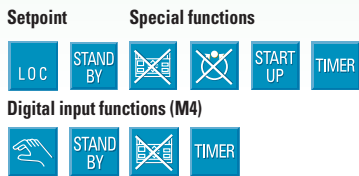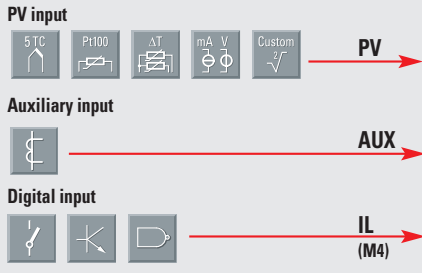
Fuzzy tuning with automatic selection
- One shot Auto tuning
- One shot Natural Frequency

Continuous tuning
- Adaptive

Temperature controller

- **M3/M4 line** - 1/16 DIN 48 x 48 x 120 mm
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- Current transformer input for load control
- Up to 2 configurable alarms
- 1 isolated analogue output for re-transmission (M3)
- 1 isolated analogue output for control and/or re-transmission (M4)

- Special functions: Start-up and Timer
- 1 Digital input (M4): Auto/Man, Loc/Stand-by, keypad lock
- Auxiliary power supply for 2-wire transmitter
- Safety Limiter function (M4 only) FM approved, PED compliant.

PV input

 → **PV**

Auxiliary input

 → **AUX**

Digital input

 → **IL**
(M4)

Setpoint   **Special functions**

Digital input functions (M4)

OP1
OP2
OP3
OP4

Fuzzy tuning with automatic selection

One shot Auto tuning
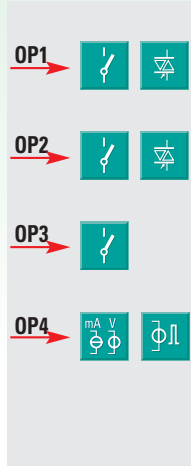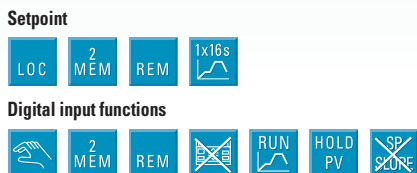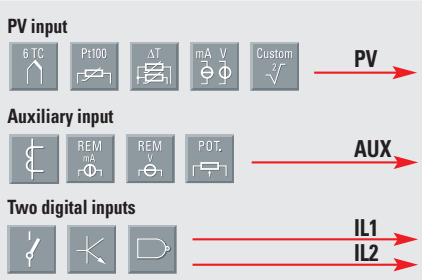
One shot Natural Frequency

Serial communications

RS485 Modbus Slave for configuration and supervision purposes

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Process controller with programmable Setpoint

- **M5 line** - 1/16 DIN 48 x 48 x 150 mm
- 50ms sampling time
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- time proportioning, analogue and valve drive control
- Auto/Man with bumpless
- Up to 4 configurable alarms

- Remote Setpoint with Bias and Ratio trim
- 1 Setpoint programmed up to 16 segments
- Fast View for customised parameters menu
- Memory chip for data copying/archiving
- Auxiliary power supply for 2-wire transmitter.

PV input

 → **PV**

Auxiliary input

 → **AUX**

Two digital inputs

 → **IL1 IL2**

Setpoint

Digital input functions

OP1
OP2
OP3
OP4

Tuning

One shot Auto tuning

Continuous tuning
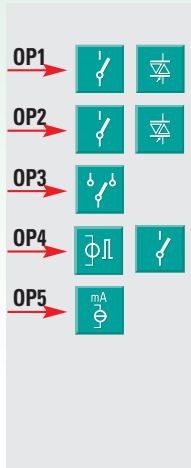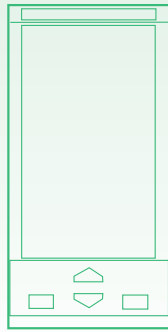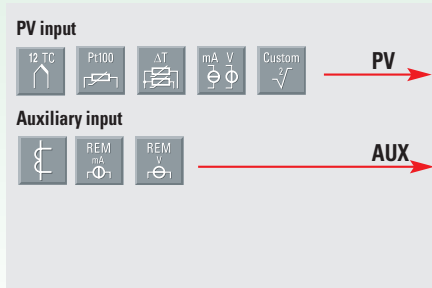
Adaptive

Memory Chip Data copy/Data store

Serial communications

RS485 Modbus Slave for configuration and supervision purposes
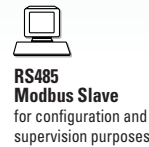
Heat/Cool Temperature controller

- **X1 line** - 1/8 DIN 48 x 96 x 110 mm
- **Q1 line** - 1/4 DIN 96 x 96 x 110 mm
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- 1 isolated analogue output for re-transmission

- Up to 3 configurable alarms
- Special functions: Start-up and Timer
- Auxiliary power supply for 2-wire transmitter.

PV input

PV

Auxiliary input

AUX

Setpoint

LOC | 2 MEM | REM

Special functions

START UP | TIMER

OP1
OP2
OP3
OP4
OP5

Fuzzy tuning with automatic selection

One shot
Auto tuning

One shot
Natural Frequency

Serial communications

RS485
Modbus Slave
for configuration and
supervision purposes

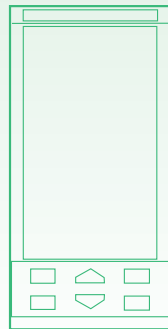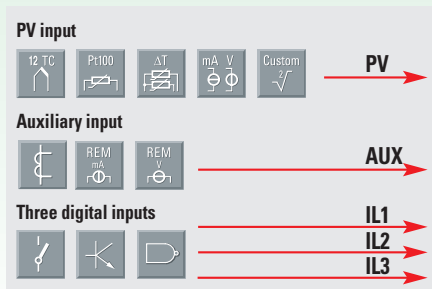
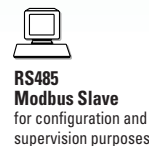# Double action controller with analogue output

- **X3 line** - 1/8 DIN 48 x 96 x 110 mm
- **Q3 line** - 1/4 DIN 96 x 96 x 110 mm
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- Current transformer input for load control
- 1 isolated analogue output for control or re-transmission
- Auto/Man with bumpless
- Up to 3 configurable alarms

- 1 programmed Setpoint up to 8 segments
- Special functions: Start-up and Timer
- Auxiliary power supply for 2-wire transmitter.
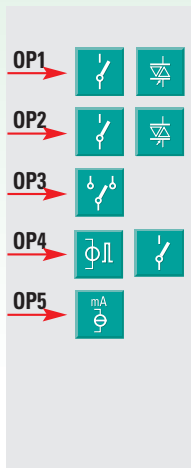
PV input

PV

Auxiliary input

AUX

Three digital inputs

IL1
IL2
IL3

Setpoint

LOC | 2 MEM | REM | 1 x 8s

Digital input functions

MEM | REM | RUN | HOLD PV | TIMER

Special functions

START UP | TIMER

OP1
OP2
OP3
OP4
OP5

Fuzzy tuning with automatic selection

One shot
Auto tuning

One shot
Natural Frequency

Serial communications

RS485
Modbus Slave
for configuration and
supervision purposes

Process controller-Programmer with PROFIBUS DP and Modbus Master/Slave

- **X5 line** - 1/8 DIN 48 x 96 x 110 mm
- **Q5 line** - 1/4 DIN 96 x 96 x 110 mm
- 50ms sampling time
- 2 isolated analogue outputs for control and/or re-transmission
- Single or double action H/C PID or On-Off algorithm with overshoot control and Soft Start
- time proportioning, analogue and valve drive control
- Auto/Man with bumpless
- Up to 4 configurable alarms

- Remote Setpoint with Bias and Ratio trim
- 4 Setpoint programs up to 16 segments each
- Mathematical package
- Fast View for customised parameters menu
- Memory chip for data copying/archiving
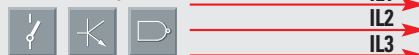- Auxiliary power supply for 2-wire transmitter.
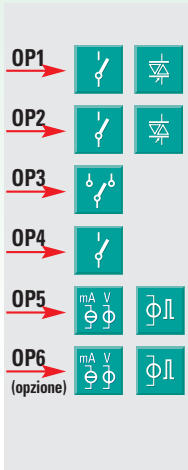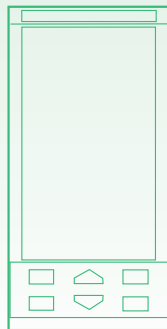
PV input

Auxiliary input → AUX

Three digital inputs → IL1 / IL2 / IL3

Setpoint

Digital input functions

OP1
OP2
OP3
OP4
OP5
OP6 (opzione)

Fuzzy tuning with automatic selection

One shot Auto tuning

One shot Natural Frequency

Continuous tuning

Adaptive

Memory Chip
Data copy/Data store

Serial communications

RS485
Modbus Slave
for configuration and supervision purposes

RS485
Modbus Master
link to other instruments

PROFI BUS

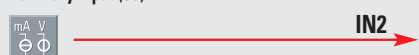# Single or double input universal indicators

- **J1/J3 line** - 1/8 DIN 96 x 48 x 110 mm
- Configurable display colour: red or green
- Main universal input
- Auxiliary Input (J3): mA, V, for mathematical functions in combination with the main input
- Up to 4 configurable alarms, NO or NC contacts, ISA sequence (J3)
- Isolated analogue output for re-transmission

- 3 digital inputs (J3) for PV hold, min/max selection, alarm acknowledgement
- Auxiliary power supply for 2-wire transmitter.

PV input → IN1

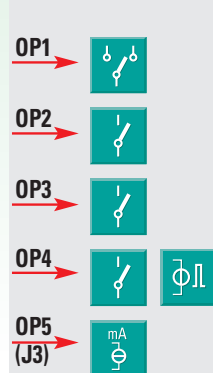**Auxiliary input (J3)** → IN2

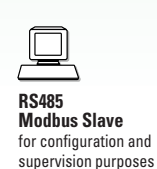**Three digital inputs (J3)** → IL1 / IL2 / IL3

Special functions
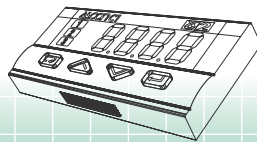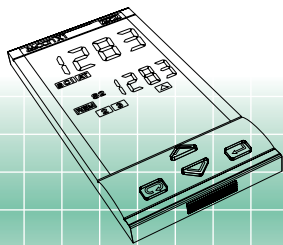
NA/NC | | | MIN | MAX | HOLD PV | HOLD PEAK | AVG

(J3)

Digital input functions (J3)

HOLD PV | HOLD PEAK | ACK ALM

OP1
OP2
OP3
OP4
OP5 (J3)

Serial communications

RS485
Modbus Slave
for configuration and supervision purposes

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