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ELECTRONIC EQUIPMENT AND INDUSTRIAL AUTOMATION

General Catalogue 2026

WEB PRICE LIST

Timers · Counters · Temperature · Displays · Sequencers · Measurement and protection · Level controls · Pump alternation · Pump and motor protection · Power supply · Accessories



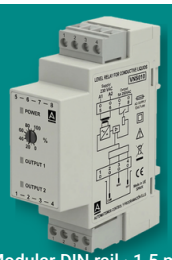
Z Modular DIN rail · 1 module · 17.5 mm



X 48 × 48 mm panel · 11-pin socket (U) or plug-in connector (C)



T Plug-in relay · 11-pin socket



V Modular DIN rail · 1.5 modules · 22.5 mm · plug-in connector



Y Modular DIN rail · plug-in connector



S 48 × 48 mm panel · special series



P 72 × 36 mm panel · plug-in connector



M Modular DIN rail · 3 and 4 modules · plug-in connector

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CONTROL Y PROGRAMACIÓN S.L.

Design and manufacture of industrial electronics since 1958

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Accessories

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11-PIN SOCKETS · FOR 48 × 48 DEVICES WITH 11-PIN CONNECTOR



ZB11-0 — On request
11-pin socket for DIN rail



PG11 — On request
11-pin socket with rear screw terminals



TBEU1E — On request
Free-hanging 11-pin socket for unprotected cables

ADAPTER FRAMES · ADAPT LARGER PANEL CUT-OUTS TO 48 × 48 / 72 × 72



MA7248 — On request
Adapts a 72 × 72 mm cut-out to 48 × 48 mm



MA9672 — On request
Adapts a 96 × 96 mm cut-out to 72 × 72 mm



MA9648 — On request
Adapts a 96 × 96 mm cut-out to 48 × 48 mm



MA96D48 — On request
Adapts a 96 × 48 mm cut-out to 48 × 48 mm



MA96D96 — On request
Adapts a 96 × 96 mm cut-out to 48 × 96 mm

How to use this catalogue

Each family is presented as a comparison table: the left-hand columns give the essential technical data and the columns with check marks show at a glance which feature each model includes.

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The series

Z series
Modular DIN rail · 1 module · 17.5 mm

T series
Plug-in relay · 11-pin socket

Y series
Modular DIN rail · plug-in connector

P series
72 × 36 mm panel · plug-in connector

X series
48 × 48 mm panel · 11-pin socket (U) or plug-in connector (C)

V series
Modular DIN rail · 1.5 modules · 22.5 mm · plug-in connector

S series
48 × 48 mm panel · special series

M series
Modular DIN rail · 3 and 4 modules · plug-in connector

Services

- **Industrial electronic engineering:** design, production and delivery of the finished product (end-to-end).
- **Modification and adaptation of standard units:** voltages, times, scales and special functions.
- **Custom functions:** timers, counters and controllers with the logic the customer needs (p. 26).
- **Small and medium batch production** with in-house SMD assembly.

Table legend

✓ Included – Not available ○ On request

Each reference carries its series letter, which indicates the mechanical format (see pages 4 and 5). Two references: version U (11-pin) and C (plug-in).

Function letters (A, B, C…): each unit has its own list; see **Functions of each unit** (p. 10), marked with ¹.

Prices: RRP Price in euros, excluding VAT. Devices compliant with directives 2014/35/EU and 2014/30/EU.

Quick selector: What do I need?

Requirement	Solution	p.
Protect a complete pumping installation	**Pump and motor protection**	20
Delay, hold or repeat an operation	**Timers**	6
Know what each function (A, B, C…) of a device does	**Functions of each unit**	10
Chain the stages of a process	**Sequencers and cam timers**	11
Count pieces, metres or pulses with preset	**Preset counters**	12
Control or monitor a temperature; protect a motor via PTC / Pt100	**Temperature controllers and thermostats**	13
Read operating hours, accumulated pulses or speed	**Time, count and temperature displays**	16
Protect a motor or a line: phases, current, voltage	**Electrical measurement and protection**	18
Control the level of a well or tank	**Level controls · probes and float switches**	22
Share the work between 2, 3, 4 or 5 pumps	**Alternation relays**	24
Supply at 24 VDC; install in an existing cut-out or socket	**Power supply · accessories**	15 · 14
A function not in the catalogue	**Custom functions**	26

Mechanical formats


1 module · 17.5 mm
Screw terminals


1.5 modules · 22.5 mm
Plug-in connector


2 modules · 35 mm
Plug-in connector

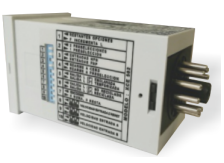

3 modules · 52.5 mm
Plug-in connector


4 modules · 70 mm
Plug-in connector


Modular · 79 × 34 mm
11-pin socket


Panel · 48 × 48 mm
11-pin socket or plug-in connector


Panel · 72 × 36 mm
Plug-in connector



U version · 11-pin socket

The unit plugs into a ZB11-0 (DIN rail), PG11 (screw) or TBEU1E (in-line) socket. Replacement without touching the wiring.

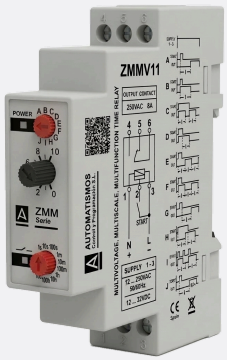


C version · plug-in connectors

Removable plug-in terminals: wired in the workshop and connected on site. Same electronics and performance as the U version.

The 8 product families

The first letter of each reference identifies the mechanical format of the unit. Choosing the family means choosing how it is mounted and connected in the panel.



Z series

Modular DIN rail · 1 module · 17.5 mm

The most compact panel format. Multi-voltage timers 12…250 VAC / 12…32 VDC, phase monitoring and current monitoring with built-in toroidal transformer.

FORMAT	DIN rail housing, 17.5 × 90 × 58.5 mm (1 module)
FIXING	35 mm DIN rail (EN 60715)
CONNECTION	Screw terminals
WEIGHT	≈ 72 g
FUNCTIONS	Multifunction and cyclic timers, star-delta starting, staircase lighting timer, pump alternation, phase monitoring, current monitor
IN THIS CATALOGUE	**ZMMV11 · ZMCV11 · ZETV02 · ZESV01 · ZMS120 · ZALV01 · ZCFF01 / 02A / 02B · ZCIV305 / 310 / 320 · ZCIB305 / 310 / 320 · ZCIP305 / 310 / 320 · ZCIV405 … ZCIP420 · ZCIV505 … ZCIP520**

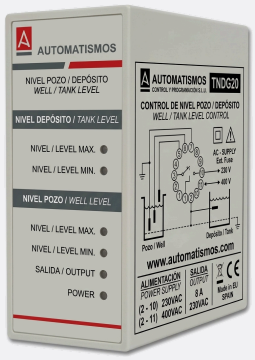


X series

48 × 48 mm panel · 11-pin socket (U) or plug-in connector (C)

The digital panel range: LED display, transformer power supply (24 / 48 / 110 / 230 VAC; 12 / 24 VDC) and IP65 front. Each model in U version (11-pin socket) or C version (plug-in connectors).

FORMAT	48 × 48 mm panel instrument; cut-out 45 × 45 mm; depth 63.5 mm (88 mm with connector)
FIXING	Panel, snap-in mounting · IP65 front
CONNECTION	11-pin connector (U) or plug-in terminals (C)
WEIGHT	≈ 170 g
FUNCTIONS	Digital and analogue timers, counters, temperature controllers, thermometers, hour and pulse totalisers, RPM display, tachometers
IN THIS CATALOGUE	**XZM001 · XMD001 / XM4H · XMD12M / 13M · XTD306 · XTD316 · XTDD49 · XTDU302 / 309 / 321 / 102 / 303 / 312 / 421 / 120 · XTD212 / 224 / 248 / 272 · XLT4H · XCEU502 / 522 / 602 · XLC4H · XCT100 / 101 / 102 / 82R / 83R · XCT55BR2 · XCT65BR2 · XNTC · XVRU · XVDU · XVEU · XVE485**

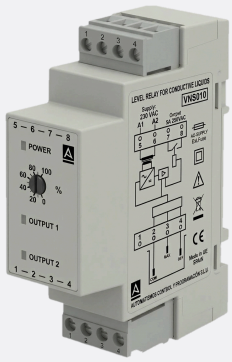


T series

Plug-in relay · 11-pin socket

Plug-in analogue relays: replaced in seconds without touching the wiring. Level control and pump alternation with status LEDs.

FORMAT	90 × 80 × 36 mm housing on 11-pin socket
FIXING	ZB11-0 socket (DIN rail) or PG11 (screw)
CONNECTION	11-pin connector
WEIGHT	≈ 170 g
FUNCTIONS	Level relays for well and tank, alternation relays for 2 and 3 pumps with external signal
IN THIS CATALOGUE	**TNS020 · TNDG20 · TNDA20 (and K1 / K2 kits with probes) · TABV02 · TABV03**



V series

Modular DIN rail · 1.5 modules · 22.5 mm · plug-in connector

Analogue module with front dials and transformer power supply (24 / 110 / 230 / 400 VAC; 12 / 24 VDC). Unique control functions ready to wire.

FORMAT	DIN rail housing, 1.5 modules · 22.5 × 90 × 73 mm
FIXING	35 mm DIN rail (EN 60715)
CONNECTION	Screw terminals or plug-in connectors (like the VNS010)
WEIGHT	≈ 110 g
FUNCTIONS	Star-delta starting, off-delay interval (auxiliary contact or full mains), PTC relay for motors, temperature converter, 2-pump alternation, well level control
IN THIS CATALOGUE	**VETV02 · VIE010 · VDA010 · VCM010 · VCTV10 · VCTN10 / 20 · VCTP10 / 20 · VCTJ10 / 20 · VCTK10 / 20 · VALV01 · VNS010 · VND010 · VSS001**

Modular, plug-in and panel formats for any electrical panel.



Y series

Modular DIN rail · plug-in connector

Modular level relays with removable connectors: wired in the workshop and replaced on site without disconnecting a single wire.

FORMAT	2-module modular housing (35 × 90 × 62.5 mm)
FIXING	DIN rail
CONNECTION	Removable plug-in connectors
WEIGHT	≈ 170 g
FUNCTIONS	Well and tank level control, 2- and 3-pump alternation (YRA002 / YRA006), YSP002 / YSP003 sequencers and YFA480 power supply
IN THIS CATALOGUE	**YNS040 · YND060 · YRA002 · YRA006 · YSP002 · YSP003 · YFA480 24 VDC power supply**



S series

48 × 48 mm panel · special series

The same 48 × 48 mechanics as the X series with special-function electronics: standard (STDU17, SCEU011 / 015 / 029, STDU009) or programmed to customer specification (STDCxx, SCECxx, SCTCxx).

FORMAT	48 × 48 mm panel instrument; cut-out 45 × 45 mm; depth 88 mm with connector
FIXING	Panel, snap-in mounting · IP65 front
CONNECTION	11-pin connector
WEIGHT	≈ 170 g
FUNCTIONS	Special timers, counters and temperature units, partial + total hour meter, custom functions, etc.
IN THIS CATALOGUE	**STDU17 · STD485 · STDU009 · SCEU011 · SCEU015 · SCEU029 · SCE485 · STDCxx · SCECxx · SCTCxx**



P series

72 × 36 mm panel · plug-in connector

Panoramic format for narrow fronts, with a large display. The “V” models have a universal power supply 85…230 VAC / 12… 32 VDC.

FORMAT	72 × 36 mm horizontal panel instrument (36 × 72 × 96 mm); cut-out 67 × 33 mm
FIXING	Panel, snap-in mounting
CONNECTION	Plug-in connector
WEIGHT	≈ 170 g
FUNCTIONS	Timer, counters, temperature controllers, NTC thermostat, thermometers, totalisers and tachometer
IN THIS CATALOGUE	**PTDV01 · PLT302 · PCEV52 / 62 · PCTV01 / 02 · PNTC1x · PNTC01 · PVR250 / 350 · PVDV05 · PVEV07 · PVEV10**



M series

Modular DIN rail · 3 and 4 modules · plug-in connector

Control relays and devices with display in modular housing: multiple outputs, status LEDs and plug-in connectors for pumping, HVAC and motor protection panels.

FORMAT	3-module (52.5 mm) or 4-module (70 mm) × 90 × 62.5 mm modular housing
FIXING	DIN rail
CONNECTION	Plug-in connectors / terminals
WEIGHT	170 – 200 g
FUNCTIONS	4-stage timer, rotation reversal, 16 A NTC thermostat, Pt100 motor alarm, current monitor with alarms, alternation of 2, 4 and 5 pumps, three-phase voltmeter
IN THIS CATALOGUE	**MTDS04 · MCEV05 · MTP01T / 02T · MNDP02 (and kit K1) · MCT402 / 403 · MCIV02 · MABV04 · MRA004 · MRA005 · MWC002 · MVT101 · MSP400 · MSP800**

Timers

Analogue and digital timers for electrical panels: precision delays and cycles, star-delta starting, staircase lighting timer, boiler safety, chained timings, multifunction, etc.

SUMMARY OF FEATURES

- True multi-voltage on DIN rail (ZMMV11 · ZMCV11): 12…250 VAC and 12… 32 VDC with a single reference — less stock and zero voltage errors.
- XTD series: programmed like an analogue unit, with preset and elapsed time visible at once; IP65 front and transformer power supply.
- State memory after power cut selectable: the cycle resumes where it left off.
- C version (plug-in connectors) at the same price: fast wiring in the panel.
- Remote or keypad programming lock (XTDU309 · XLT4H · XTDU102): the setting stays protected on the shop floor.

Multifunction · Z and X series

Series		Reference	Functions	Time range	Power supply	Output	Digital display	Multi-voltage	Transformer power supply	Memory after power cut	Programming lock	Control inputs A · P · R	IP65 front	Price
Z		**ZMMV11** **Multifunction timer** One reference for all voltages	10 functions A – J [1]	0.1 s … 10 days (10 ranges)	12…250 VAC · 12…32 VDC	1 x SPDT 8 A	–	✓	–	–	–	✓	–	On request
X		**XZM001** **Analogue timer** Replaces any analogue panel unit	4 functions A – D [1] · auxiliary output instantaneous or timed	0.1 s … 50 h (full scale 1 / 5 / 10 / 50 × s · min · h)	230 VAC · 24 VAC/DC	2 x SPDT 8 A	–	–	✓	–	–	✓	✓	On request
X		**XMD001** **XM4H** variant · same price **Analogue with elapsed-time display** Dial setting with time reading	6 functions A – F [1]	0.1 s … 50 h (full scale 1 / 5 / 10 / 50 × s · min · h)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	–	✓	–	–	✓	–	On request
X		**XTDU102** **Digital multifunction long range** Long times with programming control (C)	8 operating modes [1] · optocoupled inputs	0.01 s … 9999 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	✓	✓	✓	On request
X		**XTDU302** U version · 11-pin **XTDC302** C version · connectors **Multifunction digital timer** The benchmark digital: preset and time at the same time	4 functions A – D [1]	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	–	✓	✓	On request
X		**XTDU309** **Digital up / down with remote lock** The setting is protected by input B	4 functions A – D [1] · up or down · remote lock	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	✓	✓	✓	On request
X		**XTDU321** **Digital with 2 outputs** One instantaneous contact and one timed contact	2 functions A – B [1] · 2nd output instantaneous or timed	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	–	✓	–	–	✓	✓	On request
X		**XTD306** **Digital multifunction up / down** Preset and time visible at once · direction by DIP	4 functions A – D: delay · interval · off-delay interval · symmetric cyclic	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	–	–	✓	–	On request
X		**XTD316** **High-speed digital** Two-colour RUN / PRESET display · NPN or PNP inputs	4 functions A – D [1] · DIP-switch configuration · front reset can be disabled	0.001 s … 9999 s (4 ranges)	230 VAC · 24 VAC · 24 VDC	1 x SPDT	✓	–	✓	✓	–	✓	✓	On request
X		**XLT4HU** U version · 11-pin **XLT4HC** C version · connectors **Digital 8 functions · 8 ranges** Replaces LT timers from other brands · PNP / NPN inputs	8 functions A, A2, B – G [1] · up or down · keypad lock	0.001 s … 9999 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	✓	✓	✓	On request

[1] Meaning of each function in **Functions of each unit**, p. 10.

Timers

Multifunction timers of the special S and P series, asymmetric cyclic, double timing and timers for piezoelectric push-buttons (pools and spas).

Multifunction · S and P series

Series		Reference	Functions	Time range	Power supply	Output	Digital display	Multi-voltage	Transformer power supply	Memory after power cut	Programming lock	Control inputs A · P · R	IP65 front	Price
S		**STD485** **Multifunction timer with communication** Modbus RS485 · preset and time at the same time · up or down	8 functions · NPN / PNP inputs · external supply 12 VDC 50 mA	0.001 s … 9999 h (8 ranges)	24 / 48 / 110 / 230 VAC · 24 VDC	1 x SPDT 8 A / 250 VAC · RS485	✓	–	✓	✓	–	✓	✓	On request
P		**PLT302** **Digital 8 functions · 8 ranges** The XLT4H in a P series enclosure (72 × 36) · PNP / NPN inputs	8 functions A, A2, B – G [1] · up or down · keypad lock	0.001 s … 9999 h	85…230 VAC · 12…32 VDC	1 x SPDT 8 A	✓	–	✓	✓	✓	✓	–	On request
S		**STDU17** **Digital multifunction 6 functions** Special series with 6 operating modes	6 functions A – F [1]	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	–	–	✓	✓	On request
P		**PTDV01** **Digital timer** Same reference for AC and DC	4 functions A – D [1]	0.1 s … 9999 h	85…230 VAC · 12…32 VDC	1 x SPST 5 A + 1 x SPDT 5 A	✓	✓	–	–	–	✓	–	On request

Cyclic, double timing and piezoelectric push-buttons

Series		Reference	Functions	Time range	Power supply	Output	Digital display	Multi-voltage	Transformer power supply	Memory after power cut	Programming lock	Control inputs A · P · R	IP65 front	Price
Z		**ZMCV11** **Asymmetric cyclic** Irrigation, dosing and agitators: independent ON and OFF	4 functions A – D [1]: 2 asymmetric cyclic + 2 double timing	0.1 s … 10 days (10 ranges)	12…250 VAC · 12…32 VDC	1 x SPDT 8 A	–	✓	–	–	–	✓	–	On request
M		**MCEV05** **Cyclic rotation reversal** Mixers, drums and reversible conveyors	Rotation reversal: 130 s output 1 · 20 s pause · 130 s output 2	Fixed cycle · other times: on request	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPST 16 A	–	–	✓	–	–	–	–	On request
X		**XTDU303** U version · 11-pin **XTDC303** C version · connectors **Digital asymmetric cyclic** Precision ON / OFF cycles with both times on display	4 functions A – D [1] · independent T1 and T2	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	–	✓	✓	On request
X		**XTDU312** **Percentage timer · dosing** Proportional dosing: the % of active time is adjusted	2 functions [1]: cyclic · inverted cyclic · cycle % control	Base 1 s or 1 min · 0 … 100 %	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	✓	✓	–	✓	✓	On request
X		**XTDU421** **Double timing + pause** Direction reversal with inertia pause	T1 · pause · T2 · pause [1] programmable by keypad	0.01 s … 99.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	–	✓	✓	✓	✓	✓	On request
M		**MTP01T** **Timer for piezoelectric push-button** Pools and spas · outputs for push-button ON / OFF LED	4 functions A – D: push-button · bistable with or without safety time · timing	0 … 30 min	100 … 240 VAC	1 x NO 5 A + 2 LED outputs 12 VDC	✓	–	✓	–	–	✓	–	On request
M		**MTP02T** **Dual timer for piezoelectric push-buttons** Pools and spas · 2 inputs and 2 independent times	4 functions A – D per channel: push-button · bistable with or without safety time · timing	0 … 30 min (2 times)	100 … 240 VAC	2 x NO 5 A	✓	–	✓	–	–	✓	–	On request

[1] Meaning of each function in **Functions of each unit**, p. 10.

Timers

Quick guide to timing functions, how to choose the right timer, and single-function timers for star-delta starting and staircases.

Quick guide to timing functions

Retardo a la conexión
Escalonar arranques, retardar un servicio

Al recibir tensión o la orden de arranque espera el tiempo T y entonces activa la salida.



Intervalo a la conexión
Pulsos de lubricación, marcha limitada

Activa la salida inmediatamente durante T y después la desactiva.



Intervalo a la desconexión
Ventilación tras parada, luces

Al abrirse el contacto de mando la salida se mantiene activa T más.



Retardo a la desconexión
Mantener servicios auxiliares

La salida sigue al mando y se desactiva T después de abrirlo.



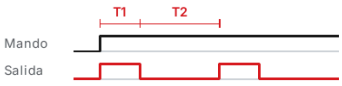
Cíclico simétrico / invertido
Intermitencias, agitadores

ON y OFF alternos con el mismo tiempo T; el invertido empieza en OFF.



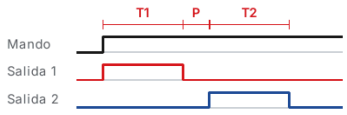
Cíclico asimétrico
Riego, dosificación, purgas

ON y OFF alternos con tiempos independientes T1 y T2.



Doble temporización + pausa
Inversión de giro, mezcladoras

Dos tiempos consecutivos con una pausa programable entre ambos.



Biestable temporizado
Mandos por pulsador

Cada impulso de mando conmuta la salida; el tiempo T limita el estado activo.



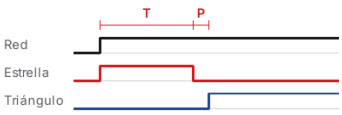
Generador de pulso
Señales de disparo

Emite un impulso de 500 ms en la salida a cada orden de arranque.



Arranque estrella-triángulo
Arranque de motores

Salida estrella durante T, pausa de seguridad y conmutación a triángulo.



Generic diagrams of each function type. The letter each unit uses to identify these functions varies from one model to another: see **Functions of each unit** (p. 10). Control inputs: A = start · P = count stop · R = reset · B = lock · C = programming control.

How to choose a timer in four questions

1 · Where is it mounted?
DIN rail inside the panel → Z series (1 module · 17.5 mm) and V series (1.5 modules · 22.5 mm). Panel front with display → X and S series (48 × 48) or P series (72 × 36).

2 · What control voltage is available?
If it changes from one installation to another, universal multi-voltage (ZMMV11 · ZMCV11 · PTDV01). If it is fixed, the transformer power supply of the X series isolates the electronics from the mains.

3 · One function or several?
Single function (star-delta, staircase, intervals) to wire and forget. Multifunction when one unit must cover several control sequences or stock must be kept to a minimum.

4 · What accuracy and range?
Analogue (dial) for simple settings; digital when the time must be visible, repeated accurately (0.01 s) or protected with lock and memory after power failure.

Single function · star-delta starting and staircase timer

Series		Reference	Functions	Time range	Power supply	Output	Digital display	Transformer power supply	Adjustable time	Control input	Pre-warning alarm	Adjustable pause	IP65 front	Price
Z		**ZETV02** **Star-delta starter** Motor starting with safety pause	Star-delta starting with safety pause	5 … 50 s · pause 20 ms … 2 s	230 VAC · 24 VAC/DC	1 x SP3T 8 A	–	–	✓	–	–	✓	–	On request
V		**VETV02** **Multi-voltage star-delta starter** Any control voltage up to 380 VAC	Star-delta starting with safety pause	5 … 50 s · pause 20 ms … 2 s	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	1 x SP3T 8 A	–	✓	✓	–	–	✓	–	On request
Z		**ZESV01** **Stairway timer** Stairway and common area lighting	Stairway timer · timed impulse switch · cleaning function · 3 and 4 wires	30 s … 20 min	230 VAC	1 x 16 A	–	–	✓	✓	–	–	–	On request

[1] Meaning of each function in **Functions of each unit**, p. 10.

Timers

Intervals on de-energisation, fixed delay, replacement of mechanical timers, boiler safety and multi-stage sequences.

Single function · intervals, fixed delay, mechanical, boiler safety and sequences

Series		Reference	Functions	Time range	Power supply	Output	Digital display	Transformer power supply	Adjustable time	Control input	Pre-warning alarm	Adjustable pause	IP65 front	Price
V		**VIE010** **Interval on contact opening** Keeps a service active after the contact opens	Interval on auxiliary contact opening	Standard 1 … 10 s · others on request	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	–	✓	✓	✓	–	–	–	On request
V		**VDA010** **Interval on total mains disconnection** Ventilation or lubrication after stop without power	Interval on total mains disconnection	8 … 80 s · others on request	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 5 A	–	✓	✓	–	–	–	–	On request
Z		**ZMS120** **On-delay · fixed 120 min** LED indicating the % of elapsed time	On-delay · fixed time	120 min (fixed)	230 VAC · 24 VAC/DC	1 x SPDT 5 A	–	–	–	✓	–	–	–	On request
X		**XMD12M** **Mechanical timer replacement · normal clutch** Motor and clutch with independent power supply	On-delay with clutch (B1 – B2) · instantaneous contact	0.1 s … 50 h (full scale 1 / 5 / 10 / 50 × s · min · h)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 5 A	–	✓	✓	✓	–	–	–	On request
X		**XMD13M** **Mechanical timer replacement · inverted clutch** Same mechanics and wiring as the XMD12M	On-delay with inverted clutch · instantaneous contact	0.1 s … 50 h (full scale 1 / 5 / 10 / 50 × s · min · h)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 5 A	–	✓	✓	✓	–	–	–	On request
X		**XTD212** **Boiler safety · 120 min** Tamper-proof fixed time with TEST / RESET push-buttons	Fixed time with programmable pre-warning output [1]	120 min (fixed)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	✓	–	✓	✓	–	✓	On request
X		**XTD224** **Boiler safety · 24 h** Tamper-proof fixed time with TEST / RESET push-buttons	Fixed time with programmable pre-warning output [1]	24 h (fixed)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	✓	–	✓	✓	–	✓	On request
X		**XTD248** **Boiler safety · 48 h** Tamper-proof fixed time with TEST / RESET push-buttons	Fixed time with programmable pre-warning output [1]	48 h (fixed)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	✓	–	✓	✓	–	✓	On request
X		**XTD272** **Boiler safety · 72 h** Tamper-proof fixed time with TEST / RESET push-buttons	Fixed time with programmable pre-warning output [1]	72 h (fixed)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	✓	–	✓	✓	–	✓	On request
X		**XTDU120** **Boiler safety · 120 min** Economy version with auxiliary output	Fixed time with auxiliary output	120 minutes	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A	✓	✓	–	✓	–	–	✓	On request
M		**MTDS04** **4 chained timers** Machine sequences without a PLC	4 timings + 4 chained pauses · 4 outputs	0.1 … 99.9 s or min per stage	100 … 240 VAC · 12 / 24 VDC	2 x SPDT + 2 x SPST 8 A	✓	–	✓	✓	–	✓	–	On request

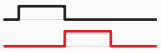
[1] Meaning of each function in **Functions of each unit**, p. 10. Other times and full-scale ranges for VIE010 and VDA010: on request. Boiler safety XTD212 · 224 · 248 · 272 in version C with plug-in connectors: on request.

SUMMARY OF FEATURES

- ZESV01: staircase lighting timer with 16 A relay, timed impulse relay and cleaning function (steady light) in 1 module.
- VETV02 and ZETV02: star-delta starting with adjustable pause from 20 ms to 2 s to prevent short circuits between contactors.
- Boiler safety XTD212 · 224 · 248 · 272: fixed tamper-proof time (120 min · 24 · 48 · 72 h) with programmable pre-warning.
- MTDS04: four timings with their pauses in a single unit.
- VIE010 and VDA010: custom full-scale ranges on request to suit the installation.

Functions of each unit

Each device names its functions with its own letters: the **A** of one model is not necessarily the A of another. Find the function in the row and read, in your unit's column, the letter to select. Source: datasheets of each unit.

Function	Control · Output	Z ZMMV11	Z ZMCV11	X XZM001	X XMD001	X XTDU302 XTDU309	X XTD316	X XTDU102	X XTDU303	X XTDU312	X XTDU321	X XTDU421	X XTD2xx XTDU120	V VDA010	X XTD306
On-delay		A		A	A	A	A	A			A				A
Interval on energisation		B		B	B		B	B			B				
Interval on energisation / de-energisation		C			C	B									B
Interval on de-energisation		D			D	C	C	C							C
Interval on total mains disconnection (single)														●	
Off-delay		G													
On-delay + off-delay		H						D							
Symmetric cyclic		E		C	E	D	D								D
Inverted symmetric cyclic		F		D	F										
Asymmetric cyclic (T1 ≠ T2)			A					E	A	%					
Inverted asymmetric cyclic			B					F	B	%					
Double timing (T1 + T2)			C D					G	C						
Inverted double timing								H	D						
Timed bistable		I													
500 ms pulse generator		J													
Double timing + pause (single)												●			
Fixed time with pre-warning (boilers) (single)													●		

% = XTDU312 regulates the percentage of active time over a base of 1 s or 1 min · ZMCV11: C on connection and D on disconnection of the Start input · ● = function unique to the device · second output / final output. No detailed datasheet: **XLT4H** and **PLT302** 8 functions (A, A2, B–G), **STDU17** A–F and **PTDV01** A–D — on request.

M MVT101 · 4 modes

1. Display only
2. Automatic
3. Timing 0.1–99.9 s
4. Latched (ENTER reset)

X XCT55B · XCT65B · 6 alarm types

1. Upper relative
2. Relative lower
3. Outside band
4. Inside band
5. Upper absolute
6. Absolute lower

| set point SP · red = relative to SP · blue = absolute · 0 = disabled

Control inputs: A = start · P = count stop · R = reset · B = lock · C = programming control. MNDP02 modes: p. 22 · ZCI code: p. 19.

Sequencers and programmers (PLC)

Programmable units for machine builders (OEM) and integrators: a single unit combines PLC, sequencer and cam controller, with counting, electrical measurements and temperature loops.

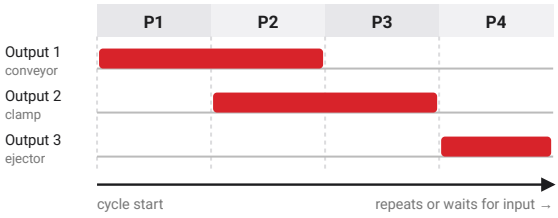
INTEGRATION ADVANTAGES

- **Custom firmware (pre-flash):** the application is programmed at the factory to the project specifications — immediate commissioning.
- **HMI display connection** 5", 7" or 10" touch screen (MSP800): drastic reduction in total cost of ownership (TCO).
- Replaces small PLCs, cascaded timers and mechanical cam timers: wear-free and reprogrammable.
- DIN-rail modular housing with plug-in connectors: wiring in the workshop and replacement in the field.

Series		Reference	Inputs	Outputs	Power supply	Format (mm)	Programmable	Real-time clock	RS232 / RS485 Modbus communication	OLED display	Plug-in connectors	Price
V		**VSS001** **Intermittent sequencer with solid-state output** Flashing from 0.2 to 2 s · simultaneous or alternating outputs by DIP	No inputs · 2 functions by DIP	2 SSR 2 A · 24 – 280 VAC	24 · 110 · 230 VAC	90 × 62 × 22.5	–	–	–	–	✓	On request
X		**XTDD49** **48 × 48 digital sequencer · T1 · pause · T2** Motor rotation reversal · 3 keys · times 1 s … 9.9 min	Automatic cycle	2 x SPDT 5 A	24 · 48 · 110 · 230 VAC · 12 · 24 VDC	48 × 48 (panel) · 11-pin	✓	–	–	–	–	On request
Y		**YSP002** **2-output sequencer · fixed program** Starts on power-up · output LEDs L1 – L3	Start on power-up	2 x NO 16 A	24 · 110 · 230 VAC	90 × 62.5 × 35	–	–	–	–	✓	On request
Y		**YSP003** **3-input / 3-output sequencer · fixed program** Isolated input	3 optocoupled	3 x NO 10 A	24 · 110 · 230 VAC · isolated input	90 × 62.5 × 35	–	–	–	–	✓	On request
M		**MSP400** **4-output programmer with display** LED step and time display · front keypad	4 optocoupled	4 x NO 5 A	100 – 240 VAC · isolated input	90 × 62.5 × 52.5	✓	–	–	–	✓	On request
M		**MSP800** **8 I / 8 O programmer with clock and Modbus** OLED display · HMI connection	8 optocoupled	8 x NO 5 A	100 – 240 VAC · isolated input	90 × 62.5 × 70	✓	✓	✓	✓	✓	On request

Fixed program: the sequence is factory-loaded according to the customer's project. Programmable: steps and times adjustable by the user.

Electronic cam controller



Each output, in its step. The cycle is divided into steps (P1, P2…) and in each one you decide which outputs are active, like the cams of a mechanical camshaft. Each step advances by time or on receiving an input (limit switch, sensor, push-button).

WHICH MODEL TO CHOOSE

Flashing with SSR output (2 channels)	**VSS001**
Fixed cycle on power-up (2 outputs)	**YSP002**
Fixed cycle with start, stop and reset	**YSP003**
Rotation reversal T1 · pause · T2 (48 × 48)	**XTDD49**
Program steps and times from the front panel	**MSP400**
8 I / 8 O, time schedules, HMI or SCADA	**MSP800**

HMI screen integration



HMI TERMINALS FOR INDUSTRIAL ENVIRONMENTS

- Standard 5", 7" and 10" formats with resistive LCD touch screen: for harsh environments and use with industrial gloves.
- Special solutions: capacitive panels and non-standard formats to suit the application.
- Screens selected and tested for years in our projects: robustness and reliability on the plant floor.

Preset counters

Panel counters with preset, scale factor and relay output for packaging, cut-to-length, dosing and production control.

SUMMARY OF FEATURES

- 8-digit two-colour display: preset (red) and count (green) visible at the same time, without pressing anything.
- Built-in 12 VDC / 50 mA supply to power the sensor: no external power supply needed.
- NPN / PNP inputs selectable by DIP; fast counting up to 10 kHz or 30 Hz debounce filter for mechanical contacts.
- Modbus RTU RS485 communication (SCE485 · STD485 · XVE485): reading and programming from PLC or SCADA.
- Scale factor / prescaler (XCEU522 · SCEU029): direct reading in metres, litres or pieces.
- Keypad lock via external input (XLC4H): no one changes the preset without authorisation.
- Functions in batch counting.

Series		Reference	Preset	Counting · max. speed	Power supply	Output	Two-colour 4 + 4 digit display	Double preset	Scale factor / prescaler	Multiplier or divider 1 – 99	12 VDC 50 mA sensor supply	NPN / PNP inputs	Keypad lock via ext. input	IP65 front	Price
X		**XCEU502** U version · 11-pin **XCEC502** C version · connectors **1 or 2 presets** Batch counter	1 ó 2	Up to 9 999 999 · 10 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT + 1 x SPST 8 A	–	✓	–	–	✓	✓	–	✓	On request
X		**XCEU522** U version · 11-pin **XCEC522** C version · connectors **Double preset + scale factor** Direct reading in m, l or pieces with built-in totaliser	1 ó 2	Up to 9 999 999 · 10 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT + 1 x SPST 8 A	–	✓	✓	–	✓	✓	–	✓	On request
X		**XCEU602** U version · 11-pin **XCEC602** C version · connectors **1 preset · two-colour display** Simple piece counter: preset and count always visible	1	Up to 9 999 (4 + 4) · 10 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	–	✓	✓	–	✓	On request
S		**SCE485** **Pulse counter with communication** Modbus RTU RS485 (1200 – 19 200 baud · 8N2 / 8O1 / 8E1) · addition, subtraction, directional, independent or encoder	1 or 2 · prescaler	Up to 9 999 999 · 5 kHz or 30 Hz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT 8 A / 250 VAC · RS485	–	✓	✓	–	✓	✓	–	✓	On request
S		**SCEU011** **1 preset with multiplier** Each pulse is worth N units	1 · multiplier 1 – 99	Up to 9 999 (4 + 4) · 5 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	✓	✓	✓	–	✓	On request
S		**SCEU015** **1 preset with divider** Every N pulses count as 1 (encoders, toothed wheels)	1 · divider 1 – 99	Up to 9 999 (4 + 4) · 5 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	✓	✓	✓	–	✓	On request
S		**SCEU029** **High speed · programmable edge** Rising or falling edge counting with totaliser	1 or 2 · scale factor	Up to 9 999 999 · 5 kHz · totaliser	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT + 1 x SPST 8 A	–	✓	✓	–	✓	✓	–	✓	On request
X		**XLC4HU** U version · 11-pin **XLC4HC** C version · connectors **1 preset · external keypad lock** Up, down, direction-controlled or phase (encoder) counting	1	Up to 9 999 (4 + 4) · 5 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	–	✓	✓	✓	✓	On request
P		**PCEV52** **1 preset · 8 digits** Universal power supply	1	Up to 99 999 999 · 5 kHz	85…230 VAC · 12…32 VDC	1 x SPDT 5 A	–	–	–	–	✓	✓	–	–	On request
P		**PCEV62** **1 preset · 4 + 4 digits** Preset and count always visible	1	4 + 4 digits · 5 kHz	85…230 VAC · 12…32 VDC	1 x SPDT 5 A	✓	–	–	–	✓	✓	–	–	On request

Counting speed: no filter (kHz) or 30 Hz with debounce filter for mechanical contacts, DIP-selectable.

Temperature controllers and thermostats

Analogue and digital PID controllers with autotuning, 16 A NTC thermostats and absolute alarms for motor protection. Pt100, J / K / T thermocouple, NTC, PTC probes, etc.

SUMMARY OF FEATURES

- Analogue XCT100 · 101 · 102: the most economical solution, with PD or ON-OFF control and probe break protection.
- Digital PID with autotuning (XCT55B · XCT65B · XCT82R): automatic commissioning and up to 2 relay alarms, with 6 alarm types.
- XCT82R multi-probe: Pt100 (2 or 3 wires), J, T or K in the same unit — a single model in stock for all applications.
- MCT402 thermostat with 16 A relay and 2 alarms: directly drives heating elements.
- MCT403: absolute Pt100 alarm (2 or 3 wire) with pre-warning, stop and reset to protect motors and windings.

Temperature controllers

Series		Reference	Probe	Range	No. of alarms	Power supply	Output	Digital display	PID control with autotuning	ON / OFF control	Multi-probe	Parameter lock	IP65 front	Price
V		**VCM010** **PTC relay for motors** Thermal protection of motors with PTC in the winding	PTC thermistors (several in series)	PTC threshold (tripping on over-temperature)	—	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	–	–	–	–	–	–	On request
X		**XCT55BR2U** U version · 11-pin **XCT55BR2C** C version · connectors **J / K thermocouple PID controller · 2 alarms** PID with autotuning: adapts itself to the process · 6 alarm types [1]	J and K thermocouple	0 … 1100 °C	2	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A + 2 x SPST 5 A	✓	✓	✓	–	✓	✓	On request
X		**XCT65BR2U** U version · 11-pin **XCT65BR2C** C version · connectors **Pt100 PID controller · 2 alarms** PID with autotuning for Pt100, deviation 0.2 °C · 6 alarm types [1]	Pt100 (2 or 3 wire)	-25 … 250 °C	2	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A + 2 x SPST 5 A	✓	✓	✓	–	✓	✓	On request
X		**XCT82R** **Multi-probe PID controller** A single model for any probe: full PID, 2 autotuning modes, parameter and set point lock	Pt100 (2 or 3 wire) · J · T · K	Pt100 -199.9…700 °C · J -99.9…900 °C · T -199.9…400 °C · K -200…1300 °C	2	24 / 48 / 110 / 230 VAC	1 x SPST 8 A + 2 x SPST 5 A	✓	✓	✓	✓	✓	✓	On request
X		**XCT83R** **Thermocouple PID controller with timer** Two-colour 4 + 4 digit LCD · built-in programmable timer	J · K · T thermocouple (opt. L, B, S, N, U)	-0.1…600 °C (depending on probe)	—	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x control 5 A + 1 x timing 3 A	✓	○	✓	✓	–	–	On request
X		**XCT100** **Analogue Pt100 controller** Economical PD or ON-OFF control with probe break protection	Pt100 (2 or 3 wire)	100 · 150 · 200 · 300 °C (full scale depending on model)	—	24 / 48 / 110 / 230 VAC	1 x SPDT 8 A	–	–	✓	–	–	✓	On request
X		**XCT101** **Analogue J thermocouple controller** Ovens and medium-temperature heating elements	J thermocouple	200 · 300 · 450 · 600 °C (depending on model)	—	24 / 48 / 110 / 230 VAC	1 x SPDT 8 A	–	–	✓	–	–	✓	On request
X		**XCT102** **Analogue K thermocouple controller** High temperature with K thermocouple	K thermocouple	600 · 1200 °C (depending on model)	—	24 / 48 / 110 / 230 VAC	1 x SPDT 8 A	–	–	✓	–	–	✓	On request
P		**PCTV01** **Digital Pt100 controller** Digital control with alarm	Pt100 (2 or 3 wire)	-30 … 350 °C	1	85…230 VAC · 12…32 VDC	1 x SPST 5 A + 1 x SPDT 5 A	✓	✓	–	–	○	–	On request
P		**PCTV02** **Digital J / K thermocouple controller** Ovens and high-temperature processes	J and K thermocouple	-30 … 600 °C	1	85…230 VAC · 12…32 VDC	1 x SPST 5 A + 1 x SPDT 5 A	✓	–	✓	–	✓	–	On request

[1] Meaning of each function in **Functions of each unit**, p. 10. XCT55B / XCT65B: code XCT55B + output (R relay · S SSR) + no. of alarms + connection (U 11-pin · C plug-in). Versions with SSR output or 1 alarm: on request.

Temperature controllers and thermostats

Thermostats with absolute alarm for motors and mounting accessories. Panel thermometers on page 17.

Thermostats and temperature alarms

Series		Reference	Probe	Range	Power supply	Output	Digital display	Programmable alarms	Pre-warning + reset	Programmable hysteresis	Probe included	Plug-in connector	Price
M		**MCT402** **NTC thermostat with 2 alarms** Heating / cooling with maximum and minimum warnings	NTC 10 kΩ B3950 · 3 m cable · IP68	-50 … 120 °C	24 / 48 / 110 / 230 VAC	1 x SPDT 16 A + 2 x NO 5 A (alarms)	✓	✓	–	✓	✓	✓	On request
M		**MCT403** **Pt100 absolute alarm with pre-warning** Motor protection: pre-alarm, alarm and stop with reset	Pt100 (2 or 3 wire)	-25 … 250 °C	24 / 48 / 110 / 230 VAC	1 x SPDT 16 A (stop) + 2 x SPST 8 A (pre-alarm · alarm)	✓	✓	✓	–	–	✓	On request
X		**XNTCx1x** **Digital NTC thermostat** Cooling or heating with programmable alarms and hysteresis	NTC 10 kΩ B3950	-50 … 120 °C	24 / 48 / 110 / 230 VAC	1 x SPDT 8 A	✓	✓	–	✓	–	–	On request
P		**PNTC01** **NTC thermostat** Programmable setpoint and hysteresis	NTC 10 kΩ B3950	-30 … 125 °C	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	✓	–	✓	On request
P		**PNTC1x** **NTC thermostat cooling / heating** Cold rooms, display cabinets and air conditioning	NTC 10 kΩ B3950	-50 … 120 °C	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	✓	–	✓	On request

Accessories

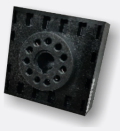
11-pin sockets and adapter frames to install panel devices in any existing cut-out.

11-PIN SOCKETS · FOR 48 × 48 DEVICES WITH 11-PIN CONNECTOR



ZB11-0 — On request

11-pin socket for DIN rail



PG11 — On request

11-pin socket with rear screw terminals



TBEU1E — On request

Free-hanging 11-pin socket for unprotected cables

ADAPTER FRAMES · ADAPT LARGER PANEL CUT-OUTS TO 48 × 48 / 72 × 72



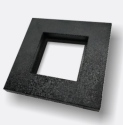
MA7248 — On request

Adapts a 72 × 72 mm cut-out to 48 × 48 mm



MA9672 — On request

Adapts a 96 × 96 mm cut-out to 72 × 72 mm



MA9648 — On request

Adapts a 96 × 96 mm cut-out to 48 × 48 mm



MA96D48 — On request

Adapts a 96 × 48 mm cut-out to 48 × 48 mm



MA96D96 — On request

Adapts a 96 × 96 mm cut-out to 48 × 96 mm

HOW TO CHOOSE THE SOCKET OR FRAME

- U version unit on DIN rail → ZB11-0 socket; screw fixing to the back of the panel → PG11; in-line mounting with unprotected cables → TBEU1E.
- 72 × 72 mm cut-out → MA7248 · 96 × 96 mm → MA9648 (to 48 × 48) or MA9672 (to 72 × 72) · 96 × 48 mm → MA96D48 · for 48 × 96 → MA96D96.

Temperature converters

They convert the signal from an NTC, Pt100 or J / K thermocouple probe into a 0 – 10 V or 4 – 20 mA analogue output for PLCs, drives and recorders, in a 22.5 mm DIN rail enclosure. If the probe breaks, an LED indicates the error.

VCT series · probe and output selection table

How to read the temperature converter reference · example VCTP20 = Pt100 probe, 4 – 20 mA output

V	CT	P	20
FAMILY	UNIT	PROBE	OUTPUT
1.5-module housing · 22.5 mm for DIN rail	Temperature converter	**N** NTC **P** Pt100 (2 or 3 wire) **J** J thermocouple **K** K thermocouple	**10** 0 – 10 V **20** 4 – 20 mA

	Probe	Temperature range (others: on request)	0 – 10 V output	4 – 20 mA output
	N NTC	-20 … 120 °C	VCTN10 On request	VCTN20 On request
	P Pt100 (2 or 3 wire)	-20 … 300 °C	VCTP10 On request	VCTP20 On request
	J J thermocouple	0 … 600 °C	VCTJ10 On request	VCTJ20 On request
	K K thermocouple	0 … 900 °C	VCTK10 On request	VCTK20 On request

All VCT models · 100 – 240 VAC · 24 VAC / 24 VDC · 1.5-module housing · 22.5 mm · DIN rail · **Probe break: error LED** · Other probes: Pt1000, thermocouple T, E, N…

NTC converter with probe error LED

Series		Reference	Probe	Range	Power supply	Output	Price
V		**VCTV10** **NTC to 0 – 10 V converter** Probe break indicated by error LED	NTC 10 kΩ (B25/85 = 3977 K)	-15 … 85 °C	100 – 240 VAC	0 – 10 V	On request

HOW TO CHOOSE THE PROBE

- Pt100 (2 or 3 wire): accuracy and stability (processes, motors, absolute alarms); on the VCT, from -20 to 300 °C.
- J / K thermocouple: high temperature (ovens, heating elements); in the VCT, J up to 600 °C and K up to 900 °C.
- NTC: economical for HVAC, cold rooms and heating (-20 … 120 °C on the VCT).
- PTC: thermal protection of motors using the thermistor in the motor winding (VCM010).

Power supply

Input supply of **100 to 480 VAC**, wide-range for any panel supply. 24 VDC DIN-rail power supply for sensors, probes and control devices.



Y YFA480 — 24 VDC power supply

For sensors, probes and 24 VDC control devices

Input	100 – 480 VAC
Output	24 VDC 0.42 A
Insulation	4000 VAC input / output
Protections	Short circuit · overcurrent · overvoltage
Mounting	35 mm DIN rail · IP20

- **A single reference for any mains supply:** from 100 to 480 VAC.
- Powers probes, PNP / NPN sensors and control devices at 24 VDC with no additional transformer.

Price **On request**

Time, count and temperature displays

Hour and pulse totalisers and panel hour meters. Tachometers, RPM display and thermometers on page 17.

SUMMARY OF FEATURES

- Hour totalisers up to 999 999.99 h with memory for preventive maintenance.
- Front reset with external lock (XVDU061 · STDU009): nobody resets without authorisation.
- XVDU071 and STDU009: partial + total counting with maintenance alarm output.
- XVEU050 RPM display and XVEU102 tachometer: reading in rpm or m/min with presets and relay.

Hour totalisers

Series		Reference	Range	Power supply	Output	External reset	Front reset	Front reset lock	Partial + total counting	Alarm output	IP65 front	Price
X		**XVDU051** U version · 11-pin **Hour totaliser · external reset** Running hours for preventive maintenance	Up to 999 999.99 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	–	✓	–	–	–	–	✓	On request
X		**XVDU061** **Hour totaliser · lockable front reset** Front reset only with authorisation	Up to 999 999.99 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	–	✓	✓	✓	–	–	✓	On request
X		**XVDU071** **Hour totaliser · partial + total alarm** Automatic maintenance warning	Up to 999 999.99 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	–	–	✓	✓	✓	On request
S		**STDU009** **Partial + total hour counter with preset** Two counts with non-volatile memory	Up to 999 999.9 h	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A	✓	✓	✓	✓	✓	✓	On request
P		**PVDV05** **Hour totaliser** Universal power supply	Up to 9 999 999.9 h	85…230 VAC · 12…32 VDC	–	✓	–	–	–	–	–	On request

Electromechanical hour meters (imported unit of Asian origin)

	Reference	Range	Power supply	Mounting	Features	Price
	**ICH001** **Electromechanical hour meter** 48 × 48 front · 7 digits	Up to 99 999.99 h	230 VAC · 24 VAC 10 – 80 VDC	Panel, 45 × 45 mm cut-out	Running indicator · protected terminals · no reset	On request

Pulse totalisers

Series		Reference	Counting	Power supply	Output	External reset	Front reset	12 VDC sensor supply	NPN / PNP inputs	Presets with output	Scale factor	Programming lock	Price
X		**XVEU060** **Pulse totaliser** Accumulated count of pieces or pulses	Up to 99 999 999 · 5 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	–	✓	–	✓	✓	–	–	–	On request
X		**XVEU070** **Pulse totaliser · front reset** Reset from the front panel	Up to 99 999 999 · 5 kHz	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	–	✓	✓	✓	✓	–	–	–	On request
X		**XVEU080** **Pulse totaliser · partial + total** 8 digits · NPN / PNP inputs	Up to 99 999 999 · 5 kHz (30 Hz with filter)	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	–	–	–	✓	✓	–	–	–	On request
X		**XVE485** **Pulse totaliser with Modbus RS485** Modbus RTU 1200 – 19 200 baud · adder or encoder	5 kHz counting (30 Hz with filter) · NPN / PNP	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	RS485 Modbus RTU	–	–	✓	✓	–	–	–	On request
P		**PVEV07** **Pulse totaliser** Universal power supply	Up to 99 999 999	85…230 VAC · 12…32 VDC	–	✓	–	✓	✓	–	–	–	On request

Speed and temperature displays

Tachometers, RPM display and digital thermometers for panel mounting. To read the count from the PLC, the XVE485 totaliser (p. 16) includes Modbus RS485 communication.

Tachometers and RPM display

Series		Reference	Counting	Power supply	Output	External reset	Front reset	12 VDC sensor supply	NPN / PNP inputs	Presets with output	Scale factor	Programming lock	Price
X		**XVEU050** **RPM display** Speed reading in rpm · minimum / maximum alarm	Up to 9 999 999 · scale factor	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT + 1 x SPST 8 A	✓	–	✓	✓	✓	✓	✓	On request
X		**XVEU102** **Tachometer with dual preset** Reading in rpm or m/min with two setpoints	Up to 9 999 999 · scale factor	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPST 8 A	✓	–	✓	✓	✓	✓	✓	On request
P		**PVEV10** **Tachometer** Read-only speed indicator	Up to 99 999 999	85…230 VAC · 12…32 VDC	–	✓	–	✓	✓	–	–	–	On request

Digital thermometers (displays)

Series		Reference	Probe	Range	Power supply	Output	Digital display	No output (read only)	IP65 front	Plug-in connector	Price
X		**XVRU250** **Pt100 thermometer** Panel temperature readout	Pt100 (2 or 3 wire)	-30 … 350 °C	24 / 48 / 110 / 230 VAC	–	✓	✓	✓	–	On request
X		**XVRU350** **J / K thermocouple thermometer** Ovens and high-temperature processes	J and K thermocouple	-100 … 1200 °C	24 / 48 / 110 / 230 VAC	–	✓	✓	✓	–	On request
P		**PVR250** **Pt100 thermometer** Large display	Pt100 (2 or 3 wire)	-30 … 350 °C	24 / 48 / 110 / 230 VAC	–	✓	✓	–	✓	On request
P		**PVR350** **J / K thermocouple thermometer** Large display	J and K thermocouple	-100 … 1200 °C	24 / 48 / 110 / 230 VAC	–	✓	✓	–	✓	On request

Which display to choose

Requirement	Unit	p.
Operating hours with external reset	**XVDU051**	16
Front reset only with authorisation	**XVDU061**	16
Automatic maintenance warning (partial + total with alarm)	**XVDU071 · STDU009**	16
Economy electromechanical hour meter	**ICH001**	16
Count accumulated pieces or pulses	**XVEU060 · XVEU070**	16
Partial + total pulse counting	**XVEU080**	16
Read the count from a PLC or SCADA (Modbus RS485)	**XVE485**	16
Universal power supply 85…230 VAC · 12…32 VDC	**PVDV05 · PVEV07 · PVEV10**	16 · 17
Speed in rpm with minimum / maximum alarm	**XVEU050**	17
Speed in rpm or m/min with two set points	**XVEU102**	17
Temperature with Pt100 probe	**XVRU250 · PVR250**	17
Temperature with J / K thermocouple	**XVRU350 · PVR350**	17

Electrical measurement and protection

Motor and line protection: phase sequence and phase failure, current monitor with built-in toroidal transformer and three-phase voltmeter with alarms.

SUMMARY OF FEATURES

- Phase monitor self-powered from the phases themselves (205…480 VAC): no auxiliary supply or neutral.
- Current monitor with built-in toroidal transformer: pass the cable through the device and it's ready, no external transformer.
- Maximum, minimum or both, without control input (V) or with blocking input (B) or enable input (P).
- MCIV02 with programmable alarms and stop output; MVT101 monitors mains overvoltage, undervoltage and phase loss.

Phase monitoring

Series		Reference	Delay	Power supply	Output	Phase sequence	Phase failure	Operation delay	Self-powered from the phases	1 DIN module format	Price
Z		**ZCFF01** **Phase sequence and phase failure · no delay** Protection of three-phase motors against phase reversal or phase loss	No delay	205 … 480 VAC (from the monitored phases)	1 x SPDT 8 A	✓	✓	–	✓	✓	On request
Z		**ZCFF02A** **Phase sequence and phase failure · 0.5 s delay** Prevents tripping due to micro-interruptions	0.5 s	205 … 480 VAC (from the monitored phases)	1 x SPDT 8 A	✓	✓	✓	✓	✓	On request
Z		**ZCFF02B** **Phase sequence and phase failure · 1 s delay** Networks with frequent disturbances	1 s	205 … 480 VAC (from the monitored phases)	1 x SPDT 8 A	✓	✓	✓	✓	✓	On request

Motor protection guide: which unit suits each need

Problem	Symptom	Solution	p.
Reversal or loss of a phase	The motor runs backwards, vibrates or overheats; starts on two phases	Phase sequence and phase failure relay ZCFF01 / 02A / 02B	18
Overload, jam or mechanical blockage	Consumption above rated value	Maximum current monitor ZCIV505 … ZCIP520 · MCIV02	19
Motor without load: pump without water, broken belt, load uncoupled	Consumption below rated value	Minimum current monitor ZCIV405 … ZCIP420 · maximum and minimum ZCIV305 … ZCIP320	19
Winding overtemperature	Hot motor with normal current draw	PTC relay VCM010 · Pt100 alarm with pre-warning MCT403	13
Mains overvoltage, undervoltage or phase loss	Electronics tripping and faults	MVT101 three-phase voltmeter with alarms	19
Dry-running pump due to low level	Cavitation, burnt-out pump	Level relay with probes TNS020 / YNS040 + probe kit	22
Water leak, overtemperature or thermal overload trip in 2-pump sets	The faulty pump stays in service	MWC002: alarm per pump and the other takes over the cycle	23
Hard starting of large motors	Current peaks, protection tripping	Star-delta starter ZETV02 / VETV02	9

MOTOR MAINTENANCE · INDICATORS FOR THE SAME PANEL

Running hours for preventive maintenance: XVDU051 · XVDU061 · XVDU071 with maintenance warning (p. 16). Motor speed in rpm with minimum / maximum alarm: XVEU050 · tachometer XVEU102 (p. 17). Count read from the PLC via Modbus RS485: XVE485 (p. 16).

INFORMATION TO CONSIDER BEFORE ORDERING

- Mains voltage and frequency (single-phase / three-phase, with or without neutral) and control voltage available in the panel.
- Rated current of the motor or line to be monitored and starting type (direct, star-delta, drive).
- What should happen when the fault is detected: stop, warn (alarm) or both, and whether manual or automatic reset is required.
- Available space: DIN rail inside the panel or panel front with readout for the operator.

Current monitors

With display and alarms, three-phase voltmeter and relays with built-in toroidal transformer, no external transformer.

Current monitor with display

Series	Reference	Range	Power supply	Output	Maximum monitoring	Minimum monitoring	Lock input	Enable input	Built-in toroidal transformer	Programmable alarms	Stop output	Display	Price
M	 **MCIV02** **Current monitor with programmable alarms** Programmable maximum and minimum setpoints with machine stop	Up to 20 A	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	1 x SPDT 8 A + 2 x SPST 5 A	✓	✓	–	–	✓	✓	✓	✓	On request

Three-phase voltmeter

Series	Reference	Measurement	Power supply	Output	Overvoltage alarm	Undervoltage alarm	Phase loss alarm	Display	Plug-in connectors	Price
M	 **MVT101** **Three-phase voltmeter with alarms** Protects equipment against overvoltage, undervoltage and phase loss	R-S-T / L1-L2-L3 · maximum 500 VAC · 4 operating modes [1]	110 … 230 VAC	2 x SPST 5 A	✓	✓	✓	✓	✓	On request

[1] Meaning of each function in **Functions of each unit**, p. 10.

Current relays with built-in toroidal transformer

How to read the current monitor reference · example ZCIB310 = maximum and minimum, control B (lock), from 0 to 10 A

ZCI — SERIES
Current monitor · Z format · built-in toroidal

B — CONTROL
- **V** no control input
- **B** lock (activates outputs on command)
- **P** enable (activates outputs on command)

3 — FUNCTION
- **3** maximum and minimum
- **4** minimum
- **5** maximum

10 — RANGE
- **05** 0 – 5 A
- **10** 0 – 10 A
- **20** 0 – 20 A

Function	Control	0 – 5 A	0 – 10 A	0 – 20 A	Price
 **3 · Maximum and minimum** Minimum – maximum working range monitoring (power failure · motor without load · overload)	V Without control input	ZCIV305	ZCIV310	ZCIV320	On request
	B Lock (activates outputs on command)	ZCIB305	ZCIB310	ZCIB320	
	P Enable (activates outputs by control signal)	ZCIP305	ZCIP310	ZCIP320	
 **4 · Minimum** Minimum current monitoring (motor without load · broken belt)	V Without control input	ZCIV405	ZCIV410	ZCIV420	On request
	B Lock (activates outputs on command)	ZCIB405	ZCIB410	ZCIB420	
	P Enable (activates outputs by control signal)	ZCIP405	ZCIP410	ZCIP420	
 **5 · Maximum** Maximum current monitoring (overload · jamming)	V Without control input	ZCIV505	ZCIV510	ZCIV520	On request
	B Lock (activates outputs on command)	ZCIB505	ZCIB510	ZCIB520	
	P Enable (activates outputs by control signal)	ZCIP505	ZCIP510	ZCIP520	

All models · Built-in toroidal transformer · 230 VAC or 24 VAC / VDC (specify when ordering) · 1 x SPDT 8 A · 1 module · 17.5 mm

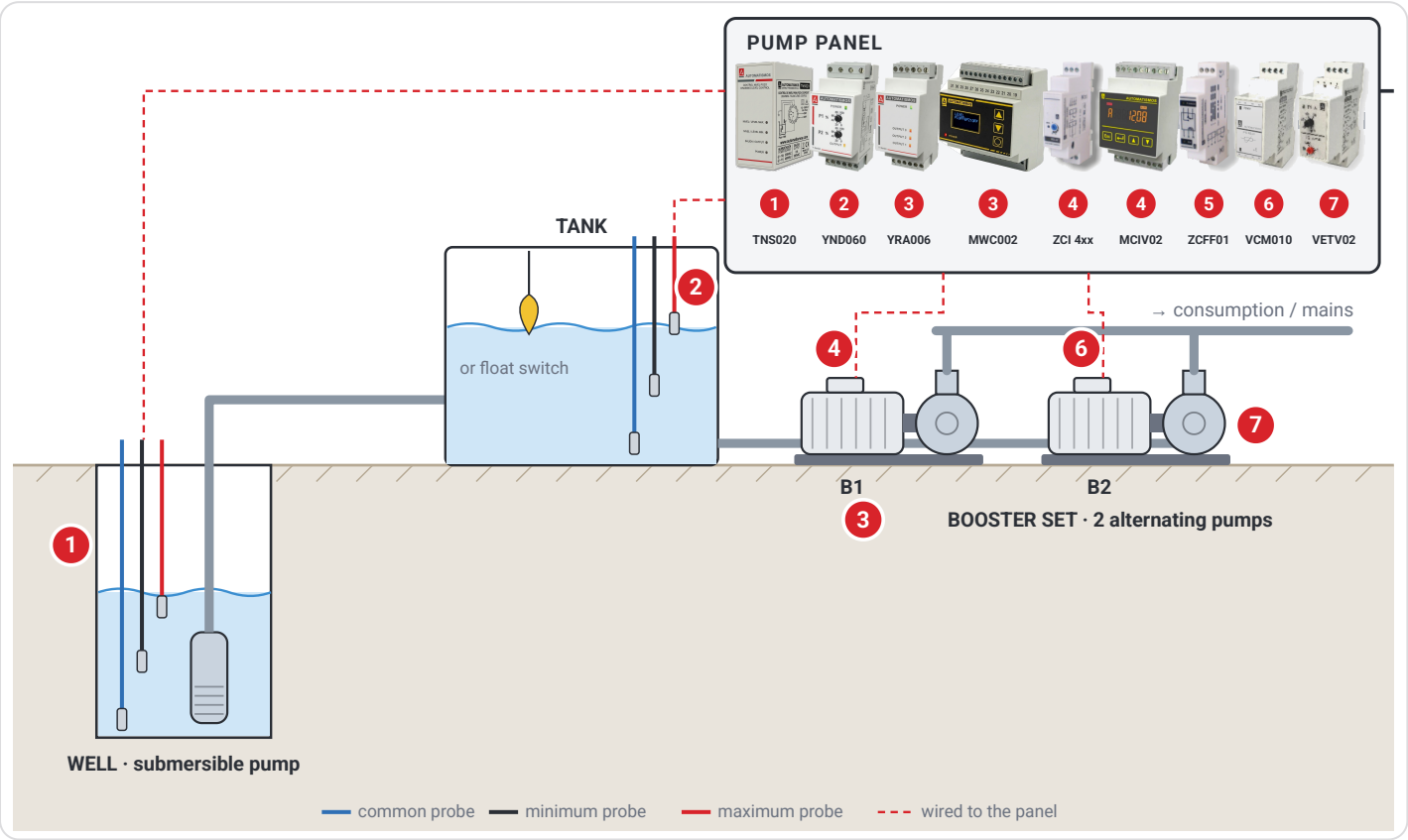
WHAT TO RECOMMEND

- Minimum current (4) for pumps: detects the unloaded motor even if the level probe fails.
- Maximum current (5) for jams: stops the motor before the thermal overload trips.
- Control: V without control input · B lock (activates outputs by control) · P enable (activates outputs by control).
- No external current transformers and in just 17.5 mm of rail.

CAMPAIGN 2026 · PUMP AND MOTOR PROTECTION

One pump protected does not burn out.

The failure points of any liquid pumping installation and the Automatismos unit that monitors each one. Manufactured in Esplugues de Llobregat, in stock.





1 Well or tank level · With or without alarms · dry running

The probes detect the lack of water and stop the pump before it cavitates and burns out.

TNS020 · YNS040



2 Well and tank level · Filling without overflowing

The same relay monitors well and tank: it only pumps if there is water in the well and the tank needs it.

TNDG20 · TNDA20 · YND060 · MNDP02 · VND010



3 Alternation · Equal wear on all pumps

Each demand starts the next pump; if demand rises, both run. The standby pump does not seize.

ZALV01 · VALV01 · TABV02 · TABV03 · YRA002 · YRA006 · MABV04 · MRA004 · MRA005 · MWC002



4 Motor current · Motor without load, jamming or overload

The built-in toroidal transformer monitors consumption: below the minimum (no water, broken shaft) or above the maximum (jamming).

ZCIV405 · ZCIV505 · ZCIV305 · MCIV02



5 Mains supply · Reversal, phase loss and voltage

A reversed phase makes the pump run backwards; a lost phase burns it out. Detected before starting.

ZCFF01 · ZCFF02A · ZCFF02B · MVT101



6 Motor temperature · Hot winding

Winding PTC thermistors or Pt100 probe with pre-alarm, alarm and stop.

VCM010 · MCT403



7 Start · Current peaks

Large motors start in star and switch to delta after a safety pause.

ZETV02 · VETV02 · MNDP02



8 Multifunction level · One unit, 7 modes

Well, tank, well and tank, alarms, 2-pump alternation and star-delta starting in a single level relay.

MNDP02



POOLS AND SPAS

MTP01T · MTP02T — timers with inputs for piezoelectric push-buttons

Inputs for a sealed piezoelectric push-button next to the pool: 1 or 2 channels, 4 functions and time from 0 to 30 min. Prices and data in Timers, p. 7.

The numbers in the diagram correspond to the units in the panel. Technical data for each reference in the catalogue tables (see index).

Which device for each risk

A pumping installation almost always fails for the same reasons: lack of water, abnormal consumption, faulty mains or motor temperature. Each has a measurable symptom and a relay that detects it before a breakdown occurs.

	Point	What it protects	Units in the range	p.
1	**Well or tank level** With or without alarms · dry running	The probes detect the lack of water and stop the pump before it cavitates and burns out.	**TNS020 · YNS040** Level relay + kit of 3 SNP003 probes · adjustable sensitivity 50 – 150 kΩ (T series)	22
2	**Well and tank level** Filling without overflowing	The same relay monitors well and tank: it only pumps if there is water in the well and the tank needs it.	**TNDG20 · TNDA20 · YND060 · MNDP02 · VND010** SNP003 / SNT003 probes or SNC0xx · SNP0xx 16 A float switches	22
3	**Alternation** Equal wear on all pumps	Each demand starts the next pump; if demand rises, both run. The standby pump does not seize.	**ZALV01 · VALV01 · TABV02 · TABV03 · YRA002 · YRA006 · MABV04 · MRA004 · MRA005 · MWC002** From 2 to 5 pumps · external level or pressure switch signal · MWC002 with float switch level and motor protection	24
4	**Motor current** Motor without load, jam or overload	The built-in toroidal transformer monitors consumption: below the minimum (no water, broken shaft) or above the maximum (jamming).	**ZCIV405 · ZCIV505 · ZCIV305 · MCIV02** Ranges 0 – 5 / 10 / 20 A · control B blocking or P enable	19
5	**Mains supply** Reversal, phase loss and voltage	A reversed phase makes the pump run backwards; a lost phase burns it out. Detected before starting.	**ZCFF01 · ZCFF02A · ZCFF02B · MVT101** Self-powered 205 – 480 VAC · voltmeter with high and low alarms	18
6	**Motor temperature** Hot winding	Winding PTC thermistors or Pt100 probe with pre-alarm, alarm and stop.	**VCM010 · MCT403** PTC (several in series) · Pt100 -25 … 250 °C with reset	13
7	**Start** Current peaks	Large motors start in star and switch to delta after a safety pause.	**ZETV02 · VETV02 · MNDP02** 5 – 50 s · pause 20 ms – 2 s · MNDP02 integrates it with level control	9
8	**Multifunction level** One unit, 7 modes	Well, tank, well and tank, alarms, 2-pump alternation and star-delta starting in a single level relay.	**MNDP02** 7 selectable modes · anti-wave delay 1 – 80 s · MNDP02-K1 kit with probes	22

Recommended configurations

Well with submersible pump

- TNS020-K1 or YNS040 + SNP003 probes · level with 3 probes
- ZCIB405 / 410 / 420 · minimum current with B control
- ZCFF02A · phases (three-phase pump)

The pump stops due to lack of water (probes) and, if a probe fails, due to low consumption (current).

Well + elevated tank

- TNDG20-K2 · TNDA20-K2 · YND060
- or MNDP02-K1 in mode G (well – tank)
- ZCIB4xx on the well pump

Only pumps if there is water in the well and the tank needs it: never dry and never overflowing.

Booster set from 2 to 5 pumps

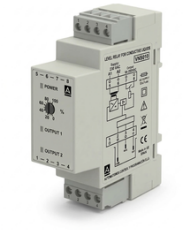
- TABV02 · TABV03 · YRA002 · YRA006 · MRA004 · MRA005
- MABV04 if an alarm output is needed
- ZCIV3xx per pump · MVT101 at the incoming supply

The pressure switch signal shares the hours between pumps; current and mains monitoring protect each motor.

High-power pumping motors

- VETV02 · ZETV02 · star-delta starting
- VCM010 (PTC) or MCT403 (Pt100)
- ZCIP5xx · maximum current with P control

Smooth start without peaks and direct thermal protection of the winding.



NEW 2026 · NEW IN PRICE LIST

VNS010 — plug-in conductivity level control

Level control for wells with plug-in connectors, 1.5-module · 22.5 mm DIN enclosure, sensitivity adjustment from 2.5 to 50 kΩ, anti-surge delay and optional float switch connection. Data sheet and prices in Level Controls, p. 22.

Have a specific installation?

Send us the diagram or the pump data (voltage, rated current, no. of pumps, starting type) and we will propose the set of protections.

info@automatismos.com
93 232 30 12

Level controls

Conductive level relays for wells, tanks and pressure sets: filling, emptying, dry-running protection and pump alternation.

SUMMARY OF FEATURES

- Ready-to-install kits (unit + probes + socket): a single reference for the installer.
- Sensitivity adjustable from 50 to 150 kΩ (T series): also works with low-conductivity water.
- MNDP02: 7 operating modes in one unit — well / tank, alarm, 2-pump alternation and star-delta starting, with adjustable anti-surge delay.
- 11-pin format (tool-free replacement) or modular with plug-in connectors (workshop wiring).
- Pools and spas: MTP01T / MTP02T timers for piezoelectric push-buttons (p. 7).

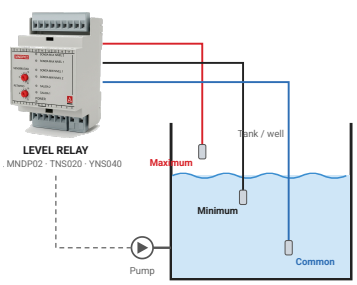
Series		Reference	Ready-to-install kits	Output	Well or tank (1 level)	Well and tank at the same time	Single common	Double common	Adjustable sensitivity	Anti-wave delay	Pump alternation	Star-delta starting	Level indicator LEDs	Price
T		**TNS020** **Well or tank level control** Filling or emptying with 3 probes (11-pin connection)	**TNS020-K1** unit + 3 SNP003 probes **TNS020-K2** unit + 3 probes + ZB11-0 socket	1 x SPDT 8 A	✓	–	–	–	✓	–	–	–	✓	On request
T		**TNDG20** **Well and tank · single common** Monitors well and tank (11-pin connection)	**TNDG20-K1** unit + 2 sets of probes **TNDG20-K2** unit + 2 sets of probes + ZB11-0	1 x SPDT 8 A	✓	✓	✓	–	✓	–	–	–	✓	On request
T		**TNDA20** **Well and tank · double common** Independent well and tank (11-pin connection)	**TNDA20-K1** unit + 2 sets of probes **TNDA20-K2** unit + 2 sets of probes + ZB11-0	1 x SPDT 8 A	✓	✓	–	✓	✓	–	–	–	✓	On request
Y		**YNS040** **Well or tank level control · plug-in** 2 or 3 probes · anti-wave 1 s · float switch compatible · replaces YNS020	Without kit · adjustable sensitivity 2.5 – 50 kΩ · 415 VAC power supply	1 x SPDT 8 A	✓	–	–	–	✓	✓	–	–	✓	On request
Y		**YND060** **Well and tank · plug-in** Anti-wave 1 s · float switch compatible · replaces YND020	Without kit · sensitivity 2.5 – 50 kΩ · 24 / 110 / 230 / 400 VAC	1 x SPST-NO 5 A	–	✓	–	✓	✓	✓	–	–	–	On request
M		**MNDP02** **Multifunction level control · 7 modes** Well, tank, alarm, alternation and star-delta [1] · 4-module M housing, 70 × 90 mm	**MNDP02-K1** unit + 2 sets of probes	2 x SPDT	✓	✓	✓	–	✓	✓	✓	✓	✓	On request
V		**VNS010** **Level control for wells** Plug-in connectors · optional float switch connection	Without kit · sensitivity 2.5 – 50 kΩ · 230 VAC power supply	1 x 5 A	✓	–	○	○	✓	✓	–	–	✓	On request
V		**VND010** **Level control for wells and tanks** Well and tank at the same time · float switch connectable	Without kit · sensitivity 2.5 – 50 kΩ · 230 VAC power supply	1 x 5 A	–	✓	○	○	✓	✓	–	–	✓	On request

[1] MNDP02 operating modes in the box below. Power supply: 230 / 400 VAC 50/60 Hz (VNS010: 230 VAC · YNS040: 415 VAC). Kits include sets of 3 SNP003 probes (next page); the ZB11-0 11-pin socket is included in K2 kits. MWC002 float switch level control: p. 23.

MNDP02 · 7 operating modes selection by side potentiometer · anti-surge delay 1 – 80 s · source: YNDP01 datasheet (now MNDP02)

- **A** **Well with alarm** — Level 2 triggers the alarm
- **B** **Well with alternation** — Level 2 starts the 2nd pump
- **C** **Well with star-delta** — Outputs in S-D sequence
- **D** **Tank with alarm** — Level 2 triggers the alarm
- **E** **Tank with alternation** — Level 2 starts the 2nd pump
- **F** **Tank with star-delta** — Outputs in S-D sequence
- **G** **Well – tank** — Fills only if there is water in the well

How a probe level control works



Three probes, two levels.
The common probe is the longest; the minimum and maximum probes set the working band. The conductivity of the water closes the circuit between probes and the relay detects it with a safe voltage.

Tank filling.
The pump starts when the water drops below the minimum probe and stops on reaching the maximum probe: no continuous starts and no overflowing.

Well emptying.
The same relay, wired in well mode, starts the pump on reaching maximum and stops it at minimum, protecting it from dry running.

Well and tank at the same time (TNDG20 · TNDA20 · YND060 · MNDP02 · VND010).
Monitors both vessels: only pumps if there is water in the well and the tank needs it.

Level probes and float switches

Conductive probes for level relays and float switches for tanks, wells and pits.

	Reference	Type	Features	Cable	304 stainless steel	Cable included	IP68	With counterweight	16 A contact	Price
	**SNS010** **Internal level probe for cable**	Conductive probe	Plastic cover · stainless steel core · direct connection on the bolt	Without cable	✓	–	–	–	–	On request
	**SNP003** **Set of 3 probes with cable**	Conductive probe	Plastic cover · 304 stainless core · cables red 1.5 m · white 2.5 m · blue 3.5 m	1.5 / 2.5 / 3.5 m	✓	✓	–	–	–	On request
	**SNP020** **Pear-type float switch · 2 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	2 m	–	✓	✓	–	✓	On request
	**SNP030** **Pear-type float switch · 3 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	3 m	–	✓	✓	–	✓	On request
	**SNP050** **Pear-type float switch · 5 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	5 m	–	✓	✓	–	✓	On request
	**SNP100** **Pear-type float switch · 10 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	10 m	–	✓	✓	–	✓	On request
	**SNT003** **Set of stainless probes with cable**	Conductive probe	304 stainless steel · black · red · blue cables	1.5 · 2 · 3.5 · 5 · 8 m	✓	✓	–	–	–	On request
	**SNB001** **Tank float switch**	Tank float switch	10 W · 100 VDC max. switching · 0.5 A · 100 mΩ · -10 … +85 °C	With cable	–	✓	–	–	–	On request
	**SNC020** **Counterweight float switch · 2 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	2 m	–	✓	✓	✓	✓	On request
	**SNC030** **Counterweight float switch · 3 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	3 m	–	✓	✓	✓	✓	On request
	**SNC050** **Counterweight float switch · 5 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	5 m	–	✓	✓	✓	✓	On request
	**SNC100** **Counterweight float switch · 10 m**	Float switch	230 / 240 VAC 50/60 Hz · IP68 · 16 A	10 m	–	✓	✓	✓	✓	On request

Float switch level control with alternation and motor protection



MWC002 **Float switch level + alternation + motor protection**

2-pump panel with per-pump alarms

Level detection	5 float switches: stop B1 / B2, level 1, level 2 and overflow
Power supply	100 – 240 VAC 50/60 Hz
Outputs	2 motors + 7 alarms · SPST-NO 5 A
Per-pump protection	Water leak · motor temperature (PTC / Klixon) · thermal overload
Mounting	DIN rail · plug-in connectors

- **A single unit for the 2-pump panel:** float switch level, alternation and alarms for each motor.
- Display with hour and start counters per pump for maintenance.

Price
On request

Ready-to-install kits



Kit K1

Level relay + sets of 3 SNP003 probes (1 set on single-level models, 2 sets on well and tank models).

TNS020-K1 · TNDG20-K1 · TNDA20-K1 · MNDP02-K1



Kit K2

The same plus the ZB11-0 11-pin socket for DIN rail: everything needed to install a T series relay in the panel.

TNS020-K2 · TNDG20-K2 · TNDA20-K2

WHAT TO RECOMMEND

- Level relay + 3 SNP003 probes (or SNT003 with custom cable) for tanks and wells with conductive water.
- Counterweight float switch SNC0xx for wells and deep pits; pear-type float switch SNP0xx for tanks.
- SNB001 for small tanks and electronic equipment (0.5 A contact).

Alternation relays

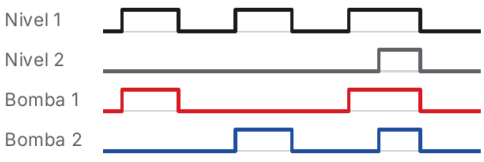
Sharing of work between 2, 3, 4 or 5 pumps or motors to equalise operating hours and extend the life of the installation.

SUMMARY OF FEATURES

- Alternation with external signal (level or pressure switch): each start switches pump; if demand rises, both run.
- Multi-voltage with transformer (24 … 380 VAC · 12 / 24 VDC): a single model for any panel.
- Output status and power LEDs: diagnosis at a glance.
- MRA004 for 4 pumps with memory of the last output activated: after a power cut the sequence continues.
- YRA002 / YRA006: delay between pumps to prevent water hammer, and optocoupled inputs.
- MRA005 for 5-pump sets; MWC002 combines 2-pump alternation, float switch level and motor protection (water leak, temperature and thermal overload) with display and counters.

Series		Reference	Pumps	Power supply	Output	External signal level / pressure switch	Alarm output	Multi-voltage with transformer	Power LED	Output status LEDs	Last output memory	Plug-in connectors	Price
Z		**ZALV01** **2-pump alternation** Basic alternation in minimum space	2	230 VAC · 24 VAC / 24 VDC	1 x SP3T 8 A	–	–	–	–	✓	–	–	On request
V		**VALV01** **2-pump alternation** 380 VAC power supply	2	380 VAC	2 x SPST 8 A	–	–	–	–	✓	–	–	On request
T		**TABV02** **2-pump alternation with external signal** Alternation or simultaneous operation (11-pin connection)	2	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	2 x SPST 8 A	✓	–	✓	✓	✓	–	–	On request
T		**TABV03** **3-pump alternation with external signal** 3-pump sets (11-pin connection)	3	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	3 x SPST 8 A	✓	–	✓	✓	✓	–	–	On request
Y		**YRA002** **2-pump alternation** ≈ 2 s delay between pumps against water hammer · optocoupled inputs	2	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	2 x SPST 10 A	✓	–	✓	✓	✓	–	✓	On request
Y		**YRA006** **3-pump alternation** Up to 3 outputs active at the same time, with a 5 s offset between starts	3	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	3 x SPST 10 A	✓	–	✓	✓	✓	–	✓	On request
M		**MABV04** **2-pump alternation with alarm** Alternation with level alarm output	2 + alarm	24 / 48 / 110 / 230 / 380 VAC · 12 / 24 VDC	3 x SPST 8 A	✓	✓	✓	✓	✓	–	✓	On request
M		**MRA004** **4-pump alternation** 4-pump sets: remembers the last pump activated after a power cut	4	24 / 48 / 110 / 230 VAC · 12 / 24 VDC	2 x SPDT + 2 x SPST 8 A	✓	–	✓	✓	✓	✓	–	On request
M		**MRA005** **5-pump alternation** 5 optocoupled inputs · automatic start rotation	5	100 – 240 VAC 50/60 Hz	5 x SPST-NO 5 A	✓	–	✓	✓	–	✓	✓	On request
M		**MWC002** **2-pump alternation + level + motor protection** Level float switches, water leak, temperature and thermal per pump · display	2	100 – 240 VAC 50/60 Hz	9 x SPST-NO 5 A (2 motors + 7 alarms)	✓	✓	✓	✓	✓	✓	✓	On request

How alternation with an external signal works



Each demand starts the next pump.
The external signal (level relay, pressure switch or float switch) activates pump 1; on the next demand pump 2 starts. The hours are shared and both pumps are kept in service.

If demand rises, both run.
A second signal (level 2 or high-pressure switch) starts the standby pump simultaneously.

No wear on a single pump.
The standby pump does not sit idle for months (seizing, dry seals).

Complete installation? Well, tank, alternation, current, phases and temperature in a single diagram: **Pump and motor protection, p. 20**.

Modbus RS485 communication

Panel and DIN rail units that connect to a PLC, HMI screen or SCADA via RS485 bus with Modbus RTU protocol: the controller reads the count, the time or the output status without additional signal wiring.

ADVANTAGES

- Modbus RTU protocol over RS485: the standard for industrial PLCs and HMI screens.
- Each device (slave) has its own address number (SCE485: from 1 to 99) so the display or PLC (master) knows which one it is querying.
- Several units on the same pair of wires (A · B): a single bus for the whole panel.
- Same format and wiring as the standard range: the unit with communication replaces the conventional one without changing the panel.

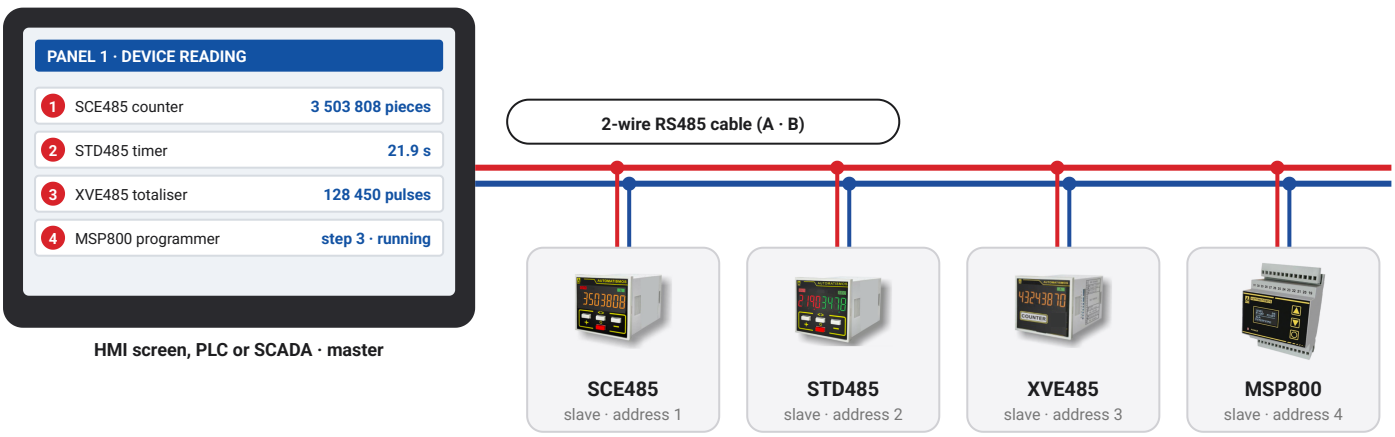
Units with communication

	Reference	Outputs · communication	p.	Price
	S **SCE485** Pulse counter · 2 presets	2 x SPDT 8 A / 250 VAC · RS485	12	On request
	S **STD485** Multifunction timer · 8 functions	1 x SPDT 8 A / 250 VAC · RS485	7	On request
	X **XVE485** Pulse totaliser	RS485 Modbus RTU	16	On request
	M **MSP800** 8 I / 8 O programmer with clock	8 x NO 5 A · RS232 / RS485	11	On request

Communication parameters

Unit	Bus · protocol	Speed	Frame format	Address
SCE485	RS485 · Modbus RTU	1200 · 2400 · 4800 · 9600 · 14 400 · 19 200 baud	8N2 · 8O1 · 8E1	1 … 99
STD485	RS485 · Modbus RTU	Query parameters		
XVE485	RS485 · Modbus RTU	1200 … 19 200 baud	8N2 · 8O1 · 8E1	Programmable
MSP800	RS232 / RS485 · Modbus	Integration with HMI screen or SCADA (p. 11)		

How it integrates



How it works: in Modbus, the screen or PLC is the **master** (queries) and each device is a **slave** (responds). All devices are connected to the same two-wire cable. The master calls each slave by its address number and receives its data: the count, the time or the output status, and shows them on a single screen. Address, speed and format are programmed from the front of each device; full technical data on each device's page.

Tell us about your control sequence and your diagram and we will adapt a unit for you.

What we can develop



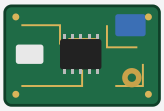
Functions on a standard unit

48 × 48 timers, counters and controllers with the logic your machine requires (STDCxx · SCECxx · SCTCxx).



Custom sequencers

Fixed program factory-loaded (YSP) or programmable with display, Modbus and HMI (MSP) instead of a PLC.



Custom electronic boards

Design and manufacture of the electronics for your product: schematic, PCB, firmware and assembly (OEM).



Modification of standard units

Other times, voltages, scales or labelling on any device in the catalogue.

Custom functions on a standard unit · custom function

Reference	Unit	Functions	Power supply	Output
STDCxx On request	TIMERS	Special user-defined functions Programming charge On request One-off payment	Transformer 24 · 48 · 110 · 230 VAC 12 · 24 VDC	SPDT 8 A 250 VAC
SCECxx On request	COUNTERS			
SCTCxx On request	TEMPERATURE CONTROLLERS			

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- Modular: well, tank, well + tank
- Modular: multifunction with 7 modes
- Plug-in with 11-pin socket
- Level probes and float switches
- Ready-to-install kits

PUMP ALTERNATION
- Modular: 2, 3, 4 and 5 pumps
- Plug-in with 11-pin socket: 2 and 3 pumps
- With external signal and sequence memory
- Modular with display: float switch level + motor protection

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- Modular: phase monitoring
- Modular: current monitor with toroidal transformer
- Modular with display: current monitor
- Modular with display: three-phase voltmeter

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