**Delt aSol® MX**  the all-rounder

- 14 relay outputs and 12 inputs for Pt1000, Pt500 or KTY temperature sensors
- Up to 5 extension modules via RESOL VBus (45 sensors and 39 relays in total)
- Inputs for analogue and digital Grundfos Direct Sensors™
- Integrated control of up to 4 high-efficiency pumps via PWM outputs
- Data logging, storing, easy transfer of controller adjustments prepared and firmware updates via SD card

- Cooling over the heating circuit with condensation detection by means of a dew point switch
- Simplified timer, 0-10 V boiler control and DHW preheating
- Remote access to the heating circuits with room control unit(s) or the VBus Touch HC App
- Extended optional functions, e.g. solid fuel boiler function with mixer and target temperature control

* The cl.Cus certification confirms that the controller is certified to UL 60730-2-9 and CSA - E60730-2-9-01.
The Delt aS o1® MX is the most versatile system controller for complex solar and heating systems in our product range. It is ideal to control a combination of solar and non-solar parts of the system.

Easy combination and parameterisation of pre-programmed functions for several millions of hydraulic variants.

Customised and OEM versions are available on request. Please contact our sales team.

**Technical data**

**Inputs:**
- 12 Pt1000, Pt500 or KTY temperature sensor inputs (can optionally be used for remote controls, operating mode switches or potential-free switches),
- 3 impulse inputs for V40 flowmeters, 1 input for a FlowRotor, 1 CS10 solar cell, 4 Grundfos Direct Sensors TM (2 x analogue, 2 x digital*)

**Outputs:**
- 14 relays, 13 of them semiconductor relays for pump speed control, 1 potential-free relay and 4 PWM outputs (convertible to 0-10 V signal outputs)
  - PWM frequency: 512 Hz
  - PWM voltage: 10.5 V
  - Switching capacity: 1 (1) A 240 V~ (semiconductor relay)
  - 4 (2) A 24 V~/240 V~ (potential-free relay)
  - Total switching capacity: 6.3 A 240 V~

**Power supply:**
- 100 ... 240 V~ (50 ... 60 Hz)

**Supply connection:**
- type Y attachment

**Standby:**
- 0.84 W

**Temperature controls class:**
- VIII

**Energy efficiency contribution:**
- 5 %

**Mode of operation:**
- type 1.B.C.Y action

**Rated impulse voltage:**
- 2.5 kV

**Data interface:**
- RESOL VBus®, SD card slot

**VBus® current supply:**
- 35 mA

**Functions:**
- 7 integrated calorimeters and control of weather-compensated heating circuits. Adjustable system parameters and add-on options (menu-driven), balance and diagnostics functions, function control according to VDI 2169

**Housing:**
- plastic, PC-ABS and PMMA

**Mounting:**
- wall mounting, mounting into patch panels is possible

**Indication/Display:**
- full graphic display

**Operation:**
- 7 push buttons

**Ingress protection:**
- IP 20/EN 60529

**Protection class:**
- I

**Ambient temperature:**
- 0 ... 40 °C

**Pollution degree:**
- 2

**Dimensions:**
- 253 x 200 x 47 mm

*For the digital inputs, the following sensor combinations are possible:
- 1 x RPD, 1 x VFD
- 2 x VFD, but with different measuring ranges only

---

**Examples**

- **Solar system with combined store, external heat exchanger, weather-compensated heating circuit, return preheating and backup heating**
- **Solar system with external heat exchanger, store loading in layers and backup heating by solid fuel boiler**
- **Solar system with 2 stores, circulation pump control, heat exchange control and weather-compensated heating circuit**
- **Solar system with combined store, swimming pool, backup heating, heating circuit loading and return preheating**
- **Solar system with store, swimming pool and backup heating over gas- and solid fuel boiler**
- **Solar system with 2 stores, circulation pump control, heat exchange control and weather-compensated heating circuit for heating or cooling application of a heat pump**

---

**RESOL Delt aS o1® MX**

Price bracket A | Article no.: 115 992 03

**RESOL Delt aS o1® MX  Full kit**

Incl. 6 Pt1000 sensors (2 x FKP6, 4 x FRP6)

Price bracket A | Article no.: 115 992 13

An SD card is included with the controller.

Visit [www.resol.de/videos](http://www.resol.de/videos) for a product video about this controller
Operating concept

Pre-programmed optional functions facilitate parameterisation:

**Main menu**
- Solar
- Arrangement
- Heating
- HQM
- Basic settings

**External HX**
- Output: R7
- Store: 1
- Sensor HX: S9
- Target temp.: S10
  - Sensor: S10
  - Targ. temp.: 60 °C
- ΔTon: 10.0 K
- ΔToff: 5.0 K
- Overrun: 2 min

**Return mixing**
- Mixer open: R7
- Mixer closed: R8
- Sen. Store: S9
- Sen. HC ret.: S10
- Sen. boiler ret.: S11
- ΔTon: 5.0 K
- ΔToff: 3.0 K
- ΔTset: 7.0 K
- Tmax: 60 °C
- Interval: 2 s

**Drainback**
- Filling time: 5 min
- Stab. time: 2.0 min
- Initials.: 60 s
- Booster
  - Output: R7
- Drain Impulse
  - Delay: 3 min
  - Duration: 10 s

**DHW preheating**
- Pump: R7; C
  - Valve: R8
- Temp. sensor: S9
- Flow rate sen.: Imp.1
- Tmax. DHW: 60 °C
- Starting speed: 50 %
- Increment: 10 %
- Hysteresis: 5.0 K
- Delay: 5 s

**Basic settings**
- Language: English
  - Auto DST
- Date: 01.03.2016
- Time: 12:01
- Temp. unit: °C
- Flow unit: Litre
- Press. unit: bar
- Energy unit: Wh
- Blocking protection
- Reset

**HC internal**
- Heat. sys. >>
  - Mode: Curve
  - Curve: 1.0
  - Tflowmin: 20 °C
  - Tflowmax: 50 °C
  - Interval: 4
- HC pump: R5
- Mixer open: R6
- Mixer closed: R9
- Flow sen.: S7
- Sen. outd.: S8
- Day correction: 0 K
- Night correction: -5 K
- Timer
  - Summer oper. >>
  - Summer oper.
  - Remote access >>
  - Remote access
  - Room therm. >>
  - Backup heating . . .

Each optional function has its own menu with all adjustment channels required, clearly named.
Functional possibilities

- Irradiation-controlled bypass, irradiation switch
- Twin pump or booster pump, with optional flow rate monitoring – in a pre-programmed optional function
- Circulation, heat exchange control, thermal disinfection – in pre-programmed optional functions
- Floor heating with optional room temperature monitoring, solid fuel boiler
- Error relay function for optimum function control
Valve or pump logic

2 internal, with EM extension modules up to 5 additional weather-compensated heating circuits for heating and cooling application

Basic solar systems also for 3 collector fields

Up to 5 solar stores, external heat exchanger with priority logic etc.

Implementation of a heat pump for heating and cooling purposes
Visualisation

**VBus.net**
The internet portal for easy and secure access to your system data – [www.vbus.net](http://www.vbus.net).

With VBus.net, you can display live data of your system. Furthermore, you can create and download diagrams for defined periods of time from the data stored.

**Why VBus.net?**

- Suitable for all RESOL controllers connected to a Datalogger
- Basic version free of charge
- For every operating system and all mobile devices worldwide – no software installation required

Freely configurable Dashboard – your live system or diagram incl. weather data at a glance.