

iNTELLiGENT iDM HEAT PUMPS



iNTELLiGENT HEAT PUMPS FROM AUSTRIA

idm-energie.com



iNTELLiGENT. OPTIMIZED. NETWORK.

iON MINIMIZES TOTAL OPERATING COSTS!

The intelligent iDM heat pump guarantees the optimum operating point at all times thanks to the innovative iDM control technology (Navigator 2.0). With iON, we go one step further: based on weather forecasts, variable electricity prices and the historical load profile, we control your heat pump so that it achieves the best possible efficiency, makes ideal use of photovoltaic yields and minimizes your overall energy costs.



iNTELLiGENT CONNECTIVITY OF ALL COMPONENTS

The iDM heat pump pioneers have already perfected the efficient supply of heat with the **intelligent heat pump**. Intelligently linking it with **photovoltaic systems**, **battery storage** and the **building structure**, makes it possible to comprehensively optimize the areas of heat and electricity. This leads to linking of sectors which in turn raises the efficiency and sustainability to a new level.



Your intelligent heat pump is compatible with many common inverters and energy management systems. You can find more information on www.idm-energie.at/en/photovoltaic-interfaces/

INTEGRATION OF EXTERNAL DATA

When there is a high supply of renewable energy - such as wind and solar - electricity prices on the day-ahead market fall. These favorable conditions are passed on to end consumers through **variable hourly electricity tariffs**. iON goes one step further, however, and takes into account the **efficiency^{*)}** of your heat pump as well as the expected yield of your **photovoltaic system**. Thus iON maximizes your energy efficiency and minimizes costs.

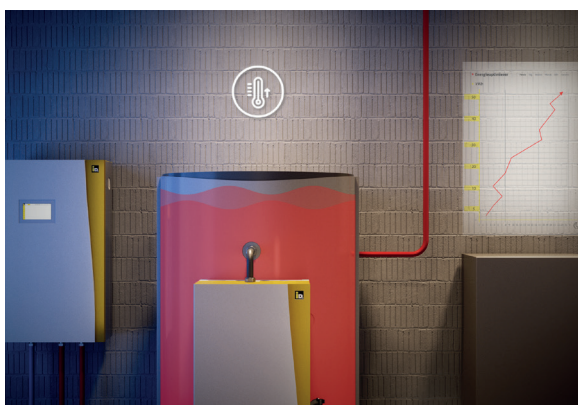


**ELECTRICITY
TARIFF** + **EFFICIENCY^{*)}** + **PV YIELD**



iON DETERMINES THE OPTIMUM TIMING

*) The efficiency of air source heat pumps is heavily dependent on the outside temperature. Switching based purely on electricity prices may increase costs.



USER BEHAVIOUR ANALYSIS AND USING THE BUILDING AS ENERGY STORAGE

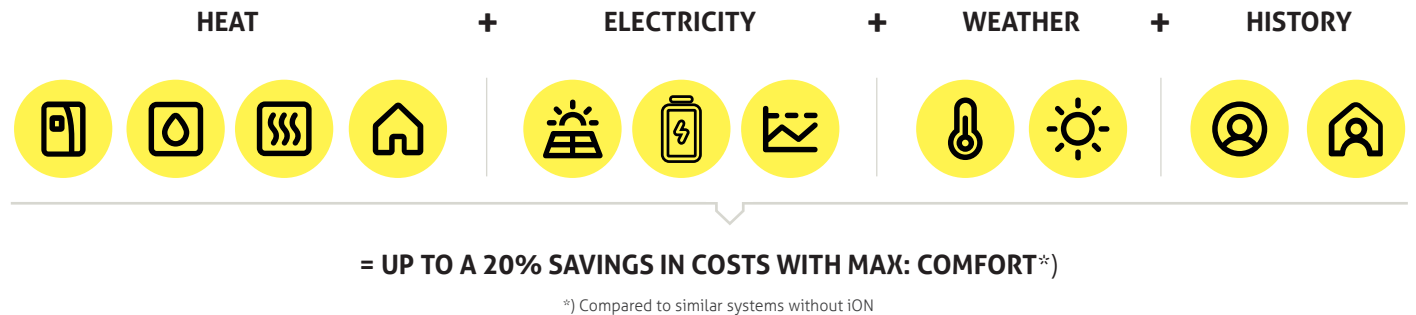
By intelligently linking the heat and power supply, iON also takes into account the historical **usage behavior** of the residents (such as hot water consumption) and the **thermal behavior of the building** (e.g. heating and cooling behaviour). As a result, iON always determines the optimum time for heating, cooling and hot water preparation.





SAVE UP TO 20% IN COSTS WITH MAX. COMFORT.

A COMPREHENSIVE OPTIMIZATION FOR ALL YOUR ENERGY RELATED FACTORS



NO ADDITIONAL HARDWARE NEEDED

Many energy management systems require the purchase and installation of additional hardware. With iON, on the other hand, this is not needed. All the necessary components are already built into the intelligent heat pump from iDM. Simply install the iON software to get started!*

*) iON is currently not available for all iDM heat pumps.



REDUCES THE CARBON FOOTPRINT

If a high volume of renewable energy from wind, sun and water is available, you not only benefit from favorable electricity prices, but also from significantly lower CO₂ emissions. This means you save twice: both on electricity costs and on CO₂ emissions!



CONTRIBUTE TO THE STABILITY OF THE ELECTRIC GRID

By avoiding price peaks, iON also helps to reduce load peaks. This means that your heat pump is being operated in a gridfriendly manner and contributes to the stability of the electricity grid.



EVERYTHING AT A GLANCE

iON minimizes your heating costs automatically. Nevertheless, you can use the iON app to ensure that your intelligent heat pump is working properly at any time - even when you are on holiday.

Discover more details and visit our website now - www.idm-energie.at/en/ion/



DISCOVER ALL FEATURES

THE iNTELLiGENT iDM HEAT PUMP IN DETAIL

The iNTELLiGENT iDM heat pump is more than just a heating solution. It is a milestone in heating technology that links these features:

COMFORT



EFFICIENCY



SECURITY



If you're looking for a sustainable and intelligent way to heat your home or business, iDM heat pump is the answer.

iDM NAVIGATOR

The NAVIGATOR 2.0 with its high-resolution 7" touch display and clear, self-explanatory menu navigation allows complete control and monitoring of the iDM heat pump.

COMFORT



- **Heating, cooling and hot water preparation**

The iDM heat pump doesn't only heat the building in winter and cool it in the summer, but also provides hot water all year round.

- **iDM fresh water technology**

A flow switch detects a domestic hot water draw-off. During this draw-off, the hot water station is regulated so that the specified hot water temperature can be maintained and efficient storage is ensured.

- **Fresh water cascade**

A wide range of hot water requirements can be covered by cascading hot water stations (up to 4 stations).

- **Heating circuit control for heating and cooling**

Up to 6 heating circuits per heat pump can be configured for heating and cooling. Functions such as room temperature and room humidity measurements improve comfort for the end user. Up to 60 heating circuits can be controlled in the cascade.

- **Bivalence management for heating, hot water and cooling (e.g. electric immersion heater and gas boiler)**

Bivalence management controls the activation of an external heat generator depending on the outside temperature or an additional cooling generator depending on demand. Depending on the application, you can choose between different bivalence strategies.

- **Individual room control for up to 80 rooms (underfloor heating)**

With the „Navigator Pro“ individual room control, each room can be individually temperature-controlled via the underfloor heating. The temperature and humidity are measured. The „Navigator Pro“ also analyses and „learns“ the heating behaviour of the rooms and thus ensures a high level of comfort. In addition, a PV system or a variable electricity tariff can be utilised with individual room controls (in conjunction with a PV system, the surplus energy can be stored in the building). A limitation of up to 10 zone modules is based on the speed of the interface currently in use (Modbus).

- **Integrated differential temperature control**

Heating circuits can also be configured to perform differential temperature control. This means that wood boilers or water-led tiled stoves, for example, can be easily integrated.

• Integration of solar thermal systems

Simple solar control (differential temperature control) is possible with the Navigator by default. By expanding the Navigator with the iDM solar station (incl. solar add-on board), a stratified solar feed-in (heating/hot water changeover) is possible.

• Hot water circulation control

The Navigator can be used to control the circulation pump via a digital output. A timed programme can be stored for circulation or it can be activated using a short tap (1s - 3s). Hot water circulation ensures optimum hot water comfort.

• Hot water boost function

Use the Boost function using hot water storage tanks to increase hot water volume (bulk capacity) in certain periods.

• Automatic switching between heating and cooling.

The heat pump automatically switches to heating and cooling mode depending on the outside temperature. This eliminates the need for inconvenient switching on/off of individual operating modes during transition periods.

• Timed programmes

A wide variety of timed programmes (hot water preparation, hot water circulation, individual room temperatures, room temperatures for heating circuits) allow individual settings adjusting for comfort and efficiency.

• Low-noise operation

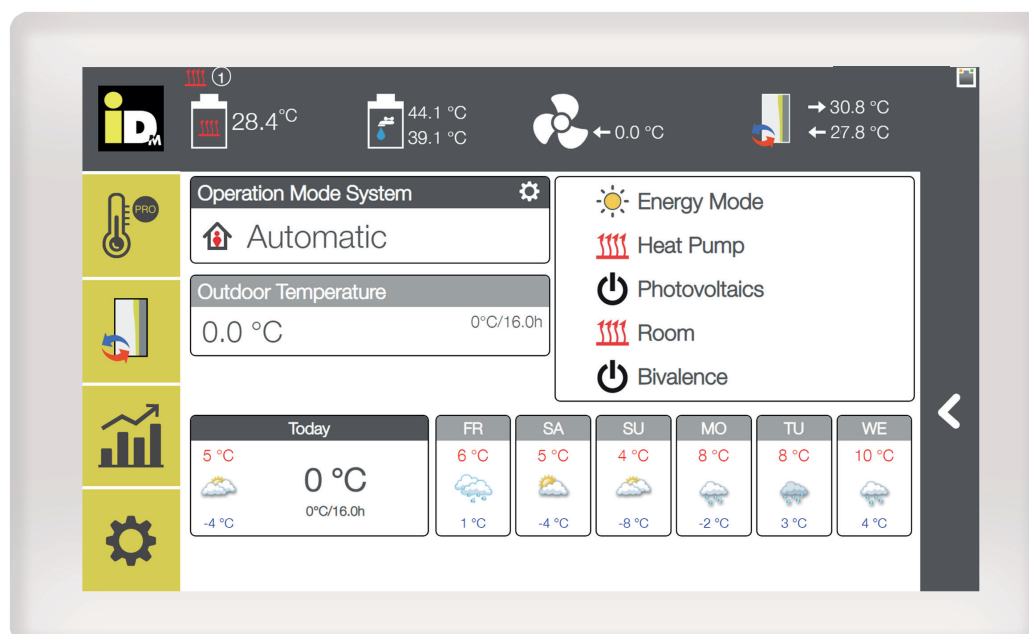
A Low-noise operation can be set via a timed programme. By reducing both the power and slowing the compressor speed, noise emissions can be minimised. This means that emission limits can be adhered to during sensitive periods. Keep in mind that this function does not replace factors such as proper acoustic planning for the system.

• Weather forecast

Local weather forecasts where the heat pump is located are displayed. The heating curve can also be controlled using forecast data.

• „Alexa“ voice control

With „Alexa“ voice control, iDM heat pumps can be operated using voice commands. Operating mode, hot water and heating circuit temperature changes as well as weather queries can be carried out.



- **iDM system cooling**

With iDM system-cooling, heating and cooling can be produced simultaneously. This almost doubles the efficiency of the system. Ideal for use with systems that also have similarly high heating/hot water requirements in cooling mode.

- **Demand-orientated power adjustment**

The heat pump adapts to the heating and cooling requirements of the building and avoids unnecessary temperature increases. This ensures maximum efficiency.

- **Intelligent heating/cooling circuit control**

The flow temperatures are regulated depending on both the outdoor temperature and room temperature (for heating and cooling). This ensures that sufficient heating capacity is available at low outside temperatures and that the heat pump runs as efficiently as possible when temperatures are high outside. The heat pump ideally adapts the flow temperatures to the building.

- **Defrosting on demand**

With air source heat pumps, the heat source is from outside air, which is drawn through the heat pump. When energy is extracted from the outside air, ice forms on the heat exchanger at cold temperatures due to humidity. As air humidity and outside temperature vary over time, the amount of ice build-up is not always the same. The intelligent iDM control system recognises how much ice has formed and only starts the defrosting process, in which ice is melted off the heat exchanger, when it is necessary. This ensures maximum system efficiency.

- **HGL (hot gas charging technology)**

With HGL technology, the hot water (hygienic) can be charged at a higher temperature while the heat pump is running at a low temperature while heat is being supplied. This improves seasonal performance and consequently the economic efficiency.

- **Record local data via micro SD card**

All relevant input/output statuses are recorded using a micro SD card in the heat pump display. Data is pinged every 15 seconds by default. In the event of failures or when optimising the system, this data can be used to carry out quick analysis for trouble shooting.

- **Intelligent application limit management**

In order to guarantee the longest possible service life for speed-controlled compressors, manufacturers have defined operating limits. The intelligent iDM control system ensures compliance with these operating limits in all operating modes.

- **Protection against moisture damage**

To prevent condensation from room humidity, dew point-controlled flow temperature control and dew point monitoring are possible. In conjunction with the individual room control, it is also possible to control dehumidifiers. This ensures the maximum cooling capacity of the cooling systems and at the same time prevents moisture damage.

- **Software update**

The Navigator software is constantly being improved and is updated on a regular basis. The latest software is also available for existing systems (e.g. extending connectivity to PV systems). This means that owners of existing systems are also provided with the latest Navigator updates.

iDM MONITORING

With the following iDM monitoring features, you always have an overview and can sit back and relax.



COMFORT

- **Consumption analysis and statistics**

Heat pump data for each operating mode (heat quantities, running times, electrical power consumption) are processed and displayed using statistics and key figures on the display.

- **Recording energy and water consumption**

Counters with an SO output can be displayed on the Navigator via a counter module interface. This data can be found with in the Navigator statistics. This provides an overview of all electrical and thermal consumption as well as water consumption, especially for larger systems.



SECURITY

- **Error/Failure notifications via SMS or e-mail**

Immediate notifications of error messages via SMS and/or e-mail (configurable).

iDM ENERGY MANAGEMENT

The iDM energy management system visualises and optimises the operation of all networked energy-relevant components.



COMFORT

- **Energy flows and balances**

The Navigator provides statistics on the entire system and energy balances with generated and consumed energy. When photovoltaic systems are integrated, a live view of the energy flow is also displayed and the degree of the selfsufficiency and self-consumption rate are calculated.



EFFICIENCY

- **Use of variable hourly electricity tariffs**

The heat pump knows the electricity prices for the next 24 hours (day-ahead prices) and adjusts the controls accordingly. As a result, hot water charges are shifted to a „cheaper“ time or the heating and cooling temperatures are adjusted to the prices of electricity.

- **PV self-consumption optimisation**

The heat pump communicates with the PV system and adapts its control to the PV surplus. The heat pump pursues various (configurable) control strategies (e.g. hot water and heat storage increase, use of the building mass as storage).

- **iON. intelligent. optimised. networked.**

With iON, we've gone one step further and always operate the heat pump over 24 hours in such a way that it achieves the best possible efficiency, makes ideal use of photovoltaic yields and minimises your energy costs - based on weather forecasts, electricity prices (day-ahead) and user behaviour.

iDM CASCADE MANAGEMENT

Several heat pumps are usually used in large systems. The iDM cascade control of the Navigator networks up to 10 heat pumps intelligently in the system and synchronises the operation of the heat pumps.



COMFORT

- **Intelligently networked heat pumps incl. centralised operation for up to 10 heat pumps (up to 1500 kW)**

Several heat pumps are usually used in large systems. The iDM cascade control system networks all heat pumps in the system and synchronises the operation of the heat pumps. Thanks to the clear configuration and user interface of all heat pumps, operators always have a clear overview of their system.

- **Operating mode management/demand-orientated step activation**

An iDM cascade system can run different operating modes (heating, cooling, hot water) simultaneously. By monitoring consumption and storage temperatures, the number of heat pumps required for each operating mode is calculated. This ensures an ideal level of comfort for heating, cooling and hot water needs.



EFFICIENCY

- **Efficiency-dependent step activation**

If mixed ground source and air source heat pumps are installed in an iDM cascade system, the iDM control system calculates which heat pump can work most efficiently at the current heat source temperatures. This means that the heat pump that generates the lowest operating costs always takes priority.

- **Central sensors / pumps configurable**

A heat pump system with several heat pumps requires a lot of sensors, pumps and valves. Thanks to an intelligent configuration option for cascade control, several heat pumps can share sensors, pumps and valves. This reduces the installation effort and also cuts down on investment costs.



SECURITY

- **Operating hours equalisation**

The iDM cascade management system is programmed so that all individual heat pumps run in such a way that an even utilisation of the individual compressors is guaranteed. This extends the service life of the entire system.



TERRA SW MAX Kaskade

Image: Retail Park „GreenPea“ Torino GEONOVIS srl © 2020 – S.S. 11 Km 46,500 – 13040 Borgo D'Ale



AERO ALM 10-50 Max Kaskade

Image: iDM

iDM CONECTIVITY

The iNTELLiGENT heat pump from iDM comes with a wide variety of built-in useful interfaces.

COMFORT

- **Smart Navigator (App + Windows) / myiDM**

The Smart Navigator app or myiDM enables the iDM heat pump to be controlled and monitored from any location via smartphone or PC.

- **Integration into smart home systems**

The heat pump can be integrated via Modbus TCP, BACnet IP or EIB/KNX into your Smart Home system or existing energy management system or BMS.

- **Modbus TCP / BACnet IP: Heat pump must be integrated in the Ethernet network.**

EIB/KNX: „KNX module“ accessory is required

- **Integration of PV systems**

Integration of PV systems (via various interfaces - <https://www.idm-energie.at/en/photovoltaic-interfaces/>) into the Navigator allowing access to all relevant data.

- **Integration of battery storage systems**

Integration of batteries (via various interfaces) into the Navigator allowing access to all relevant data.



NOTES

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.



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Subject to changes and errors.