

# Data sheet LA 18S-TU

## High efficiency air-to-water heat pump for outdoor installation

Installation location:

Max. flow temperature: 60 °C

Casing colour: light grey

Heat pump for heating purposes for outdoor installation with wall-mounted WPM Econ5S heat pump manager. Sound-optimised through flow-optimised air circuit with encapsulated compressor housing, axial fan for low natural sounding noise and free-swinging compressor baseplate for solid-borne sound insulation. High coefficients of performance (COP) thanks to high-performance evaporator, COP booster, electronic expansion valve, EC fan for adjusting the air volume flow and self-optimising output control. Increased system efficiency (integrated system) can be achieved through combination with the Hydro-tower and room temperature control available as accessories. Maximum operational safety via sensor monitoring of the refrigeration circuit with self-optimising defrosting. This enables the downtimes in cycle operation to be used for natural defrosting; integrated thermal energy metering (display of the calculated quantity of thermal energy for heating and domestic hot water preparation on the heat pump manager). Quick and easy installation via installation close to walls with a minimal distance from the wall of 0.5m on the intake side and a casing concept optimised for outdoor installation. Universal design with flexible expansion options for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits
- Use of load-variable tariffs (SG Ready)

At an external temperature of -10 °C, the maximum flow temperature that can be achieved is 56 °C. Dirt trap and sensor flow rate measurement integrated to safeguard the minimum heating water flow rate. Flow and return sensor integrated; external sensor (standard NTC-2) in the

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scope of supply. The electrical connection between the control to be mounted in the building and the outdoor unit takes place via a shielded 2-wire data cable (e.g. LiYY; cross-section 0.6 mm<sup>2</sup>) not included in the scope of supply.

The hydraulic connection can take place both at the bottom or on the side via the flexible connecting hoses available as accessories. Side panels light grey (similar to RAL 7035), front panels white (similar to RAL 9016), more colours available on request.

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## Technical data

### Dimplex High efficiency air-to-water heat pump for outdoor installation (Low temperature)

Heat pump code	5013
Max. flow temperature	60 Grad
Lower operating limit heat source (heating operation) / Upper operating limit heat source (heating operation)	-22 Grad / 35 Grad
Heat output A-7/W35 / COP A-7/W35 *	5,6 kW / 3,2
Heat output max. A-7/W35 / COP A-7/W35 *	10,6 kW / 3,2
Heat output A2/W35 / COP A2/W35 *	7,3 kW / 4,2
Heat output max. A2/W35 / COP A2/W35 *	12,3 kW / 3,8
Heat output A7/W35 / COP A7/W35 *	8,4 kW / 4,8
COP A-7/W35 *	3,2
Heat output A10/W35 / COP A10/W35 *	8,8 kW / 5,2
Nominal power consumption according to EN 14511 at A2/W35	3,24 kW
Nominal power consumption A7/W35	4,44 kW
Sound power level	54 dB(A)
Sound pressure level in 10 m	26 dB(A)
Refrigerant / Amount of refrigerant	R410A / 5,9 kg
Max. heating water flow rate / Pressure drop	1,5 m3 pro h / 26000 Pa
Heat source flow (min.)	3200 m3 pro h
Width x Height x Depth **	910 x 1650 x 750 mm
Weight	295 kg
Rated voltage	3/N/PE ~400 V, 50 Hz
Starting current	21 A
Type of defrosting	Reverse circulation
Heat pump seal of approval (valid until)	Yes / 03.09.2021

\*Heat output and coefficient of performance (COP) according to EN 14511

\*\*Please note that additional space is required for pipe connections, operation and maintenance.

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Description	Order ref.	Article number	Sample item	Item
<b>Heat pumps</b>				
Weather-proof protective cover LA...S-TU	WSH 18-2	379550	0	
Bottom console for LA ...S-TU(R) heat pumps	BKS 0918	379640	1	
Air-to-water heat pump connection kit	VS 32-220	372950	1	
<b>Hydraulic accessories</b>				
Free-standing buffer tank 200 l	PSW 200	339830	1	
Immersion heater 4.5 kW; ~230 V	CTHK 630	363610	0	
Immersion heater 2.0 kW; ~230 V	CTHK 631	336180	0	
Immersion heater 2.9 kW; ~400 V	CTHK 632	335910	0	
Immersion heater 4.5 kW; ~400 V	CTHK 633	322140	0	
Immersion heater 6.0 kW; ~400 V	CTHK 634	322150	0	
El. cont. circulating pump: Control type $\Delta p$ -c, fixed speed; PWM control optional	UPE 80-25PK	380160	0	
Universal buffer tank (500 l)	PSW 500	339210	0	
Dual differential pressureless manifold	DDV 25	358390	1	
High-efficiency circulating pump DN 25 with coupling relay	UP 75-25PK	376740	1	
Manifold bar DN 25	VTB 25-2	376360	0	
Manifold bar DN 32	VTB 25-3	376370	0	
Domestic hot water module/unmixed heating circuit module	WWM 25	346600	1	
Mixed heating circuit module with temperature sensor	MMH 25	348640	0	
Mixer module for bivalent systems	MMB 25	348880	0	
Electronically controlled wet-running pump, $\Delta p$ -v, fixed speed and PWM signal	UPE 70-25PK	374700	1	

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Description	Order ref.	Article number	Sample item	Item
Electronically controlled wet-running pump, self-regulating	UPE 100-25K	374720	0	
Ready-for-use DN 32 stainless steel Wellflex pipe	VSE 32-50	362520	0	
Ready-for-use DN 32 stainless steel Wellflex pipe	VSE 32-100	362530	0	
Ready-for-use DN 32 stainless steel Wellflex pipe	VSE 32-150	362540	0	
Ready-for-use DN 32 stainless steel Wellflex pipe	VSE 32-200	362550	0	
Ready-for-use DN 32 stainless steel Wellflex pipe	VSE 32-300	362560	0	
<b>Heating accessories</b>				
Fan convector heating with EC fan	SRX 080EM	367500	0	
Fan convector heating with EC fan	SRX 120EM	367510	0	
Fan convector heating with EC fan	SRX 140EM	367520	0	
Fan convector heating with EC fan	SRX 180EM	367530	0	
<b>DHW preparation accessories</b>				
400l solar cylinder for heat pump	WWSP 432 SOL	361080	0	
Domestic hot water cylinder (300l) with temperature sensor	WWSP 335	376760	1	
Flange heater for domestic hot water	FLH 60	338060	0	
Flange heater for domestic hot water	FLHU 70	338070	0	
FLH 25M flange heater	FLH 25M	349430	0	
Safety valve combination	SVK 852	326660	0	

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Description	Order ref.	Article number	Sample item	Item
Domestic hot water cylinder (400 l) with temperature sensor	WWSP 442	372840	0	
Hydro Tower without regulation	HWK 332	362360	0	
Combination tank heating and domestic hot water preparation	PWS 332	348620	0	
Domestic hot water module/unmixed heating circuit module	WWM 32	367800	0	
Pump unit DN 32 for direct connection of the domestic hot water cylinder	WPG 32	356040	1	
High-efficiency circulating pump DN 32 with coupling relay	UP 75-32PK	376750	1	
High-efficiency circulating pump DN 32 with coupling relay	UPH 90-32	370420	0	
3-way reversing valve DN 32	DWV 32	374780	0	
<b>Control accessories</b>				
Extension for an Ethernet network connection	NWPM	356960		
Expansion module WPM for a KNX/EIB connection	KNX WPM	376350	0	
Extension for a Modbus RTU connection	LWPM 410	339410	0	
Remote control for WPM 2006/2007/EconPlus/R	AP PGD	356570	0	
Outside temperature sensor with casing	FG 3115	336620	0	
Temperature sensor NTC-10 with metal sleeve	NTC-10M	363600	0	

\* Other specific accessories available / required

Important information:

The combination of the components and the quantities indicated represent a non-binding sample system, which needs to be tested and individually adapted as required. Pump dimensioning must be reviewed according to the pressure loss of the system and the minimum heating water flow rate of the heat pump.

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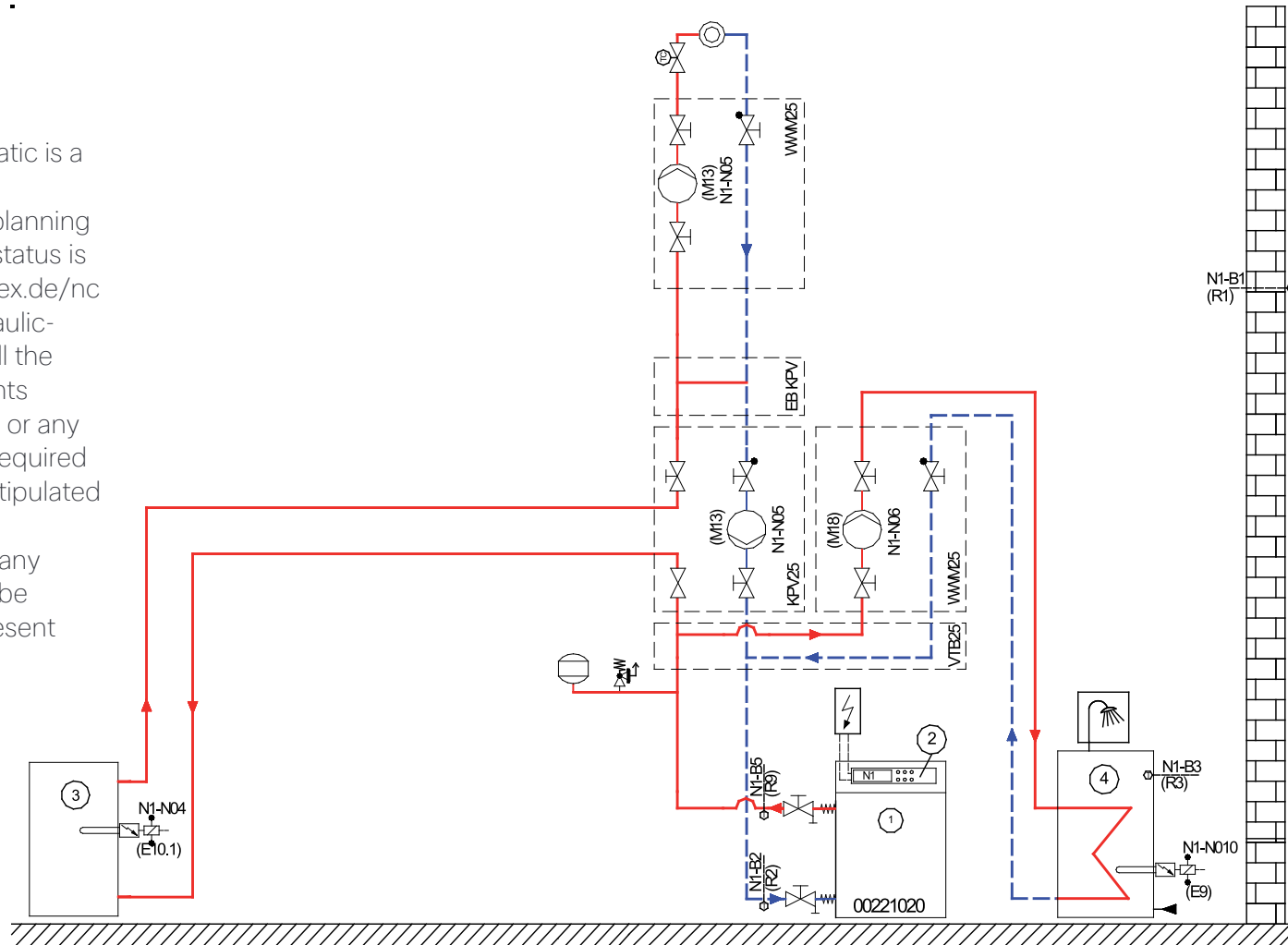
# LA 18S-TU

## Note:

The given hydraulic integration schematic is a schematic representation of the key components and serves as an aid for planning your customized system. The current status is available at all times under [www.dimplex.de/nc/en/professional/online-planner/hydraulic-integrations.html](http://www.dimplex.de/nc/en/professional/online-planner/hydraulic-integrations.html). It does not contain all the required safety devices, the components needed to maintain constant pressure, or any other additional valves which may be required for maintenance and service work as stipulated by EN 12828.

The heat pump manager settings and any external regulation system which may be connected must be adapted to the present integration diagram.

Software updates may be required!



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## System description:

- Air-to-water heat pumps with defrosting by reverse circulation extract the energy required for defrosting from the heating system. In the case of air-to-water heat pumps, a buffer tank connected in series, into which the immersion heater is screwed, must be installed in the flow in mono energy systems to ensure defrosting. A dirt trap with a mesh size of between 0.6mm and 0.8mm is to be installed in order to protect the plate heat exchanger from larger dirt deposits. Clean the filter sieve of the dirt trap one day after start-up. These intervals can be extended as soon as no more impurities are detected. When the level of impurities is significantly high (e.g. due to corrosion found in the building), it is recommended that a sludge trap be installed in order to minimise the need for regular cleaning. A permanent corrosion process, caused by the entry of oxygen into the system, is characteristic of heating systems featuring open diffusion. This is best alleviated using an electrophysical anti-corrosion system. Condensate which forms during defrosting must be drained off without risk of frost. Acoustic emissions must be taken into account, and a free air circuit provided for, when the installation location is being selected. Heat pumps without weather-proof protective covers in particular need to be installed outdoors in such a manner that the air outlet is not positioned against the main wind direction.
- A buffer tank connected in series is recommended for heat pump heating systems, to ensure the minimum heat pump runtime of 6 minutes for all operating statuses.
- The heat pump supplies a large part of the required heat output. An electric heating element (immersion heater) supplements the heat pump on days when the external temperature lies below the bivalence point. In mono energy systems, the contactor for the immersion heater (E10.1) must be set according to the output. It is controlled (230 V AC) by the heat pump manager via terminals X1/N and J13/NO4.
- The heat exchanger in the hot water cylinder must transfer the maximum heat output at the maximum heat source temperature. In systems with high hot water consumption (multiple dwellings, industrial applications) the cylinder must be set to the maximum peak demand while taking the shut-off times into account. The maximum heat output and the maximum heating water flow must be adhered to!
- The combination tank consists of a 100 l buffer tank and a 300 l hot water cylinder, which are hydraulically and thermally independent of one another. Not recommended for reversible heat pumps.

## Presettings:

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- The contactor for the flange heater (E9) in the hot water cylinder should be dimensioned according to the output and must be supplied by the customer. It is controlled (230 V AC) by the heat pump manager via terminals X1/N and J16/NO10. The maximum heat output of the heat pump and the water flow are to be observed.
- During silent cooling, the water temperature must always be kept above the dew point temperature. A room climate control station (RKS WPM) must be installed in a reference room so that the permissible flow temperature can be set based on the measured room temperature and air humidity. At vulnerable points of the cooling distribution system, additional dew point sensors can be used to interrupt cooling operation when condensate forms.
- The minimum heating water flow through the heat pump is maintained in all operating states by hydraulic decoupling of the generator circuits from the consumer circuit.

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## Legend:

1.	Heat Pump
1.1	Air-to-water heat pump
1.2	Brine-to-water heat pump
1.3	Water-to-water heat pump
1.4	Reversible air-to-water heat pump
1.5	Reversible brine-to-water heat pump
1.6	Reversible water-to-water heat pump
1.7	Air-to-water heat pump split design
10.	Heating circuit only
13.	Heat source
15.	Hydraulic tower
16.	Scalding protection
17.	Hydro tower HWK 332
2.	Heat pump manager
3.	Parallel buffer tank
3.1	Buffer tank
4.	Hot water cylinder
5.	Swimming pool heat exchanger
6.	Passive cooling station with cooling controller N6
7.	Heating and silent or dynamic cooling
8.	Fan convector with 4-wire connection
9.	Cooling circuit only

## Domestic hot water distribution system:

	In combination with EB KPV (up to 2.0 m <sup>3</sup> /h)*
DDV 25	Dual differential pressureless manifold (up to 2.0 m <sup>3</sup> /h)*
DDV 32	Dual differential pressureless manifold (up to 2.5 m <sup>3</sup> /h)*
EB KPV	Extension module for compact manifold (up to 2.0 m <sup>3</sup> /h)*
KPV 25	Compact manifold with overflow valve (up to 1.3 m <sup>3</sup> /h)*
MMB 25	Mixer module, bivalent (up to 2.0 m <sup>3</sup> /h)*
MMH 25	Mixer module for heating circuit
VTB 25	Manifold bar (up to 2.5 m <sup>3</sup> /h)*
WWM 25	Hot water module / unmixed heating circuit (up to 2.5 m <sup>3</sup> /h)*

## \* Recommended max. heating waterflow

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## Solarthermics:

SOLCU 1	Solar controller	M21	Mixer
SOLPU 1	Solar station	M22	Mixer heating/cooling circuit 2
SST 25	Solar station for hot water	M25	Circulating pump for heating and domestic hot water preparation
T1	Temperature sensor (collector sensor)	N1	Heating controller
T2	Temperature sensor (cylinder 1)	N12	Solar controller
T3	Temperature sensor (cylinder 2 /optional display function)	N17.1	Cooling module general
B3	Hot water thermostat	N17.2	Cooling module active
B4	Swimming pool thermostat	N17.3	Cooling module passive
B7	Thermostat primary circuit	N17.4	Solar module WPM Econ SOL
E10	2nd heat generator (HG2)	N2	Cooling controller for reversible heat pumps
E10.1	Immersion heater	N3	Room climate control stations
E10.2	Oil/gas boiler	R1	External wall sensor
E10.3	Solid fuel boiler	R11	Flow sensor for cooling water
E10.5	Solar energy system	R13	Sensor for heating circuit 3 / bivalent-renewable
E9	Flange heater, hot water	R2	Return flow sensor
F10	Flow rate switch	R3	Hot water sensor
F7	Safety temperature monitor	R4	Return flow sensor for cooling water
K20	Contactator for 2nd heat generator	R5	Temperature sensor for heating circuit 2
K21	Contactator for immersion heater hot water	R9	Flow sensor (antifreeze)
M11	Primary pump for heating operation	SMF	Dirt trap
M12	Primary pump for cooling operation	TC	Room temperature controller
M13	Heat circulating pump for main circuit	Y12	External 4-way reversing valve
M14	Heat circulating pump for heating circuit 1	Y13	Three-way reversing valve
M15	Heat circulating pump for heating circuit 2	Y5	Three-way distribution valve
M16	Auxiliary circulating pump	Y6	Two-way valve
M17	Cooling circulating pump	Y7	Three-way mixing valve
M18	Hot water circulating pump	Y8	Three-way valve (closing time max. 10 sec.)
M19	Swimming pool water circulating pump		
M20	Heat circulating pump heating /cooling circuit 3 still		

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