professional

Unical

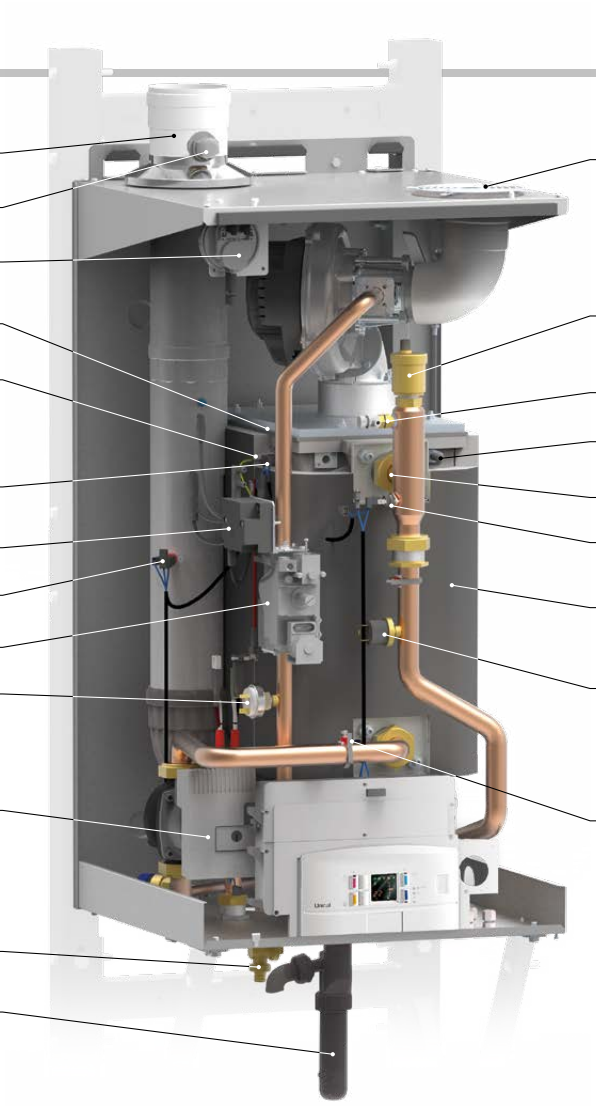
KON 100-115

KON 100-115

MODULATING CONDENSING BOILER WITH LOW NOx PREMIX BURNER FOR OUTDOOR INSTALLATION (IPX5D)		
OUTPUT RANGE	from 99.5 to 920 kW in battery (115kW x8)	
WORKING TEMPERATURE	No temperature limit on the return (max. Δt 20K) For outdoor installation in partially protected places: - 15C (with dedicated kits and protections)	
SUPPLY	Natural Gas or LPG	
MODELS	KON 100	KON 115
SEASONAL EFFICIENCY	**A**	**A**

Wall hung with optional dedicated supporting kit - **available in battery (up to 8 for a total of 920 kW)**
can be combined both with MIXING HEADER and with PLATE HEAT EXCHANGERS

MAIN COMPONENTS

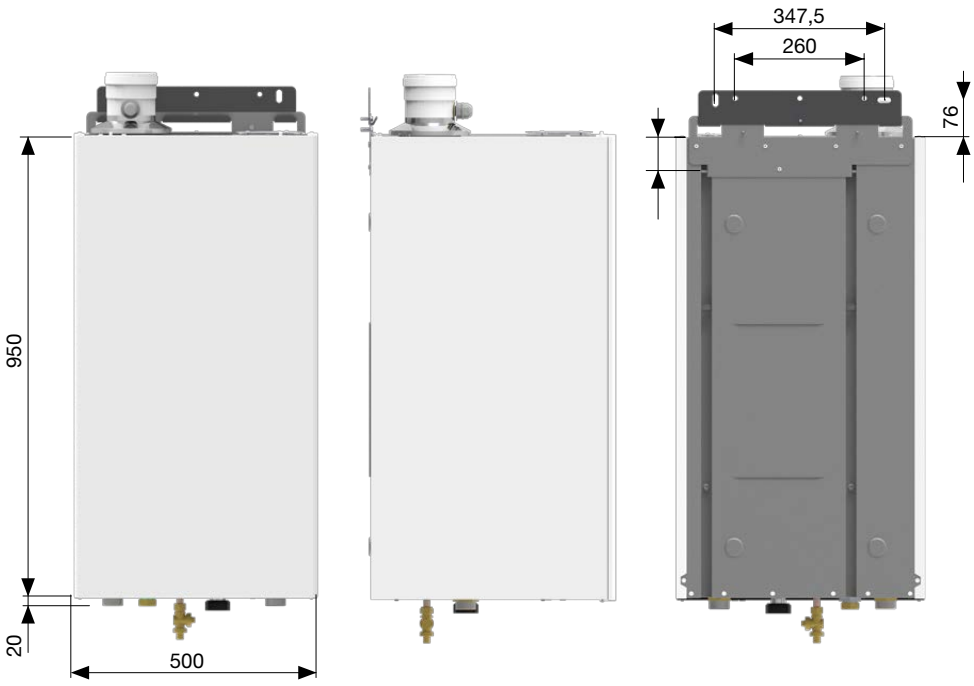


PRODUCT PLUS VALUES

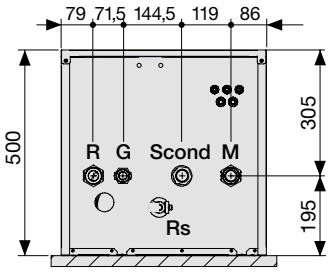
- **CERTIFICATION IN OUTPUT RANGE**
  it is possible to have the customization of the input
- **WALL HUNG** with metallic load bearing structure (optional)
- **COMPACTNESS:** dimensions (WxHxD): 50x95x48 cm
- **PERFORMANCES** ErP class A
- **EFFICIENCY**
  up to 108,8% (ex Directive 92/42)
  η_s=94% according to ErP Directive
- **EMISSIONS:** Low NOx Class 6
- **ISOLATION DEGREE IPX5D** can be installed outdoor in partially protected place (with antifreeze kit)
- **BODY STRUCTURE** with double furnace
- **BOILER BODY in Al/Si/Mg**
  low water content - 100% wet surfaces
- **EXCELLENT THERMAL EXCHANGE**
  Sophisticated cooling circuit with triple water circulation on 3 vertical columns
- **RELIABILITY**
  thanks to the optimized circulation that avoids thermal overcharges; heat exchanger carefully designed, high efficiency modulating pimp, NTC control sensors
- **SIMPLE CONSTRUCTION**
  for a quick and economic servicing
- **EFFICIENCY GUARANTEED FOR LONG TIME**
  thanks to the absence of scaling
- **ACCESSORIES (optional)**
  - PRIMARY RING, with MIXING HEADER / PLATE HEAT EXCHANGER
  - ADDITIONAL SAFETY DEVICES KIT
  - DIFFERENTIAL PRESSURE SWITCH with fittings
  - CONTROL PANEL BOARD HSCP
  - MULTI-FUNCTION MODULE SHC (for zones control)
  - NTC SENSOR FOR SHC MODUL
  - MULTI-FUNCTION MODULES FEEDER
  - PT1000 SENSOR for management of solar collectors
  - SIPHON HEATING KIT
  - KIT OF RESISTANCES FOR LOW TEMPERATURES
  - ACIDIC CONDENSATE INHIBITORS
- **EXPANDABLE IN CASCATE (up to 8 modules)**
- **GAS FEEDING PIPES available (optional)**
- **Available, on request, PLATE HEAT EXCHANGERS up to 4 modules in battery**

DIMENSIONS

FRONT VIEW **SIDE VIEW** **BACK VIEW** **VIEW FROM BELOW**



VIEW FROM ABOVE

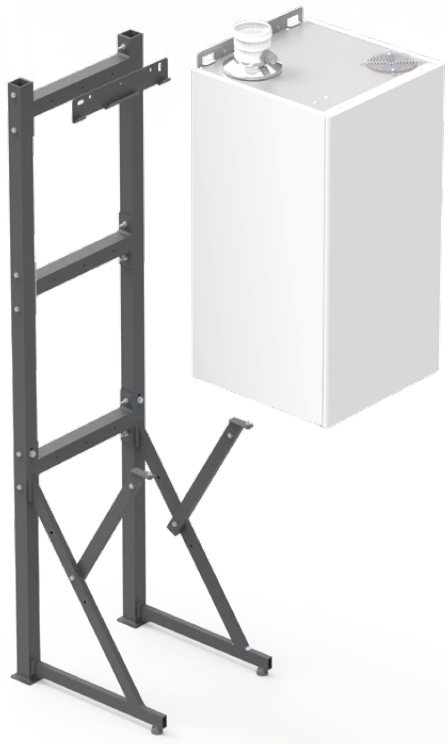


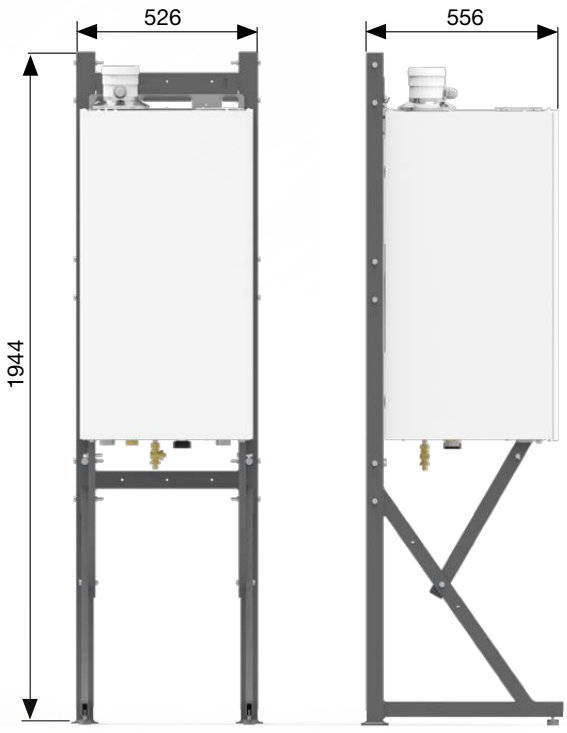
Key:

G - Gas inlet G1”
M - Mandata impianto riscaldamento G1 ¼”
R - Heating system return G1 ¼”
Rs - Boiler drain
Scond - Condensation drain Ø 32
S - Flue gas exaust Ø 100
A - Air intake Ø 80-100

KON	Net Weight kg	Gross Weight (with packaging) kg
100-115	96	120

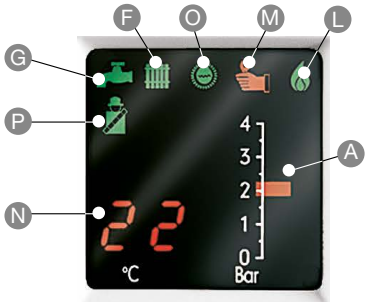
DIMENSIONS WITH SUPPORTING FRAME (optional)





CONTROL PANEL (std. supplied)

The panel board equipping the boiler allows the management of an heating circuit with fixed set-point



+/- Increase/decrease key
A Digital system pressure gauge (only for boilers equipped with pressure encoder)
B Central Heating adjustment key
C Domestic hot water adjustment key
D Reset /chimney-sweeper key
E Information display
F Led/Simbol Heating function active
G Led/Simbol Domestic hot water function active
I Block symbol
L Burner in operation symbol
M Fault symbol
N Temperature or fault code indication
O Power On indicator led
P Activation sweeper mode
Q Power supply
S Function key: Stand-by / Heating / Domestic hot water + Heating / Antifreeze protection

SHC - MULTI-FUNCTION MODULE - HEATING CIRCUITS MANAGEMENT (optional)

The board is designed as a multi-function support for heating systems. It should be considered part of a modular system joined by an **eBUS** or **Modbus** communication system.

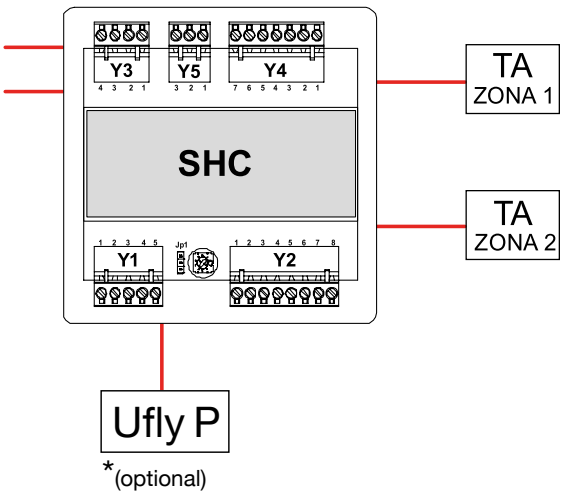
It is possible to control up to a maximum of 4 SHC printed circuit boards.

Its input and output resources make it suitable for a variety of applications:
1. Direct or mixed heating circuits
2. Domestic hot water with storage tank.
3. Domestic hot water with plate heat exchanger.
4. Domestic hot water with plate heat exchanger and mixing valve
5. Solar collector with tank.

The multi-function module interacts with the system like a user, whose demands must be met by a manager controller Ufly P, which is responsible for the running of the heat generator.

The multi-function module kit consists of:
- Panel
- NTC temperature sensor (3 pcs.)
- Technical assembly instructions

For further information consult the site www.unical.eu in the section Accessories of the product.



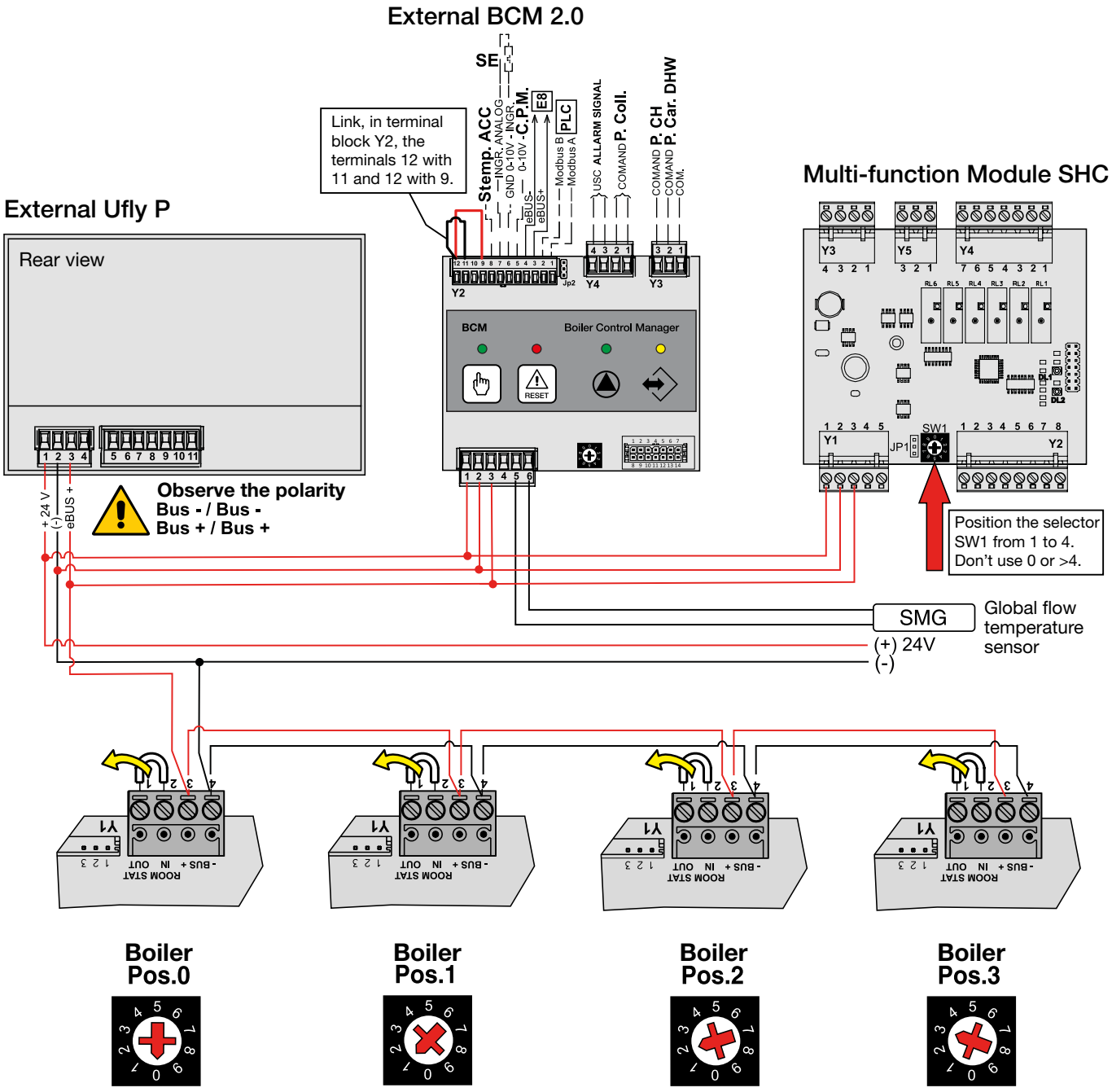
THERMAL MODULE IN CASCADE

The thermal Module KON 115 is foreseen, thanks to a convenient and dedicated series of accessories, to be assembled in cascade. The combinations can be from 2 to 8 modules for a maximum of 800 kW.

For the management of the battery it is necessary to use the **kit CONTROL MANAGER Ufly P** (supplied as an option). Here below the diagram showing the electrical connections for the battery.

For further information consult the manual on the site www.unical.eu in the section of the product.

EXTERNAL CONTROL PANEL KIT CONTROL MANAGER Ufly P

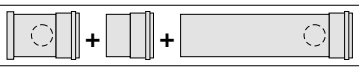
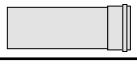


KON 115 IN BATTERY

Note: the boiler has a degree of electric isolation IPX5D and is certified also for outdoor installation in partially protected place, up to -15°C without need of additional protections; it is opportune, however, to insulate the external pipelines and protect from the atmospheric agents the kit according to its electric protection degree in outdoor installations; the same precautions are recommended for the condensate drains.

COMPOSITION OF BATTERY + PRIMARY RING	Q.TY of KON 100-115 IN BATTERY						
	2	3	4	5	6	7	8
KIT OF HYDRAULIC MANIFOLD FOR 2 MODULES	1						
KIT OF HYDRAULIC MANIFOLD FOR 3 MODULES		1					
KIT OF HYDRAULIC MANIFOLD FOR 4 MODULES			1				
KIT OF HYDRAULIC MANIFOLD FOR 5 MODULES				1			
KIT OF HYDRAULIC MANIFOLD FOR 6 MODULES					1		
KIT OF HYDRAULIC MANIFOLD FOR 7 MODULES						1	
KIT OF HYDRAULIC MANIFOLD FOR 8 MODULES							1
KIT OF ADDITIONAL SAFETY DEVICES	1	1	1	1	1	1	1
MIXING HEADER FOR 2 MODULES	1						
MIXING HEADER FOR 3 TO 8 MODULES		1	1	1	1	1	1
DIFFERENTIAL PRESSURE SWITCH	2	3	4	5	6	7	8
BOILER SUPPORT	2	3	4	5	6	7	8
KIT CONTROL MANAGER Ufly P made of: - cascade manager card BCM 2.0 - viewer / programmer Ufly P - power pack 24V - outdoor temperature sensor - D.H.W. temperature sensor	1	1	1	1	1	1	1
KIT OF GAS MANIFOLD for connection of a single boiler	1	1	1	1	1	1	1
KIT OF GAS MANIFOLD for connection of a cascade	1	2	3	4	5	6	7
U SHAPED GAS MANIFOLD				1	1	1	1

Smoke evacuation

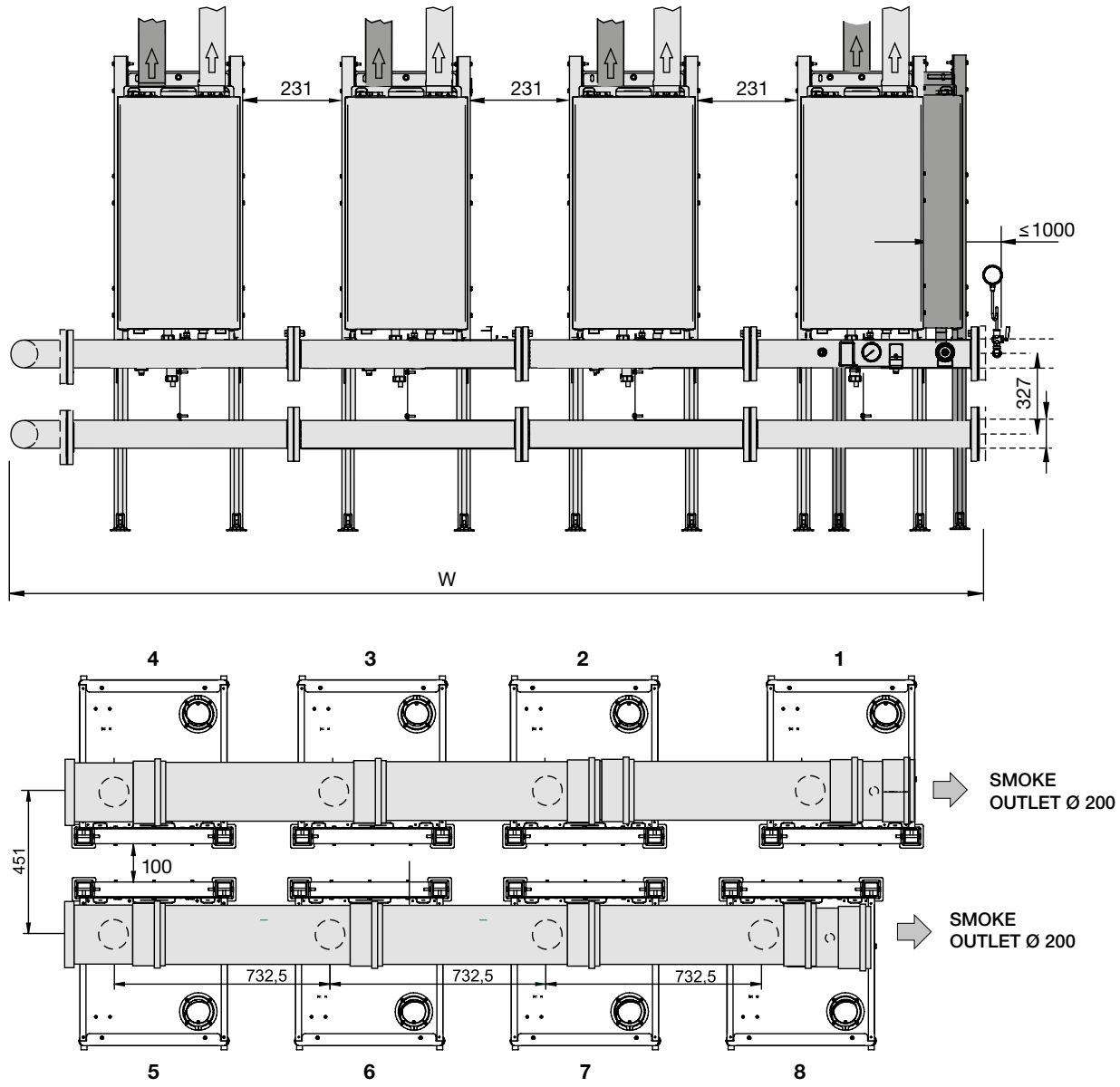
BASE KIT 	1	1	1	1	1	1	1
SIPHON 		1	2	2	3	6	5
OUTLET SIPHON 	1	1	1	2	2	2	2
SINGLE SMOKE MANIFOLD 				1	1	1	1
SMOKE PIPE EXTENSION Ø200 mm 				3	2	1	

NOTE. There are 2 flue exhaust channels that flow with 2 separate couplings in a single flue. If you want to connect the 2 smoke channels together, it is necessary to have a thermo-technician that calculates them with a special union collector not supplied. For information, refer to the "Battery Mounting Instruction" document at www.unical.eu.

Available in combination with PLATE EXCHANGERS

DIMENSIONS AND OPERATION DATA OF A BATTERY

BATTERY OF EIGHT KON 100-115 (4+4 ON THE OPPOSITE SIDE)



MODEL		Q.TY OF KON 100-115 IN A BATTERY													
		2 BOILERS		3 BOILERS		4 BOILERS		5 BOILERS		6 BOILERS		7 BOILERS		8 BOILERS	
		KON 100	KON 115	KON 100	KON 115	KON 100	KON 115	KON 100	KON 115	KON 100	KON 115	KON 100	KON 115	KON 100	KON 115
Minimum Input on N.C.V. Qmin	kW	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Nominal Input on N.C.V. Qn	kW	199	230	298.5	345	398	460	497.5	575	597	690	696.5	805	796	920
Nominal Output (60/80°C) Pn	kW	197.6	223	296.4	334.5	395.2	446	494.0	557.5	592.8	669	691.6	780.5	790.4	892
Nominal Output (30/50°C) Pcond	kW	210	240.6	315	360.9	420	481.2	525.0	601.5	630.0	721.8	735.0	842.1	840	962.4
W	mm	1460		2220		2920		3200		3200		3200		3200	

Warning: The flue ducts in plastic material (PPS) are suitable only for Indoor installations.

KIT CONTROL PANEL Ufly P (optional)

New and powerful interface for the simplified management of professional boilers

Ufly P can be inserted in the control panel, equipped with backlit TFT touch screen Display.
The thermoregulation functions allow the hourly weekly scheduling up to a maximum of 12 heating circuits completely independent and of a Domestic Hot Water storage tank (by means of optional SHC cards).

Ufly P checks the **BMM** (Burner Module Manager) for the management of the single thermal element. The regulation of the heating zones and, more generally, of all types of loads, is done through **optional multifunction cards**, called **SHC** (Slave Heating Controller) for the circuits CH, DHW and the auxiliary resources (timed relays, solar accumulators).

Telemanagement

Alternatively, there are available 2 different communication protocols: **eBUS** and **Modbus**, intended for connection to different control devices.

- Acquisition of operational information of all the connected devices
- Parameters Setting / Changing of each module
- Diagnostic management: alarm Acquisition and Reset
- Gateway: allows the conversion of the Modbus / eBUS protocol to access all resources connected to the local eBUS

Included: Outdoor temperature sensor

Mounted: Flow temperature sensor, return temperature sensor.

KIT CONTROL MANAGER Ufly P (optional)

Required to manage systems with up to 8 battery boilers.

Composed by:
- Viewer / Programmer Ufly P
- Cascade manager card BCM 2.0
- Power pack 24 V
- Outdoor temperature sensor
- D.H.W. temperature sensor


Ufly P

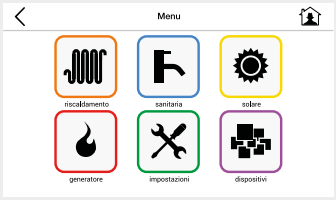

BCM 2.0


Alimentatore

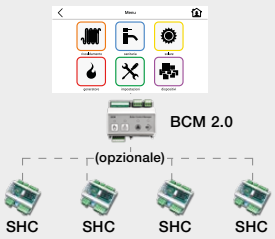

Sonda temp. esterna


Sonda temp. bollitore

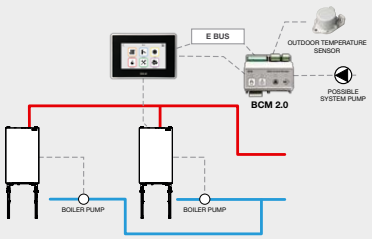
Ufly P/Thermoregulation dialogue window



SHC or Multifunction card installation manager



BCM 2.0 cascade manager card (up to 8 units)



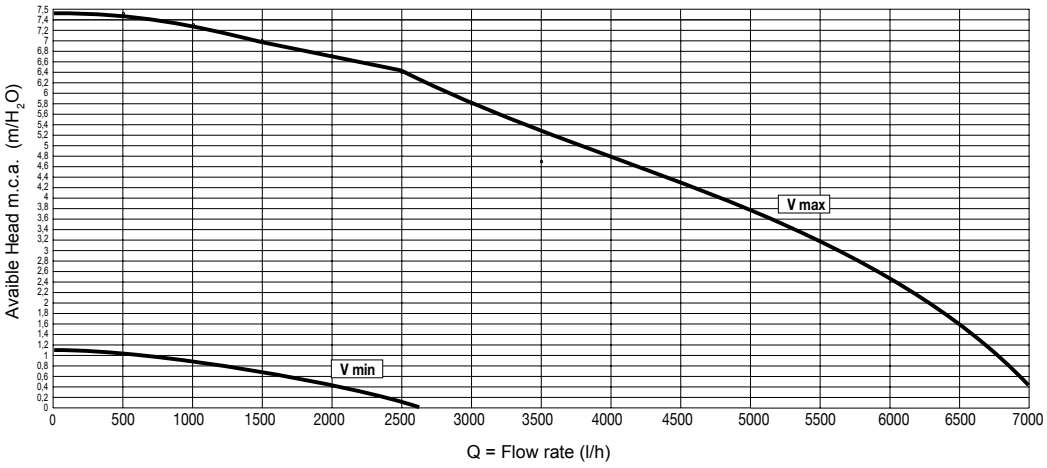
GATEWAY P

Ufly P is also an APP to conventionally manage, from your device (tablet and smartphone), via WIFI / LAN, programming, remote control and real-time notifications of any blockages or anomalies of the boiler, which can be connected **via "Gateway P"** (optional).

GATEWAY P: Remote control management for the Professional Unical Boilers.

Main functions
- LAN or WIFI connection
- APP for smart phone and tablet
- Remote managements of the heating circuits time program
- Alarm notification on the mobile device
- Visualisation of the status of boiler
- Series of free Software tool for monitoring and setting
- eBUS, Modbus RTU, connection
- 230/24 V power adapter for the other device installed (ex. SHC multifunctional module)

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION



The Δt between supply and return boiler must never be less than 15 ° K.

Note:
The use of a mixing header fitted between the boiler circuit and the system circuit is always advisable. It becomes INDISPENSABLE if the system requires flow rates superior to the maximum permitted boiler flow rates, which is to say lower than 20 K.

		KON 100	KON 115
Power supply	kW	99.5	115
Max flow rate demanded (Δt 15 K)	l/h	5700	6600
Nominal flow rate request (Δt 20 K)	l/h	4280	4950
Power supply in condensation (50/30)	kW	105	120,3
Max flow rate demanded (Δt 15 K)	l/h	6020	6897
Nominal flow rate request (Δt 20 K)	l/h	4520	5173

Approximate data

DATA ACCORDING TO ErP DIRECTIVE

			KON 100	KON 115
NOMINAL HEAT OUTPUT	P_n	kW	99	112
SEASONAL SPACE HEATING ENERGY EFFICIENCY	η_s	%	94	92
SEASONAL EFFICIENCY CLASS IN HEATING MODE			**A**	**A**
FOR CH ONLY AND COMBINATION BOILERS: USEFUL HEAT OUTPUT				
USEFUL HEAT OUTPUT in high temperature regime (Tr 60 °C / Tm 80 °C)	P_4	kW	98.8	111.5
USEFUL EFFICIENCY AT NOM. HEAT OUTPUT in high-temperature regime (Tr 60°C / Tm 80°C)	η_4	%	89.0	87.4
USEFUL HEAT OUTPUT AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30°C)	P_1	kW	32.2	37
USEFUL EFFICIENCY AT 30% OF NOM. HEAT OUTPUT in low-temperature regime (Tr 30 °C)	η_1	%	98.5	96.7
RANGE-RATED BOILER: YES / NO			NO	NO
AUXILIARY ELECTRICITY CONSUMPTION				
AT FULL LOAD	el_{max}	kW	0.289	0.314
AT PART LOAD	el_{min}	kW	0.156	0.160
IN STAND-BY MODE	P_{SB}	kW	0.018	0.028
OTHER ITEMS				
STAND-BY HEAT LOSS	P_{stby}	kW	0.641	0.642
EMISSIONS OF NITROGEN OXIDES referred to NCV & (GCV)	NO_x	mg/kWh	43 (39)	47 (42)
CONSUMPTION OF ANNUAL ELECTRICITY	Q_{HE}	GJ	301	349

TECHNICAL DATA

		KON 100	KON 115
Appliance category		II_{2H3P}	II_{2H3P}
Modulation Ratio		1:5.0	1:5.75
Nominal Heat Input on P.C.I. Qn	kW	99.5	115
Minimum Heat Input on P.C.I. Qmin	kW	20	20
Nominal Output (Tr 60 / Tm 80 °C) Pn	kW	98.8	111.5
Minimum Output (Tr 60 / Tm 80 °C) Pn min	kW	19.2	19.2
Nominal Output (Tr 30 / Tm 50 °C) Pcond	kW	105	120.3
Minimum Output (Tr 30 / Tm 50 °C) Pcond min	kW	21.75	21.75
Efficiency at max. output (Tr 60 / Tm 80°C)	%	98.81	97.1
Efficiency at min. output (Tr 60 / Tm 80°C)	%	95.90	95.90
Efficiency at max. output (Tr 30 / Tm 50°C)	%	105.03	104.6
Efficiency at min. output (Tr 30 / Tm 50°C)	%	108.77	108.77
Efficiency at 30% output (Tr 30°C)	%	109.3	107.27
Combustion efficiency with nominal load	%	98.05	97.7
Combustion efficiency with minimum load	%	98.28	98.28
Heat loss at casing with burner in operation (Qmin)	%	2.30	2.69
Heat loss at casing with burner in operation (Qn)	%	0.1	0.7
Flue gas temperature tf-ta (min)(*)	°C	35.0	36.0
Flue gas temperature tf-ta (max)(*)	°C	39.4	46.6
Maximum allowable temperature	°C	100	100
Maximum operating temperature	°C	85	85
Flue gas mass flow rate (min)	kg/h	37.71	34.31
Flue gas mass flow rate (max)	kg/h	163.59	184.6
Excess λ air	%	25.53	23
Flue losses with burner in operation (min)	%	1.72	1.87
Flue losses with burner in operation (max)	%	1.95	2.29
Minimum heating circuit pressure	bar	0.5	0.5
Maximum heating circuit pressure	bar	6	6
Water content	l	9	9
Gas Consumption Natural (20 mbar) gas G 20 a Qn	m^3/h	10.57	12.08
Gas Consumption Natural gas (20 mbar) G 20 a Qmin	m^3/h	2.11	2.11
Gas Consumption G25 (supply pressure 25 mbar) Qn	m^3/h	12.3	14.0
Gas Consumption G25 (supply pressure 25 mbar) Qmin	m^3/h	2.46	2.46
Gas Consumption G31 (supply pressure 37/50 mbar) Qn	kg/h	7.76	8.92
Gas Consumption G31 (supply pressure 37/50 mbar) Qmin	kg/h	1.55	1.55
Max. available pressure at the chimney base	Pa	150	150
Condensate production max	kg/h	8.46	8.46
Emissions			
CO at Minimum Heat Input with 0% of O_2	mg/kWh	140	147
NO_x at Nominal Heat Input with 0% of O_2	mg/kWh	31	34
NO_x Class		6	6
Electrical Data			
Voltage/Frequency electric power supply	V/Hz	230/50	230/50
Fuse on main supply	A (R)	4	4
Insulation degree	IP	X5D	X5D

Room Temperature = 20°C.

(*) Temperatures detected with the unit in operation (Tr 60 / Tm 80°C)

Seasonal Efficiency ηs according to Directive 2009/125/EC for Outputs < = 400 kW. See Erp Table

Standstill heat losses at Δt 30K – P_{stby} – See Erp Table

Standstill electrical consumption – P_{sb} – See Erp Table

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.unical.eu at the page of the product

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