Pioneering for You

HVAC OEM Competence Centre

Wilo-Para **-***/7-50/iPWM or LIN
Datasheet

wilo

Heating

Wilo-Para **-***/7-50/iPWM or LIN

iPWM LIN

Field of application

Heating

Para 15-130/7-50/iPWM1-12	
WILO	**High Efficiency pump for heating application**
_	Inline cast iron pump housing
15	Threaded connection DN 15 (25, 30: also available)
130	Pump housing length 130 (180: also available)
7	7,7 = delivery head in [m] at Q = 0 m^3/h
50	Max power consumption
iPWM1 / LIN	The pump is controlled by an external signal PWM1, **i**=feedback signal or LIN bus
12	Control box orientation 12 o'clock (3, 6, 9 o'clock: also available)

Approved fluids (other fluids on request)	Heating water (in accordance with VDI 2035) Water-glycol mixtures (max. 1:1; above 20% admixture, the pumping data must be checked)

Power

Energy Efficiency Index (EEI)	≤ 0.20
Max. delivery head	7,6 m
Max. volume flow	3,5 m^3/h

Permitted field of application

Temperature range for applications in HVAC systems at max. ambient temperature. Limit values for continuous operation at maximum rated power	Of 58°C = 0 to 100°C Of 62°C = 0 to 90°C Of 66°C = 0 to 80°C Of 71°C = 0 to 70°C
Maximum static pressure	PN10

Electrical connection

Mains connection	1~230 V +10%/-15%, 50/60 Hz (IEC 60038 standard voltage)

Motor/electronics

Low voltage directive	2014/95/EC Conform
Electromagnetic compatibility	EN 61800-3
Emitted interference	EN 61000-6-3 EN 61000-6-4
Interference resistance	EN 61000-6-2 EN 61000-6-1
Protection class	IPx4D
Insulation class	F
RoHS / REACH	Compliant but not submitted

Minimum suction head at suction port to avoid cavitation at water pumping temperature

Minimum suction head at 50/95°C	0.5/4.5 m

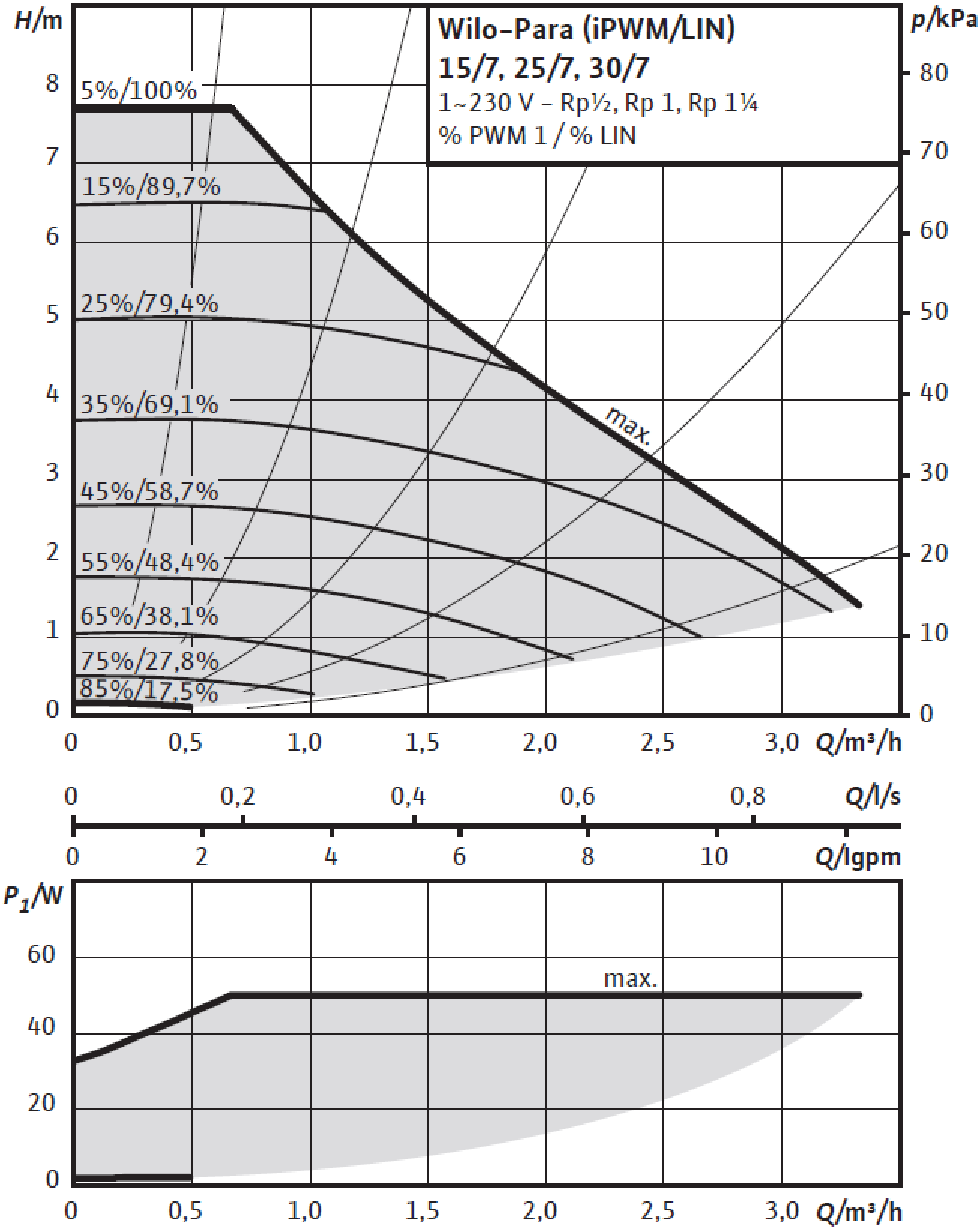
Motor data

Para	Speed	Power consumption 1-230 V	Current at 1-230 V	Motor protection
	n	P1	I	-
	rpm	W	A	-
**/7 iPWM	700 - 4700	1.8-50	0.02-0.44	Integrated

Materials

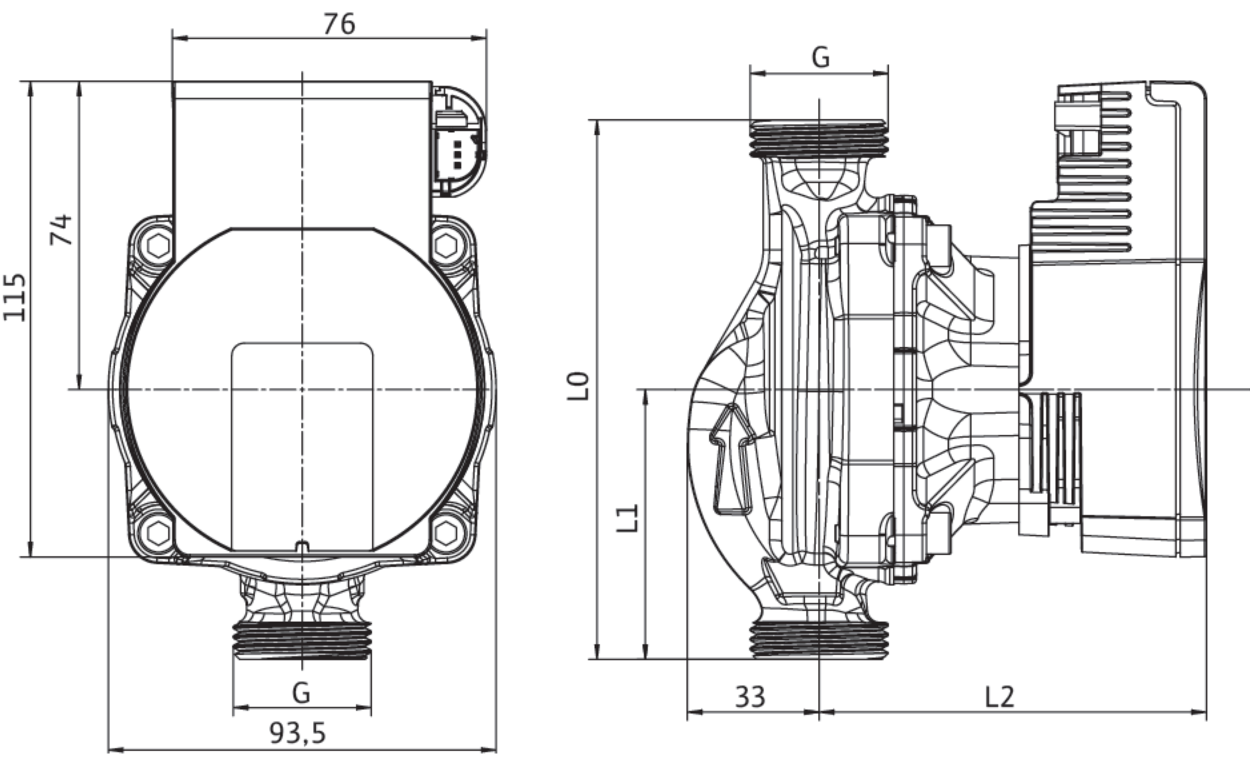
Para	Pump housing	Impeller	Pump shaft	Bearing
**/7 iPWM	Cast iron with cataphoresis treatment	PP composite with GF 40%	Stainless steel	Carbon, metal impregnated

Hydraulic operational area



Dimensions

Heating



Technical data			
Designation	Para 15-130/6-43/iPWM1	Para 15-130/7-50/iPWM1	Para 15-130/8-75/SC
Threaded pipe union	Rp ½		
Thread	G 1		
Overall length l_0	130 mm		
Dimensions $L1$	65mm		
Dimensions $L2$	94mm		105mm
Weight approx. m	1.54 kg		1.7 kg

Technical data						
Designation	Para 25-130/ 6-43/iPWM1	Para 25-180/ 6-43/iPWM1	Para 25-130/ 7-50/iPWM1	Para 25-180/ 7-50/iPWM1	Para 25-130/ 8-75/iPWM2	Para 25-180/ 8-75/iPWM2
Threaded pipe union	Rp 1					
Thread	G ½					
Overall length l_0	130 mm	180 mm	130 mm	180 mm	130 mm	180 mm
Dimensions $L1$	65mm	90mm	65mm	90mm	65mm	90mm
Dimensions $L2$	94mm				105mm	
Weight approx. m	1.66 kg	1.78 kg	1.66 kg	1.78 kg	1.8 kg	2 kg

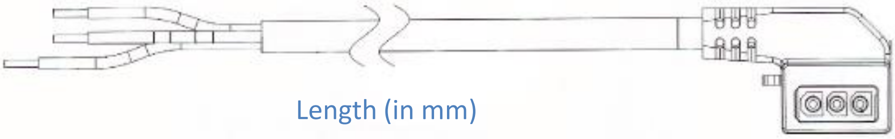
Technical data			
Designation	Para 30-180/6-43/iPWM1	Para 30-180/7-50/iPWM1	Para 30-180/8-75/iPWM1
Threaded pipe union	Rp 1¼		
Thread	G 2		
Overall length l_0	180 mm		
Dimensions $L1$	90mm		
Dimensions $L2$	94mm		105mm
Weight approx. m	1.96 kg		2.1 kg

Electrical Power connections

Heating

Integrated Molex 3-way connector

Accessories power cable



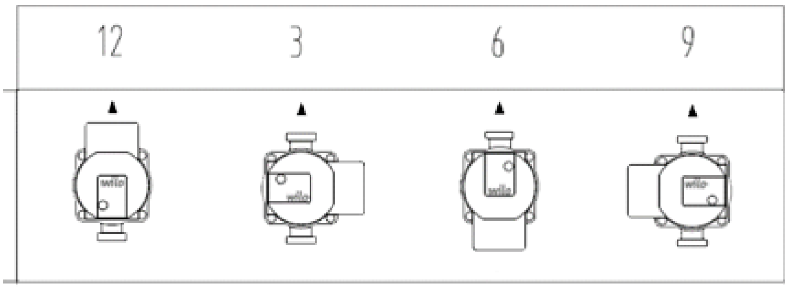
Available mains cables			
Overmoulded power connector with brass end splices and type Facon PR260 on terminal box side (deconnection possible)	cable length 500mm	4530966	**Not assembled**
	cable length 1000mm	4524578	
	cable length 1500mm	4530763	
	cable length 2000mm	4527857	

Molex 3 ways

WS8

Electrical Box orientation

▲ Flow direction

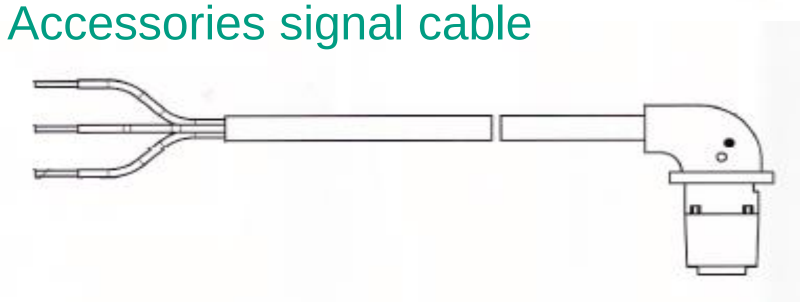


Electrical Signal connections

Heating

Front signal connection

Accessories signal cable



iPWM

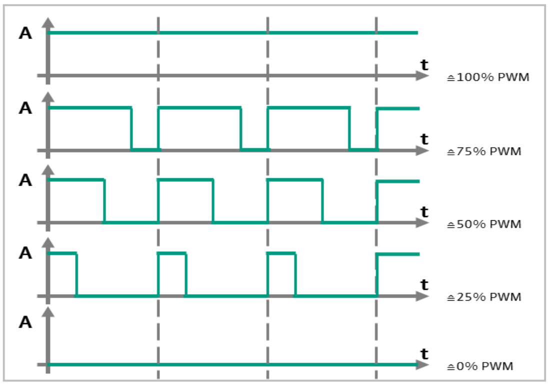
Available mains cables

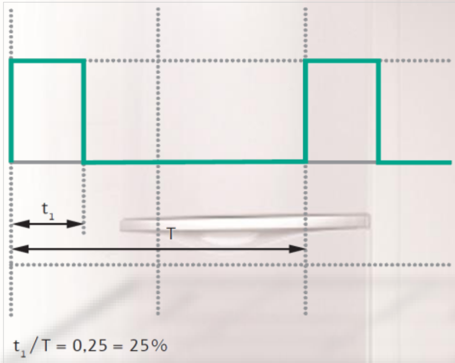
Overmoulded signal connector with brass end splices and type Facon PR72 (3 wires) on terminal box side (deconnection possible)	cable length 500mm	4530965	**Not assembled**
	cable length 1000mm	4530663	
	cable length 1500mm	4530764	
	cable length 2000mm	4530664	

Heating

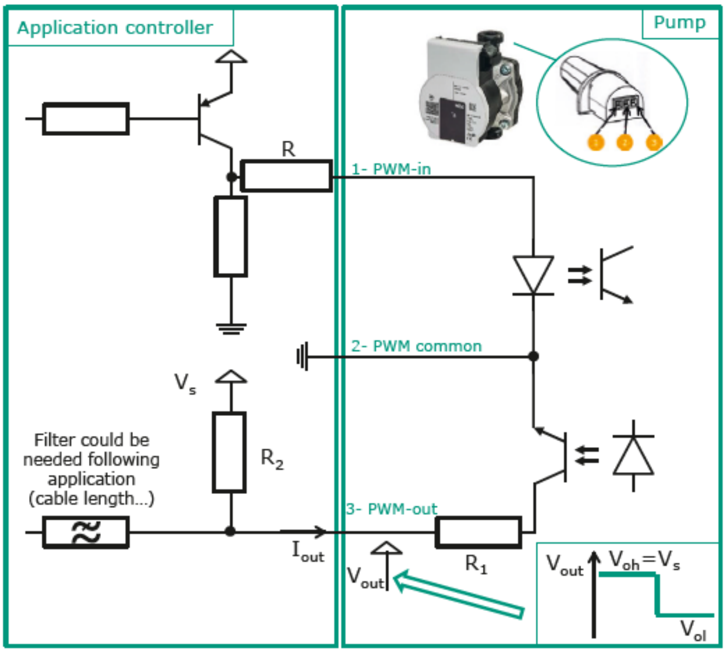
External control via a iPWM system

The actual / setpoint level assessment required for control is referred to a remote controller. The remote controller sends a PWM signal as an actuating variable to the Wilo-Para. The PWM signal generator gives a periodic pulse order to the pump (the duty cycle) according to DIN IEC 60469-1. The actuating variable is determined by the ratio between pulse duration and pulse period. The duty cycle is defined as a ratio without dimension, with a value of 0 … 1 or 0 … 100 %. This is explained in the following with ideal pulses which form a rectangular wave.





iPWM interface

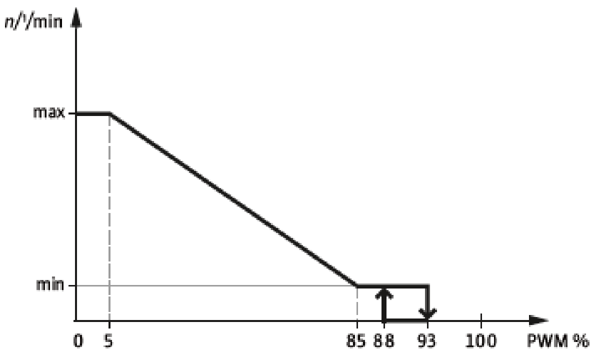


PWM-in	
Signal frequency:	100 Hz–5000 Hz (1000 Hz nominal)
Signal amplitude:	Minimum 3.6 V at 3 mA Up to 24 V for 7.5 mA absorbed by the pump interface
Output resistance [R]:	> 50 Ω (100 Ω nominal).
PWM-in :	> 50 Ω (100 Ω nominal)
PWM-out	
Vs	3 V≤V s≤24 V
R2	(V s–0,2)/Iout–R1
R2C **C=filter capacitor**	≤ 1 1000 x ln(0.3) x 75 for rise time impact < 0.1 %
Signal frequency:	75 Hz +/- 2 Hz
R1	470 W +/-5 %
Vol =Vout low	<1 V for Iout<1 mA

Signal polarity:	yes

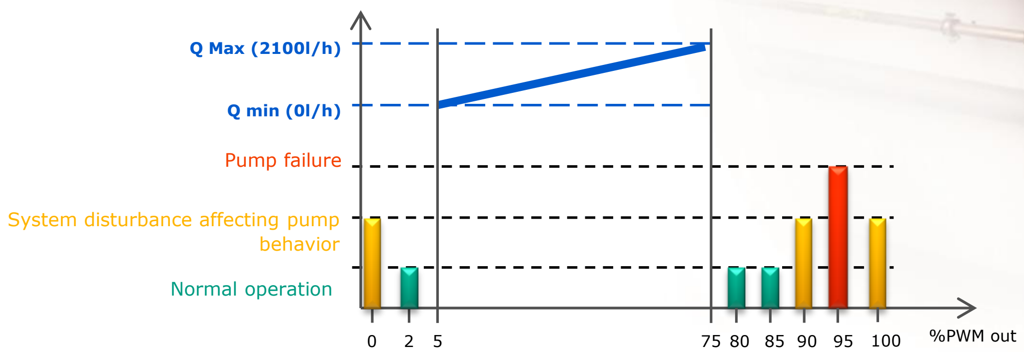
iPWM-in signal logic 1 (heating) (%)

iPWM signal logic 1 (heating) (%):



< 5	Pump runs at maximum speed
5-85	Pump speed decreases linearly from maximum to minimum
85-93	Pump runs at minimum speed (operation)
85-88	Pump runs at minimum speed (start-up)
93-100	Pump stops (Standby)

iPWM-out signal logic (heating) (%)



% PWM-out	Status	Potential causes
0	Pump output iPWM interface damaged	iPWM interface in short circuit
2	Stand-by, pump is ready to run	/
5-75	Pump is running normally, flow information is supplied	/
80	Abnormal running mode Pump is running but not at optimal performance	- Undervoltage 160/170-194V - Self thermal protecting mode
85	Abnormal function mode Pump has stopped but is still functional	- Undervoltage <160/170V - Overvoltage - Unexpected external flow
90	Abnormal function mode Pump has stopped but is still functional Check the installation setup and medium	- Failure on another component than pump - Debris in the installation - Bad temperature setup
95	The pump has stopped due to permanent failure	- Pump blocked - Electronic module out of order
100	Problem of iPWM connection	iPWM interface in open circuit

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