

Version of 02/03/2023

WK 6000

Power Measurement Station





Universal power supply



Hot-swappable plug in and out



ModBus RTU

Presentation

The WK 6000 measures and converts every electrical magnitudes (voltage, current, power …) on all kind of power transmission network (single phase, balanced three-wire, unbalanced three-wire, balanced four wire, unbalanced four-wire).

The WK 6000 power measurement station have a bidirectional RS485 MODBUS digital link allowing to configure and control the power measurement station and to retrieve all the measurements in digital. This digital link is available on the connector block.

The WK 6000 has a USB interface on the front to connect the transmitter via a mini USB/USB cord to a PC.

WK 6000 is guaranteed **5 years**

Range

Transmitter without graphic display	**Inputs (monophasic or triphasic)**		**Outputs**			**Communication**			**Case Width (mm)**
			Number of current	Number of Impulse	Number of Relay				
	Alternating voltage	Alternating current	3	2	2	Modbus RTU/ USB	Modbus TCP	MQTT	45
WK 6000TS	✓	✓				✓			✓
WK 6000TU	✓	✓	✓	✓	✓	✓			✓
WK 6000IS	✓	✓				✓	✓		✓
WK 6000MUX	✓	✓				✓	✓	✓	✓

Factory Settings

Common WK settings

Main Power inputs	**Network Type**	**Integration time**	**Frequency measurement on**
	4 unbalanced wires	10min	U
Voltage input	**Calibre**	**external VT**	**Cut-off**
	700V	without	10V
Current input	**Primary**	**Secondary**	**Cut-off**
	5A	5A	0.150 A

Communication speed: 38400 bauds, Slave address: n°1

Communication settings for WK 6000IS and WK 6000MUX

Communication	**MODBUS/TCP**		
	IP Address	Port	Netmask
	192.168.1.253	502	255.255.255.0
	MQTT		
	MQTT broker to join	Security protocol	DNS server
	mqtt1.everblix.fr : 31886	TLS	8.8.8.8 / 8.8.4.4

Output settings for WK 6000TU

	Number	**Calibre**	**Assigned to**
Analog outputs	3	0-20mA	Not affected
Implulse outputs	0	-	Not affected
Relays (2 RT)	2	-	Not affected

Other settings on demand

Inputs - Outputs

Input gauges

Current (alternating)	Standard scales: 0-5A ; 0-1A
Voltage (alternating)	Standard scales: 0-100V ; 0-250V ; 0-500V ; 0-700V
CT Ratio	TI: Primary from 1 to 9999A ; secondary 5A or 1A
VT Ratio	TP: Primary from 1 to 100000V ; secondary from 1 to 700V

Output gauges

Output Current	0-20mA ; 4-20mA ; 0-10mA ; 0-5mA
Output Impulse	Open collector Umin=10Vdc / Umax=250Vdc / Imax=400mA / Pmax=350mW
Output Relay	1T: 2A-250Vac
Communication	Isolated USB in Front Panel / isolated RS485 Modbus RTU WK 6000IS : RJ45, Modbus TCP/IP WK 6000MUX : RJ45, Modbus TCP/IP, MQTT

Available measurements

Primary measures	Number	Primary measures	Number
Voltage between phases	3	Frequency	3
Average voltage between phases	1	Cos phi per phase	3
Voltage between phase and neutral	3	Average Cos phi	1
Line current	3	Tangent phi	1
Neutral current	1	Phase angle	1
Average current	1		
Power measures	**Number**	**Power measures**	**Number**
Total active power	1	Average reactive power IN	1
Reactive power per phase	3	Average reactive power OUT	1
Total reactive power	1	Maximum active power IN	1
Apparent power per phase	3	Maximum active power OUT	1
Total apparent power	1	Maximum reactive power IN	1
Average active power IN	1	Maximum reactive power OUT	1
Average active power OUT	1		
Energy measures	**Number**	**Energy measures**	**Number**
Active energy IN	1	Active energy OUT	1
Reactive energy IN	1	Reactive energy OUT	1
Apparent energy IN	1	Apparent energy OUT	1

Characteristics

Current input characteristics	
Current input impedance	5mΩ
Type of measure	on CT
Permissible overload	50A maximum during 1s
Minimum measurable signal	50mA
Maximum measurable signal	2.5A on the calibre 0-1A / 7A on the calibre 0-5A
Cut-off	Programmable from 0 to 1.00A
Voltage input characteristics	
Voltage input Impedance	>16MΩ
Permissible overload	1000V permanent
Minimum measurable signal	2V
Minimum measurable signal	150V calibre 0-100V ; 340V calibre 0-250V ; 600V sur calibre 0-500V ; 750V calibre 0-700V
Cut-off	Programmable from 0 to 50V
Output characteristics	
Permissible impedance on the current output	<1kΩ
Isolation	
Supply / Input-(Outputs)-RS485-USB-(RJ45)	4200Vrms, 50Hz, 1mn
Input / (Outputs) / RS485 / USB	2500Vrms, 50Hz, 1mn
Input / RJ45	Without
Input x / Input y	Without
Output x / Output y	Without
Auxiliary source	
Voltage supply	22-240Vdc or 90-230Vac 50/60Hz

General characteristics	
Precision class of primary values (I,U,F)	0.5
Precision class of composed values (I,U,F)	0.5
Response time	<300ms
Time and delay for WK XXXXMUX	• Delay between MQTT message : Programmable from 3s to 60h • Modbus TCP response time : <160ms • Delay between Modbus TCP request : >250ms • Modbus TCP response time (gateway mode) : <210ms • Delay between Modbus TCP request (gateway mode) : >370ms
Integration time	Programmable from 0 to 99 minutes
Thermal drift	<100ppm
Residual ripple on current output	<20µA
True RMS measurement	Up to rank 11
Sampling frequency	2000Hz per phase
Maximum of consumption	<8VA
Operating temperature	-25°C … +60°C
Storage temperature	-40°C … +80°C
Protection factor	IP20 Black self-extinguishing polyamide housing V0

Options listing

Option	Device code
Tropicalization for the 45mm case	WK 6000XX-T
Auxiliary source 20-60Vac	WK 6009XX

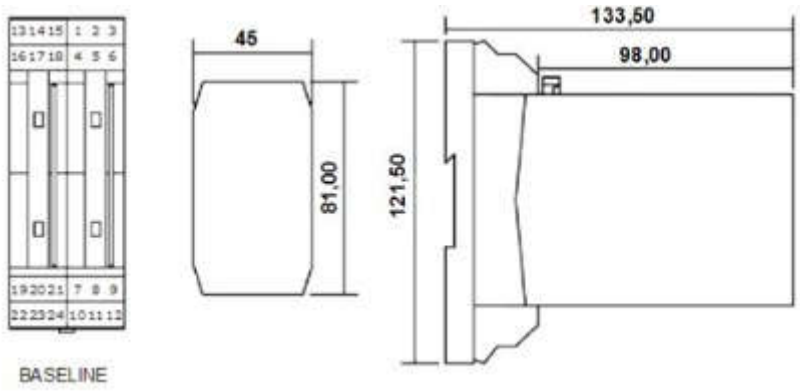
Functions

Display functions	
LED indicators	1 green LED on devices without display
Programming	Programming via USB with **IXLOG** software
Memory Mini / Maxi	Storage of the maximum and minimum value of the measurement on each input channel
Input	
Input display	The display allows to visualize the input in physical value and in programmed value
Cut-off	Threshold below which the input is considered as null
Smart functions	
Filtering	Integration of the measurement over the defined time (in seconds)
Outputs	
Outputs assignment	Assignment of the analog outputs to defined electrical parameters
Adjustable output scale	Allows you to zoom in on the outputs
Relays assignment	Assignment of relays to define electrical parameters, independently for each of the input channels
Thresholds	Single or band mode, with positive or negative safety Adjustment of thresholds, hysteresis and time delay (independent on rise or fall) Direct access to the thresholds
Acknowledgement of alarms	Independently for each alarm
Storage of alarms and/or relay status	Independently for each alarm

Links and communication	
RS485 MODBUS RTU	RS485 MODBUS RTU bidirectional digital link allowing to: • recover the measurements and transmit them in digital format • configure and control the device
MODBUS TCP	For the WK6000IS and the WK 6000MUX: Bidirectional link via the RJ45 port allowing to: • recover measurements and transmit them in digital format • configure and control the device • make a Modbus-TCP-Modbus RTU gateway to communicate with other JM devices on the same RS485 bus as the XXX
MQTT	For the WK 6000MUX: Bidirectionnal MQTT link via the RJ45 port allowing to send measures to a distant Broker MQTT.
Digital bus	Access to the digital bus via the USB socket (when transmitters are used on the interface boards)
USB front	USB front panel to connect directly to the USB port of a PC for programming via the **IXLOG** software
Mapping of Modbus addresses	Mapping of Modbus addresses, allowing you to choose your own variable address

Dimensions and wiring

Dimensions



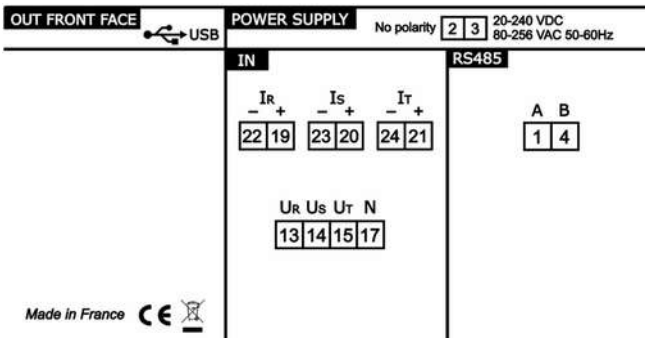
Dimensions: width: 45mm - Height: 81 mm - Depth: 98 mm

The BASELINE board is sold with the WK 6000
The BASELINE board reference with the short-circuiting auto contacts is the BL02WLV

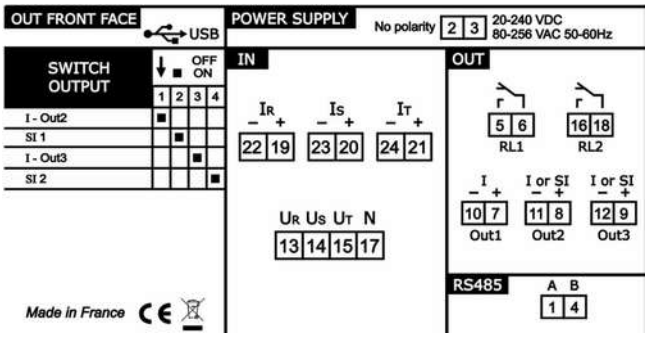
Wiring

Consult the user manual to select the connection diagram of the equipment corresponding to the type of network to be measured.

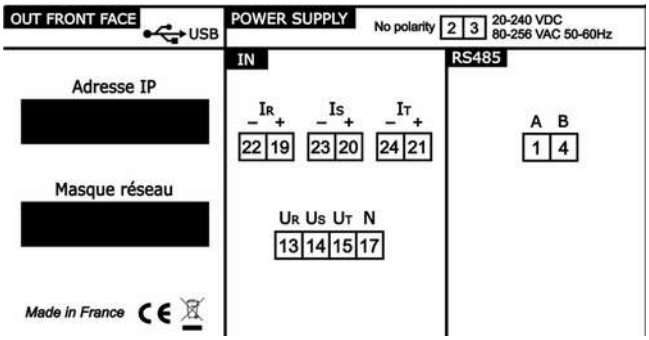
WK 6000TS



WK 6000TU



WK 6000IS



WK 6000MUX

