



**JM Concept**  
une vision d'avance

total universality  
global solution

Analogue transmitters | Loop Isolators  
Digital transmitters | Digital threshold | Wiring bases  
Interfaces | Digital panel meters | Power and energy



**JM Concept** is a French firm founded in 1992 specialized in conception and manufacturing of devices allowing measuring, conversion and transmission of process analogue signals, temperature and electrical values.

Its main customer's works in such various fields of environmental protection industry, railway, water treatment, power plant (hydraulic and nuclear), agribusiness, chemical and petrochemical industry and industrial machinery manufacture.



## CONTENTS

2/5

### CHOICE GUIDE

6/21

### TELIS

22/27

### REDUNDANCY

28/47

ANALOG TRANSMITTERS

### JKA

48/53

### WIRING BASES

54/59

DIGITAL PANEL METER

### AKP-AKU

60/65

POWER-ENERGY TRANSDUCERS

### WK

66/67

### PROGRAMMATION TOOLS

69

### INTERNATIONAL RULES CONFORMITY

## CHOICE GUIDE FOR DC INPUT

PROGRAMMABLE DIGITAL TRANSMITTERS ON FRONT PLATE  
AND WITH USB (VIA USB LINE)

References	INPUT									OUTPUTS								Programming		Case width		Pages		
	1 input	2 inputs mA	2 inputs calculation function	Current / tension	0-200V	0-4-20mA	Potentiometer	resistor /PT100/ PT1000/Ni100/Ni1000	Thermocouple	1 analogue	2 analogue	2 NOT isolated analogue	1 relay	2 relays	3 relays	4 relays	RS485	Digital front face USB	Front face	usb	RS485		22,5mm	45mm
TELIS9000S2	●	●	●	●	●	●	●	●	●			●						●	●	●	●	●		16/21
TELIS9000U0	●	●	●	●	●	●	●	●	●								●	●	●	●	●	●		6/15
TELIS9000U1	●	●	●	●	●	●	●	●	●	●								●	●	●	●	●		6/15
TELIS9000U2	●	●	●	●	●	●	●	●	●		●						●	●	●	●	●	●		6/15
TELIS9100U0	●	●	●	●	●	●	●	●	●				●				●	●	●	●	●	●		6/15
TELIS9150U1	●	●	●	●	●	●	●	●	●	●			●				●	●	●	●	●	●		6/15
TELIS9250U0	●	●	●	●	●	●	●	●	●					●			●	●	●	●	●	●		6/15
TELIS9200S2	●	●	●	●	●	●	●	●	●			●		●				●	●	●	●	●		16/21
TELIS9200U0	●	●	●	●	●	●	●	●	●					●			●	●	●	●	●		●	6/15
TELIS9200U1	●	●	●	●	●	●	●	●	●	●				●			●	●	●	●	●		●	6/15
TELIS9200U2	●	●	●	●	●	●	●	●	●		●			●			●	●	●	●	●		●	6/15
TELIS9300U0	●	●	●	●	●	●	●	●	●						●		●	●	●	●	●		●	6/15
TELIS9300U1	●	●	●	●	●	●	●	●	●	●					●			●	●	●	●		●	6/15
TELIS9400U0	●	●	●	●	●	●	●	●	●							●	●	●	●	●	●		●	6/15
TELIS9400U1	●	●	●	●	●	●	●	●	●	●						●	●	●	●	●	●		●	6/15
TELIS9400U2	●	●	●	●	●	●	●	●	●		●					●	●	●	●	●	●		●	6/15



## PROGRAMMABLE DIGITAL TRANSMITTERS WITH USB (VIA USB LINE) WITHOUT DISPLAY

References	INPUT								OUTPUTS							Programming		Case width		Pages	
	1 input	2 inputs mA	2 inputs calculation function	Current / tension	0-200V	0-4-20mA	Potentiometer	Thermocouple resistor/PT100/ PT1000/Ni100/Ni1000	1 analogue	2 analogue	1 relay	2 relays	3 relays	4 relays	RS485	Digital front face USB	Front face	usb	RS485		22,5mm
TELIS9000T0	●	●	●	●	●	●	●	●							●	●		●	●	●	
TELIS9000T1	●	●	●	●	●	●	●	●	●						●	●		●	●	●	
TELIS9000T2	●	●	●	●	●	●	●	●		●						●		●	●	●	
TELIS9100T0	●	●	●	●	●	●	●	●			●				●	●		●	●	●	
TELIS9150T1	●	●	●	●	●	●	●	●	●		●					●		●	●	●	
TELIS9250T0	●	●	●	●	●	●	●	●				●			●	●		●	●	●	
TELIS9200T0	●	●	●	●	●	●	●	●				●			●	●		●	●		●
TELIS9200T1	●	●	●	●	●	●	●	●	●			●			●	●		●	●	●	
TELIS9200T2	●	●	●	●	●	●	●	●		●		●			●	●		●	●		●
TELIS9300T0	●	●	●	●	●	●	●	●					●		●	●		●	●		●
TELIS9300T1	●	●	●	●	●	●	●	●	●				●		●	●		●	●		●
TELIS9400T0	●	●	●	●	●	●	●	●						●	●	●		●	●		●
TELIS9400T1	●	●	●	●	●	●	●	●	●					●	●	●		●	●		●
TELIS9400T2	●	●	●	●	●	●	●	●		●				●	●	●		●	●		●



## ANALOGUE TRANSMITTERS

References	INPUT				OUTPUTS		Setting		Case width		Pages
	1 input	2 inputs mA	Current / tension	0...4-20mA	Potentiometer	1 analogue	2 analogue	Front face	With potentiometer	Auxiliary supply	
JK2001	•			•		•				•	40/41
JK2002		•		•			•			•	40/41
JK0030A1	•			•		•		•	•	•	28/31
JK3000A1	•		•			•		•	•	•	32/35
JK3000A2	•		•				•	•	•	•	32/35
JK7000A1	•				•	•		•	•	•	36/39
JK7000A2	•				•		•	•	•	•	36/39



## CHOICE GUIDE FOR DIGITAL PANEL METERS

References	INPUT							OUTPUTS				Programming	Case width	Pages
	1 input	Current / tension	0-200V	0-4-20mA	Potentiometer	Pt100	Thermocouple	1 analogue	2 analogue	2 relays	4 relays	RS485		
AK3000P0	•	•	•	•	•	•						•	•	54/59
AK3000P1	•	•	•	•	•	•		•				•	•	54/59
AK3200P0	•	•	•	•	•	•				•		•	•	54/59
AK3200P1	•	•	•	•	•	•		•		•		•	•	54/59
AK9000U1	•	•	•	•	•	•	•	•				•	•	54/59
AK9200U1	•	•	•	•	•	•	•	•		•		•	•	54/59
AK9400U1	•	•	•	•	•	•	•	•			•	•	•	54/59
AK9400U2	•	•	•	•	•	•	•		•		•	•	•	54/59



## CHOICE GUIDE FOR AC INPUT

Range	References	INPUT							OUTPUTS					Programming and/or adjustment		Case width		Pages		
		Current with self short circuit base	Tension	Frequency	Phase angle / Cos Phi	Power	Energy	1 analogue	2 analogue	3 analogue	2 pulse	1 relay	2 relays	Digital front face USB	Front face	usb	With potentiometer		RS485	22.5mm
Digital transmitters	TELIS6000U0	•	•										•	•	•		•	•		
	TELIS6000U1	•	•					•					•	•	•		•	•		
	TELIS6000U2	•	•						•				•	•	•		•	•		
	TELIS6100U1	•	•					•			•		•	•	•		•	•		
	TELIS6000T0	•	•										•		•		•	•		
	TELIS6000T1	•	•					•					•		•		•	•		
	TELIS6000T2	•	•						•				•		•		•	•		
	TELIS6100T1	•	•					•			•		•		•		•	•		
Power & energy transducers	WK6000TS	•	•	•	•	•	•						•		•		•		•	60/65
	WK6000TU	•	•	•	•	•	•	•	•	•		•	•		•		•		•	60/65
Analogue transmitters	JK6010A1	•						•						•		•		•		44/47



# TELIS

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



TELIS reinvents measure conversion and transmission :

- Its graphic screen display, and its joystick make user-friendly and easily programmable device.
- Its USB front face plug enables a very simple programming with PC.
- Its cutting edge technology allows **TELIS** to have exceptional characteristics.
- Its input and output configurations, fitted to market, allow to give solutions to all applications.
- Its double current input design allows **TELIS** to become a double transmitter in one device.
- **TELIS** is designed in JM concept case unpluggable from its DIN RAIL wiring base.
- **TELIS** is able to reduce its consumption up to 50% and contributes to energy saving and environment protection.

**TELIS** can be used as one input configuration transmitter, or two inputs configuration transmitter.

- In case of one input configuration, **TELIS** is a transmitter allowing all input type and sensor power supply.
- In case of two inputs configuration, **TELIS** can use its calculation function or becomes a double transmitter : in this case **TELIS** becomes a double transmitter in one device.

Whatever input configuration is used, **TELIS** offers 1, 2 current or/and tension output, 1, 2, 3, 4 relays outputs.

**TELIS** has also a RS485 modbus, jbus digital output and an USB front face plug allowing a very simple programming with PC. The free software SETLINE enables a very simple product configuration, and saves configurations, etc....

**TELIS** is designed in 22,5 mm or in 45 mm width case, with or without graphic screen display, and joystick, according to references.

## TELIS RANGE

**TELIS** offers a complete devices range allowing to give solutions to all applications. **TELIS** can be used with one input or two inputs configuration through a simple programming. In this case **TELIS**, offers the following possibilities :

### TELIS IN ONE INPUT CONFIGURATION

PROCESS	RESISTOR	TEMPERATURE
Current	PT100 – PT1000	All thermocouples types
Tension	Ni100 – Ni1000	
High tension	3 or 4 wires (option)	J - K - R - S - T - E - B
Potentiometer	2 wires resistor	N - W3 - W5 - NiMo
Sensor supply	200Ω - 1000Ω - 5000Ω	Others option

### TELIS IN TWO INPUTS CONFIGURATION

INPUT 1	INPUT 2	CALCULATION FUNCTION
Current	Current	aX + bY

**TELIS** has many outputs solutions :

### TELIS OUTPUTS

ANALOGUE	RELAYS	DIGITAL
1 Current or Tension	1 Relay 1C/O	RS485 Modbus Jbus on Screw terminals
	2 Relays 1C/O or 1C/O & 1N/O	
2 Current or/and Tension 3750V isolated outputs	3 Relays 1C/O	USB plug on front face
	4 Relays 1N/O	

Each output is totally independent and can be assigned to the chosen input or inputs.



## TELIS FUNCTIONS

TELIS offers a wide functions number making a transmitter with a very fiendly and advanced human machine interface. Its functions enable to use TELIS in many applications.

### NEW FUNCTIONS

Display	-----	LCD graphic screen display.
Inputs display	-----	Among other possibilities, LCD graphic screen enables to display, inputs in real value or programmed value.
Outputs display	-----	Among other possibilities, LCD graphic screen enables to display, outputs programmed value or in percent, it displays also alarms status.
Programming	-----	Programming with 5 ways JOYSTICK on front face
Input 1 channel	-----	Channel 1 : Universal – Sensor supply.
Inputs 2 channels	-----	Channel 1 & 2 : 0/20mA ; 4/20mA – NO sensor supply Independent programming of each channel.
Input 2 channels with calculation function	-----	Input 3 = a x Input 1 + b x Input 2.
Offset	-----	Transmitter equivalent to 3 Inputs.
Tare setting	-----	OFFSET setting for all inputs type.
Simulation	-----	Tare function.
Outputs assign	-----	Simulation function allows action concerning analogue relays digital outputs (RS485 & USB) and display separately from input and without disconnecting input or ouputs.
Relays assign	-----	On TELIS simulation function can be set going separatly on each input.
Outputs limit	-----	Analogue outputs can be separately assigned on each input.
Memorisation	-----	Relays outputs can be separately assigned on each input.
Alarms reset	-----	Opens the possibility of outputs limitation – High Limitation or Low Limitation.
Alarms memorisation	-----	Opens the possibility of memorisation the last measured value in default case.
USB	-----	Separately on each alarm.
Mapping	-----	Separately on each alarm.
CJC	-----	USB front face plug enables to connect with PC (via USB LINE) for a very simple product configuration.
Digital bus	-----	Modbus Jbus adress maping, enables to choose your own parameter address.
	-----	Cold Junction Compensation by digital sensor 16 bits.
	-----	Digital bus access through USB plug (when TELIS are plugged on multichannel wiring bases).

### USUAL FUNCTIONS

Input scale factor	-----	Enables to provide a magnifying effect on input 1 in manual or in automatic calibration.
Output scale factor	-----	Enables to provide a magnifying effect on outputs and display.
Mini/maxi memory	-----	Maxi and mini measurement value memorizing.
Safety sensor	-----	Shows sensor break display, on digital output on analog output (by entering drop out value), and on relays outputs, independent for each output.
100 points linearization	-----	100 points linearization (free choice for each point) allows to create an output function by input signal segmentation.
Square root	-----	Output(s) is/are the square root of input.
Threshold	-----	Simple mode or band-mode with positive or negative safety. Threshold, hysteresis and temporization (separately from the rise or the fall) adjustment. Direct access to the thresholds. Alarm memorizing and alarm deleting.

## USUAL FUNCTIONS (PART 2)

### Others functions

----- Cut Off ; Resolution ; Comma ; Filtering ; Contrast setting ; programmation mode ; Display light off ; Joystick lock.

### Digital output

----- All transmitters have a bidirectional digital output RS485, then it's possible to recover the measurements and to send them in digital, but it's also possible to configure and to drive transmitter. This digital output is double over with USB plug on front face.

## ALWAYS MORE PERFORMANCES

**TELIS** a transmitter offering exceptional performances.

- Digital 24 bits analogue input conversion.
- Digital 16 bits analogue output conversion.
- Triple or quadruple isolation 3750Vac 1mn 50Hz according to references.
- Cold Junction Compensation by digital sensor 16 bits.
- Modbus Jbus address mapping, enables to choose your own parameter address.
- USB front face plug enables to connect with PC USB via USB LINE.

Use of free software SET LINE enables to program **TELIS** with PC (freely downloadable on our website).

**TELIS** can be used with 1 input, 2 inputs or 2 calculation inputs. In case of using 2 (current) inputs, and with a double output isolated (3750Vac) device, **TELIS** becomes a high performance double transmitter in a 22,5 mm case.

## TELIS LINES

**TELIS** is declined in two ranges :

- Transmitters with graphic screen display, programmation joystick, and USB front face plug.
- Transmitters without graphic screen display, nor programmation joystick, but with USB front face plug.

**TELIS** range with graphic screen display, joystick and USB front face (width case 22,5 mm) :

TELIS 9000U0	TELIS 9000U1	TELIS 9000U2	TELIS 9100U0	TELIS 9150U1	TELIS 9250U0
Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input
2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs
	1 Analogue output	2 Isolated Analogue Outputs		1 Analogue output	
			1 Relay Output 1C/O	1 Relay Output 1C/O	2 Relays Outputs 1C/O & 1N/O
1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output
1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output

# TELIS



TELIS range with graphic screen display, joystick and USB front face plug (width case 45 mm) :

TELIS 9200U0	TELIS 9200U1	TELIS 9200U2	TELIS 9300U0	TELIS 9300U1	TELIS 9400U0	TELIS 9400U1	TELIS 9400U2
Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input
2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs
	1 Analogue Output	2 isolated Analogue Outputs		1 Analogue Output		1 Analogue Output	2 isolated Analogue Outputs
2 Relays outputs 1C/O	2 Relays outputs 1C/O	2 Relays outputs 1C/O	3 Relays outputs 1C/O	3 Relays outputs 1C/O	4 Relays outputs 1N/O	4 Relays outputs 1N/O	4 Relays outputs 1N/O
1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output
1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output

TELIS range without graphic screen display nor joystick with USB front face plug (width case 22,5 mm) :

TELIS 9000T0	TELIS 9000T1	TELIS 9000T2	TELIS 9100T0	TELIS 9150T1	TELIS 9250T0
Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input
2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs
	1 Analogue Output	2 isolated Analogue Outputs		1 Analogue Output	
			1 Relay output 1C/O	1 Relay output 1C/O	2 Relays outputs 1C/O & 1N/O
1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output
1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output

TELIS range without graphic screen display nor joystick with USB front face plug (width case 45 mm) :

TELIS 9200T0	TELIS 9200T1	TELIS 9200T2	TELIS 9300T0	TELIS 9300T1	TELIS 9400T0	TELIS 9400T1	TELIS 9400T2
Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input	Universal Input
2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs	2 Inputs
	1 Analogue Output	2 isolated Analogue Outputs		1 Analogue Output		1 Analogue Output	2 isolated Analogue Outputs
2 Relays Outputs 1C/O	2 Relays Outputs 1C/O	2 Relays Outputs 1C/O	3 Relays Outputs 1C/O	3 Relays Outputs 1C/O	4 Relays Outputs 1N/O	4 Relays Outputs 1N/O	4 Relays Outputs 1N/O
1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output	1 RS485 Output
1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output	1 USB Output

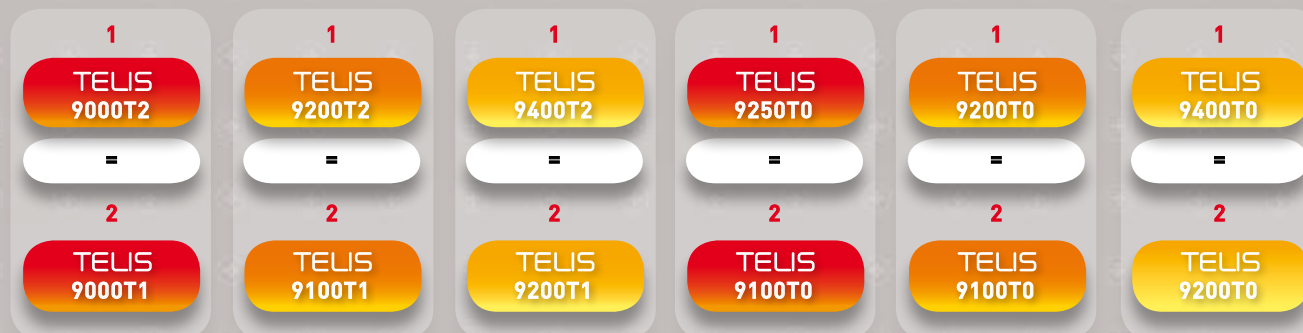
## USE OF TELIS NEW POSSIBILITIES

We can give some **TELIS** using examples according to used (mA) inputs and outputs. These examples are not the only one.

**TELIS** range with graphic screen display, joystick and USB front face plug :



**TELIS** range without graphic screen display nor joystick but with USB front face plug :



## TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (dc)	-----	Standard scales : 0/1mA ; 0/10mA ; 0/20mA ; 4/20mA ; +/-1mA ; +/-10mA ; +/-20mA Adjustable scales : From -22mA to 22mA
Tension (dc)	-----	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; 0/50V ; 0/100V ; 0/200V +/-100mV ; +/-1V ; +/-5V ; +/-10V ; +/-50V ; +/-100V ; +/-200V Adjustable scales : From -110mV to 110mV ; From -2V to 11V ; From -200V to 220V
RTD	-----	PT100 ; PT1000 2 or 3 wires – 4 wires on option / Ni100 ; Ni1000 2 or 3 wires
Thermocouple	-----	J, K, R, S, T, E, B, N, W3, W5, NiMo
Potentiometer	-----	From 100Ω à 100KΩ - Other values on demand
Resistor 2 wires	-----	0/200Ω ; 0/1KΩ ; 0/10KΩ - Other values on demand
Sensor supply	-----	Sensor 2 or 3 wires – Sensor supply : 24V - 29mA max



## OUTPUTS CHARACTERISTICS

Output 1 current	-----	0/20mA 4/20mA - From 0 to 20mA
Output 1 tension	-----	0/10V +/-10V - From 0 to 10V
Output 2 current	-----	0/20mA 4/20mA - From 0 to 20mA
Output 2 tension	-----	0/10V - From 0V to 10V
Digital output	-----	USB on front face (via USB LINE) RS 485 Modbus Jbus isolated from input and output 1
Relay outputs	-----	Relays : 1 C/O ; 2 C/O ; 3C/O ; 4N/O ; 1C/O & 1N/O

## OTHER CHARACTERISTICS

Input impedance		
Current input	-----	4,75Ω
Tension input <10V	-----	> 10M
Tension input +/-10V	-----	1 MΩ
Tension input >10V	-----	1 MΩ
Input PT100 ; Ni100	-----	Current : 1mA
Input PT1000	-----	Current : 1mA
Input Ni1000	-----	Current : 0,8mA
Resistor 2 wires R=200 Ω	-----	Current : 1mA
Resistor 2 wires R=1k Ω ; R=10k Ω	-----	Current : 1mA
Output impedance		
Output 1 & 2 Current	-----	< 1000Ω
Output 1 & 2 Tension	-----	> 4 kΩ
Sensor		
Sensor supply	-----	U < 24V - I < 29mA
Relays outputs		
Relays	-----	Relays 1C/O or 1 N/O : 2A/250Vac

## TECHNICAL CHARACTERISTICS

Precision class	-----	< 0,10
Analogue input/digital conversion	-----	24 bits
Digital output/analogue conversion	-----	16 bits
Response time	-----	< 250ms
Thermal drift	-----	< 50ppm
Current output residual ripple	-----	< 20 µA
Tension output residual ripple	-----	< 10mV
Isolation		
Supply/Input	-----	3 750 Vac - 50 Hz - 1mm
Supply/Output 1	-----	3 750 Vac - 50 Hz - 1mm
Supply/Output 2	-----	3 750 Vac - 50 Hz - 1mm
Input/Output 1	-----	3 750 Vac - 50 Hz - 1mm
Input/Output 2	-----	3 750 Vac - 50 Hz - 1mm
Output 1/Output 2	-----	3 750 Vac - 50 Hz - 1mm
Output 1/Digital output	-----	3 750 Vac - 50 Hz - 1mm
Output 2/Digital output	-----	without isolation
Auxiliary supply		
Universal supply	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac/60Vac
Consumption		
Maximal consumption	-----	< 4VA
Temperature		
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Black polyamide self-extinguishable V0

## OPTIONS REFERENCES

### Passive output option

1 Passive Output (Output 1)

1 Passive Output (Output 2)

2 Passive Outputs

----- 15V < U < 36V - 0/4/20mA

----- 15V < U < 36V - 0/4/20mA

----- 15V < U < 36V - 0/4/20mA

### ORDER CODE ADDED TO DEVICE REFERENCE

TELIS PASS 1 - 1

TELIS PASS 1 - 2

TELIS PASS 2 - 2

### Varnish option

Varnish TELIS 22,5 mm case

Varnish TELIS 45 mm case

----- TROPICALISATION 225

----- TROPICALISATION 450

### Supply option 20Vac / 60Vac

Auxiliary supply 20Vac / 60Vac

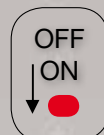
### DEVICE CODE

TELIS 9XX9UX - 9XX9TX

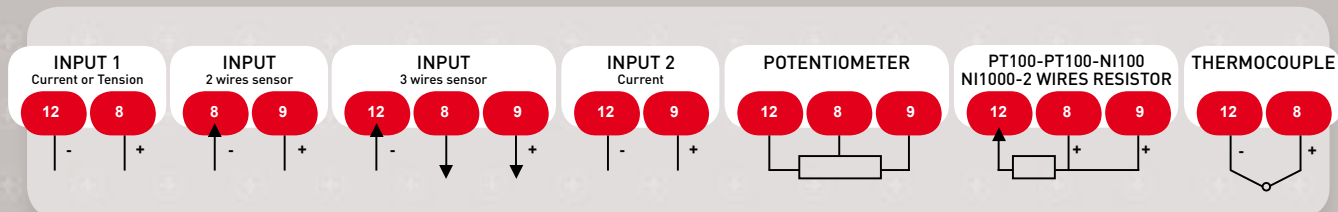
## CONFIGURATION - WIRING - DIMENSIONS

### INPUT CONFIGURATION SWITCH

INPUT SWITCH	1	2	3	4	5	6
Input 1 - Current	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Input 2 - Current	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
Input tension < 10V - Thermocouple		<input checked="" type="checkbox"/>				
Input tension > 10 V	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
PT100 - PT1000 - Ni100 - Ni1000		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Sensor supply	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Resistor 2 wires	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	
Potentiometer		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

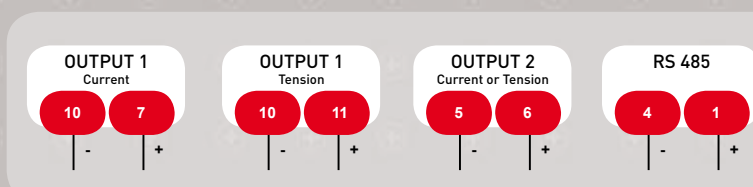


### INPUTS WIRING



### OUTPUTS WIRING

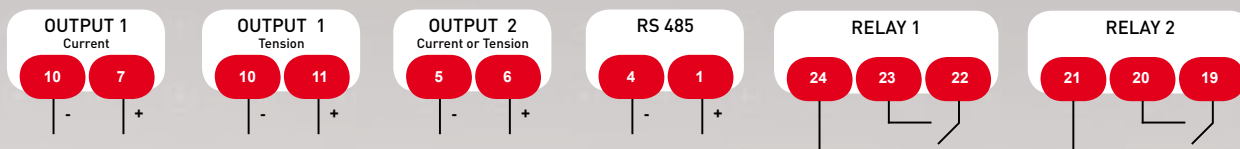
9000U0 - 9000U1 - 9000U2 - 9000T0 - 9000T1 - 9000T2





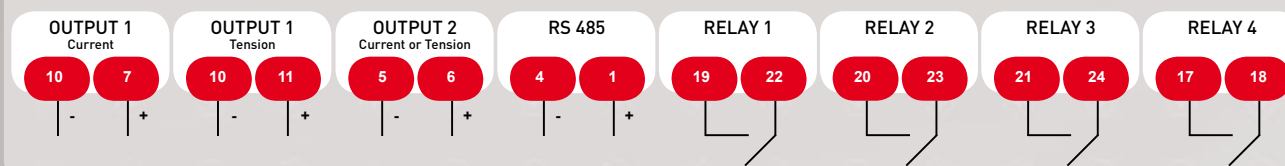
## OUTPUTS WIRING

9200U0 - 9200U1 - 9200U2 - 9200T0 - 9200T1 - 9200T2



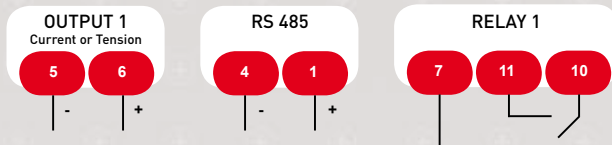
## OUTPUTS WIRING

9400U0 - 9400U1 - 9400U2 - 9400T0 - 9400T1 - 9400T2



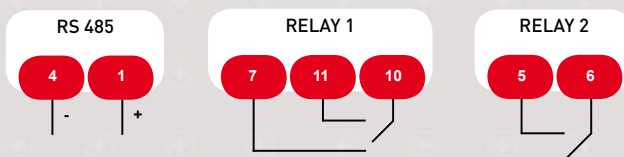
## OUTPUTS WIRING

9100U0 - 9150U1 - 9100T0 - 9150T1



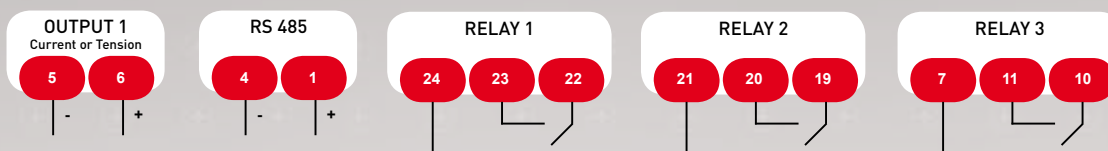
## OUTPUTS WIRING

9250U0 - 9250T0



## OUTPUTS WIRING

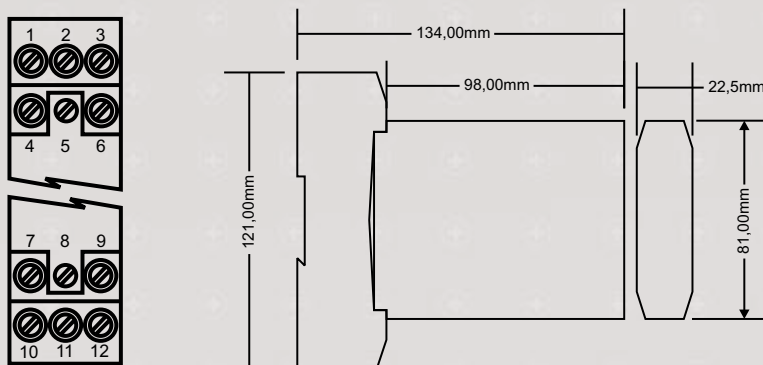
9300U0 - 9300U1 - 9300T0 - 9300T1



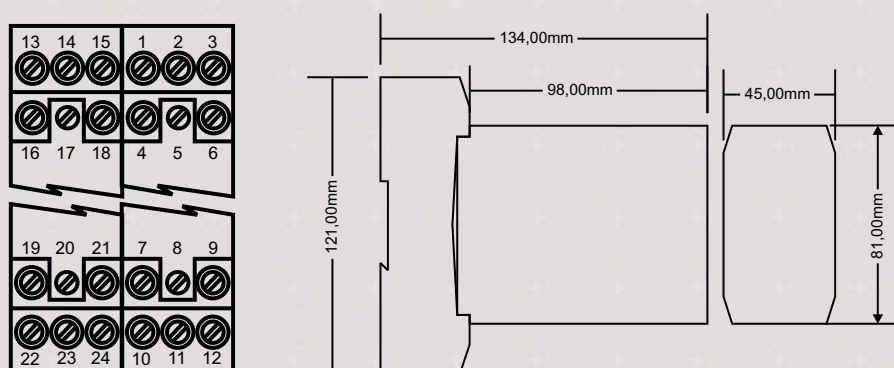
## AUXILIARY SUPPLY



## DIMENSIONS AND TERMINALS - CASE WIDTH 22,5 mm



## DIMENSIONS AND TERMINALS - CASE WIDTH 45 mm



# TELIS 9000S

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



To answer to all inquiry, JM Concept has designed simplified **TELIS** range :  
**TELIS 9000S** is characterized by :

- Its graphic screen display, and its joystick make user-friendly and easily programmable device.
- Its USB front face plug enables a very simple programming with PC.
- Its universal input with sensor supply.
- Its double current input design allows **TELIS** to become a double transmitter in one device.
- Its cutting edge technology allowing **TELIS** to have exceptional performances.
- Two non isolated current output (active or passive), tension output on option.
- Two relays 1N/O (1 N/C on option).
- Designed in JM concept case unpluggable from its DIN Rail wiring base.
- **TELIS** is able to reduce its consumption up to 50% and contributes to energy saving and environment protection.

## TELIS 9000S RANGE

TELIS 9000S can be used through simple programming as one input configuration transmitter, or two inputs configuration transmitter. In this case TELIS offers the following possibilities :

### TELIS 9000S IN ONE INPUT CONFIGURATION

PROCESS	RESISTOR	TEMPERATURE
Current	PT100 – PT1000	All thermocouples types J - K - R - S - T - E - B N - W3 - W5 - NiMo
Tension	Ni100 – Ni1000	
High tension	3 or 4 wires (option)	
Potentiometer	2 wires resistor	Others on option
Sensor supply	200Ω - 1000Ω - 5000Ω	

### TELIS 9000S IN TWO INPUTS CONFIGURATION

INPUT 1	INPUT 2	CALCULATION FUNCTION
Current	Current	aX + bY

TELIS 9000S has many outputs solutions :

### TELIS OUTPUTS

ANALOGUES	RELAYS	DIGITAL
2 not isolated outputs	2 Relays 1N/O	Isolated from input & outputs

Each output is totally independent and can be assigned to the choosen input or inputs.

## TELIS 9000S FUNCTIONS

TELIS offers a wide functions number making a transmitter with a very fiendly and advanced human machine interface. Its functions enable to use TELIS in many applications.

### NEW FUNCTIONS

Display	-----	LCD graphic screen display.
Inputs display	-----	Among other possibilities, LCD graphic screen enables to display, inputs in real value or programmed value.
Outputs display	-----	Among other possibilities, LCD graphic screen enables to display, outputs. programmed value or in percent, it displays also alarms status.
Programming	-----	Programming with 5 ways JOYSTICK on front face.

# TELIS 9000S



## NEW FUNCTIONS (PART 2)

Input 1 channel	-----	Channel 1 : Universal – Sensor supply.
Input 2 channels	-----	Channel 1 & 2 : 0/20mA ; 4/20mA – NO sensor supply. Independent programming of each channel.
Input 2 channels with Calculation functions	-----	Input 3 = a x Input 1 + b x Input 2
Offset	-----	Transmitter equivalent to 3 Inputs.
Tare setting	-----	Input OFFSET adjustment for all input type.
Simulation	-----	Tare function.
	-----	Simulation function allows action concerning analogue, relays, digital, outputs (RS485 & USB) and display separately from input and without disconnecting input or output. On TELIS simulation function can be set going separately on each input.
Outputs assign	-----	Analogue outputs can be separately assigned on each input.
Relays assign	-----	Relays outputs can be separately assigned on each input.
Outputs limit	-----	Opens possibility of outputs limitation – High Limitation or Low Limitation.
Memorisation	-----	Opens possibility of memorisation last measured value in default case.
Alarms reset	-----	Separately on each alarm..
Alarms memorisation	-----	Separately on each alarm.
USB	-----	USB front face plug enables to connect with PC (via USB LINE) for a very simple product configuration.
CJC	-----	Cold Junction Compensation by digital sensor 16 bits.

## USUAL FUNCTIONS

Input scale factor	-----	Enables to provide a magnifying effect on input 1 in manual or in automatic calibration.
Output scale factor	-----	Enables to provide a magnifying effect on outputs and display.
Mini/maxi memory	-----	Maxi and mini measurement value memorizing.
Safety sensor	-----	Shows sensor break display, on digital output on analog output (by entering drop out value), and on relays outputs, independent for each output.
100 points Linearization	-----	100 points linearization (free choice for each point) allows to create an output function by input signal segmentation.
Square root	-----	Output(s) is/are square root of the input.
Threshold	-----	Simple mode or band-mode with positive or negative safety. Threshold, hysteresis and temporization (separately from the rise or the fall) adjustment. Direct access to the thresholds. Alarm memorizing and alarm deleting.
Others functions	-----	Cut Off ; Resolution ; Comma ; Filtering ; Contrast setting ; programming mode ; Display light off ; Joystick lock.
Digital output	-----	Transmitters have a bidirectional digital output on USB front face plug allowing to configure and to drive the transmitter.

## ALWAYS MORE PERFORMANCES FOR TELIS 9000S

TELIS serie 9000S is a transmitter offering exceptional performances :

- Digital 24 bits analogue input conversion.
- Digital 16 bits analogue output conversion.
- Triple isolation 3750Vac 1mn 50Hz
- Cold Junction Compensation by digital sensor 16 bits
- USB front face plug enables to connect with PC USB via USB LINE

- Use of free software SET LINE enables to program TELIS 9000S with PC (freely downloadable on our website).
- TELIS can be used with 1 input, 2 inputs or 2 calculation inputs. In case of using 2 (current) inputs, TELIS becomes a high performance double transmitter in a 22,5 mm case.

## TELIS 9000S REFERENCES

TELIS is declined in two ranges in 22,5 mm width case :

### TELIS 9000S2

Universal Input

2 Inputs

2 non isolated  
Analogue Outputs

1 USB Output

### TELIS 9200S2

Universal Input

2 Inputs

2 non isolated  
Analogue Outputs

2 Relays outputs N/O

1 USB Output

## TELIS 9000S TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (dc)	-----	Standard scales : 0/1mA ; 0/10mA ; 0/20mA ; 4/20mA ; +/-1mA ; +/-10mA ; +/-20mA Adjustable scales : From -22mA to 22mA
Tension (dc)	-----	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; 0/50V ; 0/100V ; 0/200V +/-100mV ; +/-1V ; +/-5V ; +/-10V +/-50V ; +/-100V ; +/-200V Adjustable scales : From -110mV to 110mV From -2V to 11V From -200V to 220V
RTD	-----	PT100 ; PT1000 ; Ni100 ; Ni1000 or 3 wires - 4 wires on option
Thermocouple	-----	J, K, R, S, T, E, B, N, W3, W5, NiMo
Potentiometer	-----	From 100Ω à 100KΩ - Other values on demand
Resistor 2 wires	-----	0/200Ω ; 0/1KΩ ; 0/10KΩ - Other values on demand
Sensor supply	-----	Sensor 2 or 3 wires - Sensor supply : 24V - 29mA max

### OUTPUTS CHARACTERISTICS

Outputs 1 & output 2 current	-----	0/20mA 4/20mA - From 0 to 20mA
Digital output	-----	USB on front face (via USB LINE)
Relays outputs	-----	2 Relays 1N/O

# TELIS 9000S



## OTHER CHARACTERISTICS

Input impedance		
Input current	-----	4,75Ω
Input tension < 10V	-----	> 10 MΩ
Input tension +/- 10V ou > 10V	-----	1 MΩ
Input PT100 ; PT1000 ; Ni100	-----	Current : 1mA
Input Ni 1000	-----	Current : 0.8mA
Resistor 2 wires R=200Ω ; R=1kΩ; R=10kΩ	--	Current : 1mA
Output impedance		
Output 1 & 2 Current	-----	< 1 000Ω
Sensor		
Sensor supply	-----	U < 24V - I < 29mA
Relays outputs		
Relays	-----	Relays 1N/O : 2A/250Vac – 1N/C on option

## TECHNICAL CHARACTERISTICS

General characteristics		
Precision class	-----	< 0.10
Analogue input/digital conversion	-----	24 bits
Digital output/analogue conversion	-----	16 bits
Response time	-----	< 250ms
Thermal drift	-----	< 50ppm
Current output residual ripple	-----	< 20 µA
Isolation		
Supply / Input	-----	3 750 Vac - 50Hz - 1mm
Supply / Output 1 & Output 2	-----	3 750 Vac - 50Hz - 1mm
Input / Output 1 & Output 2	-----	3 750 Vac - 50Hz - 1mm
Output 1 / Output 2	-----	without isolation
Digital output / Output 1 & Output 2	-----	3 750 Vac - 50Hz - 1mm
Auxiliary supply		
Universal supply	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac/60Vac
Consumption		
Maximal consumption	-----	< 4VA
Temperature		
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Black polyamide self-extinguishable V0

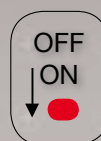
## TELIS 9000S OPTIONS REFERENCES

Passive output option			ORDER CODE ADDED TO DEVICE REFERENCE
1 Passive output	-----	15V < U < 36V - 0/4/20mA	----- TELIS PASS 1 - 1
Varnish option			
Varnish TELIS 22,5mm case	-----		TROPICALISATION 225
Supply option 20Vac / 60Vac			DEVICE CODE
Auxiliary supply 20Vac / 60Vac	-----		TELIS 9009S2 & 9209S2

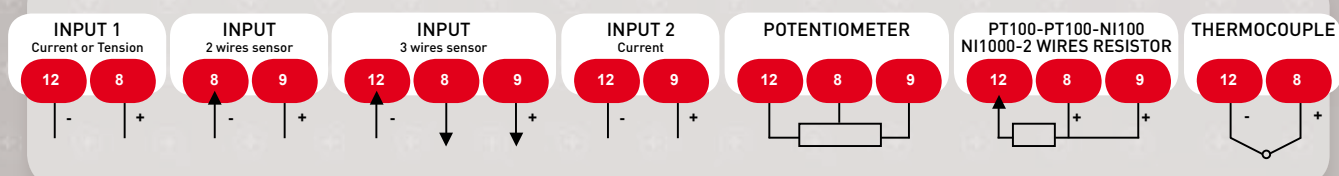
## CONFIGURATION - WIRING - DIMENSIONS

### TELIS 9000S INPUT CONFIGURATION SWITCH

INPUT SWITCH	1	2	3	4	5	6
Input 1 - Current	●	●				
Input 2 - Tension	●					●
Input tension < 10V - Thermocouple		●				
Input tension > 10 V	●		●			
PT100 - PT1000 - Ni100 - Ni1000		●			●	
Sensor supply	●	●		●		
2 wires resistor	●				●	
Potentiometer		●			●	

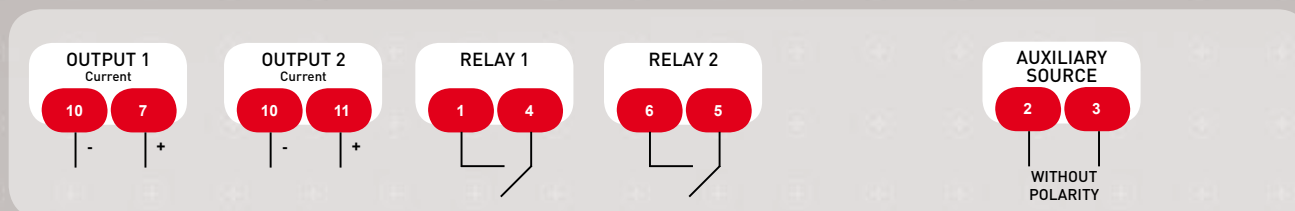


### INPUT WIRING

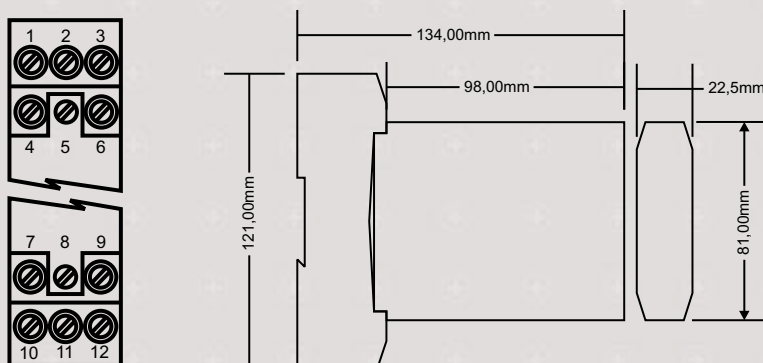


### OUTPUTS WIRING AND AUXILIARY SUPPLY

9000S2 - 9200S2



### DIMENSIONS AND TERMINALS - CASE WIDTH 22,5 mm



# REDUNDANCY

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



There are two application cases for API redundancy :

- Interface from two API to one actuator.
- Interface from one sensor to two API.

## REDUNDANCY INTERFACE FROM TWO API TO ONE ACTUATOR

### REMEMBER THE PROBLEM

Two API (A1 & A2) with analog cards have to pilot an analog actuator. If the API A1 is master, actuator has to be piloted by the API A1, otherwise, the API A2 has to pilot actuator.

Rocking is created by a default API module. Rocking from A1 to A2 or on the contrary, when one of the two API is out of work, is identified by AON 1 signal (0 or 24V) sent by A1 and by a AON2 signal (0 or 24V) sent by A2. Rocking is not instantaneous, it is necessary to keep active last value during a certain time.

To solve problems, JM Concept has designed the transmitter **GK3000D1**.

### GK3000D1

**GK3000D1** transmitters are particularly designed, with their 2 analog and their 2 AON inputs, to provide solutions for redundancy problems.

Its unique programming principle on front face or by digital output (RS485 or TCP/IP) is easy to use. The many available functions ensure complementary needs for signals treatment.

**GK3000D1** are supplied in JM Concept unit that can be unplugged from its RAIL DIN base, one channel plate or multichannel plates.

**GK3000D1** use the universal JM Concept power supply.

### GK3000 D1 INPUTS

Analog input 1	-----	4/20mA
Analog input 2	-----	4/20mA
AON input 1	-----	On opto-coupler 30V maximum
AON input 2	-----	On opto-coupler 30V maximum

### GK3000 D1 OUTPUTS

Current output	-----	4/20mA
Digital output	-----	RS 485 isolated from the input Modbus, Jbus Digital output ensures the <b>GK3000D1</b> programming and recovery of all the measurements

### GK3000D1 FUNCTIONING

- The AON1 input comes from the API A1. When it is 1, the voltage delivered by A1 is 24V, when it is 0, the voltage delivered by A1 is 0V.
- The AON2 input comes from the API A2. When it is 1, the voltage delivered by A2 is 24V, when it is 0, the voltage delivered by A2 is 0V.

# REDUNDANCY



- AON inputs functioning table is the following :

AON 1	1	0	1	0
AON 2	0	1	1	0
MEASUREMENT	Measurement on A1	Measurement on A2	Last right measurement	

- When one of the AON inputs changes from 1 to 0 or from 0 to 1, transmitter saves the last measurement taken before the rocking during the TB time , programmable on transmitter from 0 to 1 second by 10ms resolution.
- When the two AON inputs have the same value (both at 1 or both at 0), transmitter saves last right measurement as long as there is no rocking instruction that ensures to have the two AON inputs at different values (1 & 0 or 0 & 1). When there is a rocking instruction, process before described is operating.
- When the API analog output is wrong, that means that :
  - Output value is below a programmable value (taken between 0 and 21mA).
  - Output value is above a programmable value (taken between 0 and 21mA).

Transmitter saves the last right measurement as long as there is no rocking instruction. When there is a rocking instruction, process described before is operating.

## TRANSMITTER PLUGGING

Transmitters are plugged on a plate referenced PLTB08AD and described in following scheme :



GK3000D1 transducers are plugged on a plate reference PLTB08AD and every output to the actuator is independent and isolated.

## GK3000D1 TECHNICAL CHARACTERISTICS

<b>Input</b>		
Input impedance	-----	4,75 $\Omega$
Input permanent overload	-----	100 mA
Input maximum measurable	-----	1.10 x measurement scale
AON input	-----	Umax 30V
<b>Output characteristics</b>		
Output impedance	-----	950 $\Omega$
Output maximum measurable	-----	1.10 x output scale

#### General characteristics

Precision class	-----	< 0.10%
Output ripple	--	< 20 $\mu$ A
Thermal drift	-----	< 50ppm
Response time	-----	< 250ms
<b>Isolation</b>		
Power supply / Input	-----	4000Vdc ou 2500Vac - 1mn - 50Hz
Power supply / Output	-----	4000Vdc ou 2500Vac - 1mn - 50Hz
Input / Output	-----	1500Vac - 1mn - 50Hz
Analog output / Digital output	---	Without isolation
<b>Auxiliary source</b>		
Universal power supply	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac/60Vac
<b>Consumption</b>		
Maximal consumption	-----	< 4VA
<b>Temperature</b>		
Operating consumption	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
<b>Protection</b>		
Protection index	-----	IP20
<b>Case</b>		
Case	-----	Self extinguishable black polyamide ULV0

## GK3000D1 OPTION REFERENCE

Varnish option  
Varnish GK3000D1

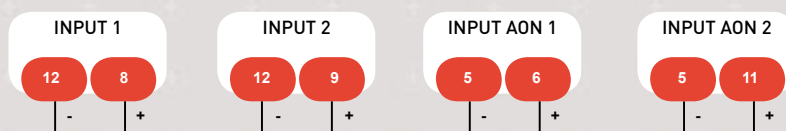
-----

ORDER CODE ADDED  
TO DEVICE REFERENCE

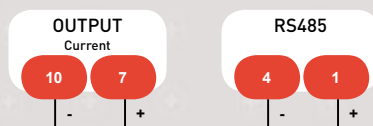
TROPICALISATION 225

## CONFIGURATION - WIRING - DIMENSIONS

### INPUTS



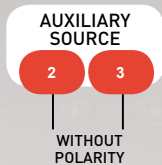
### OUTPUTS



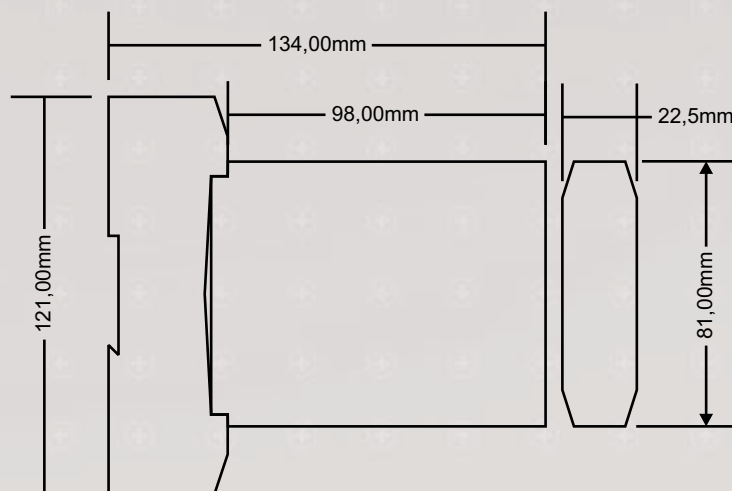
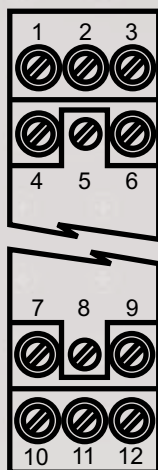
# REDUNDANCY



## AUXILIARY SOURCE



## DIMENSIONS AND TERMINALS



## REDUNDANCY INTERFACE FROM ONE SENSOR TO TWO API

### REMEMBER THE PROBLEM

Redundancy from sensor to two API means to double an analogue signal in two isolated analogue outputs. To solve problems, JM Concept has designed the transmitter **JK3000N2** (TELIS 9000U2).

## JK3000N2 (TELIS 9000U2)

**JK3000N2** (TELIS 9000U2) Transmitters are particularly designed, with their analogue input and their 2 isolated analog outputs, to provide solutions for sensor to API redundancy problems.

Its unique programming principle on front face or with digital link (USB, RS485 or TCP/IP) makes easier its use. The many available functions ensure complementary needs for signals treatment .

**JK3000N2** (TELIS 9000U2) are supplied in JM Concept unit that can be unplugged from its RAIL DIN base, one channel plate or multichannel plates.

**JK3000N2** (TELIS 9000U2) uses the universal JM Concept power supply.

### TRANSDUCERS PLUGGING

The transducers are plugged on a plate referenced PLTB08AC and described in the following scheme :



**JK3000N2** transducers are plugged on a plate reference PLTB08AC and every output to the API is independent and isolated.

## JK3000N2 (TELIS 9000U2) TECHNICAL CHARACTERISTICS

All **JK3000N2** (TELIS 9000U2) technical characteristics are in **TELIS** datasheet.

ANALOG TRANSMITTERS 0...4/20mA - 0...4/20mA

# JK0030A1-JK0030A1-F

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



Isolated analog transmitters **JK0030A1** & **JK0030A1-F** are designed to provide simple and low cost solutions for all transmission, signals isolation and protection against lightning impulse (**JK0030A1-F**) problems.

This transmitter range is designed in JM Concept case unplugged from its rail DIN base.

Use of very efficient components in a wide temperature range ensures a very high level of reliability and very low thermal drift.

## TRANSMITTERS RANGE

To provide solutions for all problems, analog transmitters 0...4/20mA – 0...4/20mA are declined in 2 ranges :

- **JK0030A1** : Transmitters input 0...4/20mA, output 0...4/20mA
- **JK0030A1- F** : Transmitters input 0...4/20mA, output 0...4/20mA with protection against lightning impulse.

## TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (dc)	-----	0/20 mA ; 4/20 mA
Sensor power supply	-----	2 or 3 wires Sensor supply 24Vdc - 22 mA

### OUTPUT CHARACTERISTICS

Analog output	-----	0/20 mA ; 4/20 mA
---------------	-------	-------------------

### TECHNICAL CHARACTERISTICS

Input characteristics		
Input current	-----	0/20 mA ; 4/20 mA
Input current impedance	-----	4,75 $\Omega$
Output characteristics		
Output current	-----	0/20 mA ; 4/20 mA
Output current impedance	-----	< 950 $\Omega$
Sensor		
Sensor power supply	-----	U < 24 V - I < 22 mA
Technical characteristics		
Precision class	-----	< 0.10 %
Thermal drift	-----	< 50 ppm
Response time	-----	< 100 $\mu$ s
Case	-----	Self-extinguishable polyamide UL V0

### SPECIFIC CHARACTERISTICS

**JK0030A1-F** guard API inputs against lightning impulses : Report LCIE 60031114 - 529387

### OTHER CHARACTERISTICS

Isolation		
Supply isolation / Input	-----	2500Vac - 1mn - 50Hz
Supply isolation / Output	-----	2500Vac - 1mn - 50Hz
Input isolation / output	-----	2500Vac - 1mn - 50Hz

# JK0030A1-JK0030A1-F



## OTHER CHARACTERISTICS (PART 2)

<b>Auxiliary source</b>		
Standard auxiliary source	-----	20Vdc/370Vdc & 80Vac/256Vac
Auxiliary source in option	-----	20Vac/60Vac
<b>Consumption</b>		
Maximum consumption	-----	< 3VA
<b>Temperature</b>		
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
<b>Protection</b>		
Protection index	-----	IP20

## JK0030A1 & JK0030A1-F APPLICATIONS

**JK0030A1 & JK0030A1-F** transmitters are specially designed as isolation interface and signal conditioning, between :

- Sensors **and** API and/or supervisory controls.
- API and/or supervisory controls **and** actuators.

For easier using and installation, JM Concept has developed pre-wired multichannel plates.

Actually, these multichannel plates have SUBD connections that ensure a link by a simple wire to the API. This solution makes assembly easier, reduces wiring time and increases reliability.

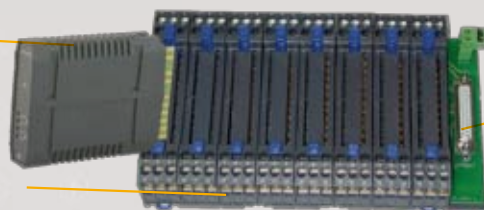
Two different plates types are available :

### WIRING PLTB08-AB

Allows wiring from sensors to API

JK0030A1 ou JK0030A1-F  
Unpluggable in live

Active or passive  
process input



Auxiliary source in bus  
for 8 transmitters

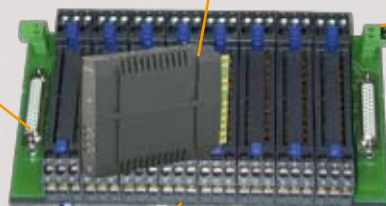
Transmitters output to API input

### WIRING ON PLTB08-AA

Allows wiring from API to actuators

JK0030A1 ou JK0030A1-F  
Unpluggable in live

API output to transmitters input



Auxiliary source in bus  
for 8 transmitters

Transducer output to actuators.

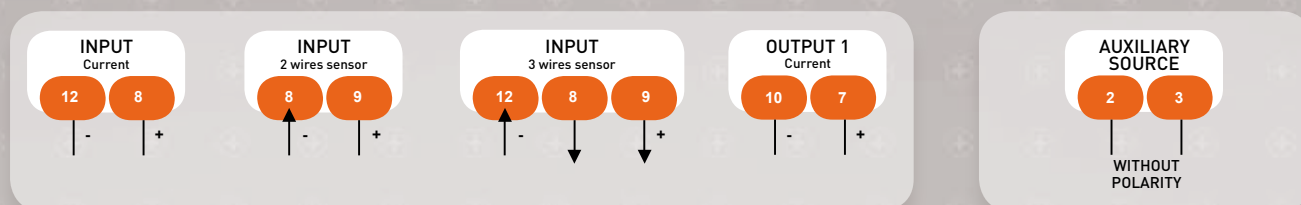
Thanks to its double SUBD connection this plate PLTB08-AA can also be used in way, sensor to API.

## WIRING CABLES

JM Concept has designed cables allowing to be connected to all API Types or supervisory controls.

## SETTING - WIRING - DIMENSIONS

### WIRING JK0030A1 & JK0030A1-F

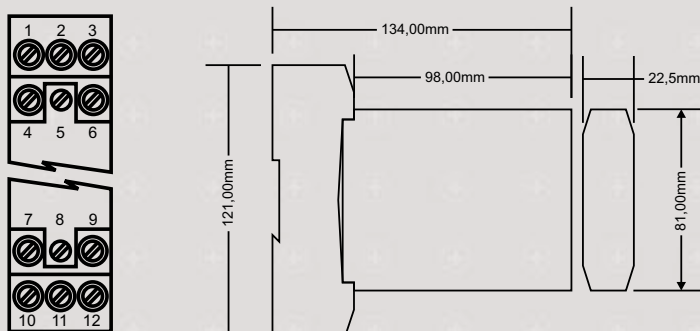


### OUTPUT ADJUSTEMENT

- Wire on input terminals, a current generator.
- Wire on output terminals, a current multi-meter.
- With generator, generate signal corresponding to input signal low value.
- Adjust with potentiometer called «OFFSET» bottom output scale.
- With generator, generate signal corresponding to input signal high value.
- Adjust with potentiometer « SCALE » top output scale.

Start again successively these 2 operations as much as it is necessary until you have low and high right scale values.

### DIMENSIONS AND TERMINALS



## ANALOG TRANSMITTER PROCESS

# JK3000A1-JK3000A2

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



Isolated process analog transmitters **JK3000A1**, **JK3000A2** are designed to provide simple solution for all transmissions problems and signals isolation.

This transmitters range is designed in JM Concept unit unplugged from its rail DIN base.

Use of components that are efficient in a wide temperature ensures a very high level of reliability and very low thermal drift.

## TRANSMITTERS RANGE

To provide solutions for all problems, isolated process analog transmitters are designed in 3 ranges :

- **JK3000A1** : Input current, tension transmitter , 1 current or tension output.
- **JK3000A2** : Input current, tension transmitter , 2 separated non isolated current and/or tension output.
- **JK3000A2I** : Input current, tension transmitter , 2 separated and isolated between themselves current and/or tension output.

**JK3000A1** and **JK3000A2** references exist in lightning impulse protected version **JK3000A1-F** and **JK3000A2-F**.

## ANALOG PROCESS TRANSMITTERS CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (dc)	-----	0/20 mA ; 4/20 mA
Voltage (dc)	-----	0/100mV ; 0/10V ; +/-10V
High Voltage (dc)	-----	Other values on demand
Sensor power supply	-----	2 or 3 wires sensor power supply 24Vdc - 22 mA max

### OUTPUT CHARACTERISTICS

Output 1 in current	-----	0/20 mA ; 4/20 mA
Output 1 in tension	-----	0/10V
Output 2 in current (JK3000A2 & JK3000A2I)	-----	0/20 mA ; 4/20mA
Output 2 in tension (JK3000A2 & JK3000A2I)	-----	0/10V ; +/-10V (JK3000A2)

### OTHER CHARACTERISTICS

<b>Input impedance</b>		
Current input	-----	4.75Ω
Tension input	-----	>10MΩ
<b>Output impedance</b>		
Current output 1	-----	< 900Ω
Tension output 1	-----	> 4.7KΩ
Output 2 in current (JK3000A2 & JK3000A2I)	-----	< 650Ω
Output 2 in tension (JK3000A2 & JK3000A2I)	-----	> 4.7KΩ
<b>Sensor</b>		
Sensor power supply	-----	U < 24Vdc – I < 22Ma
<b>Technical characteristics</b>		
Precision class	-----	< 0.10
Current output residual ripple	-----	< 20μA
Tension output residual ripple	-----	< 20mV
Response time	-----	< 100μs – other values on demand
Thermal drift	-----	< 50ppm
<b>Isolation</b>		
Power supply / Input	-----	2500Vac - 1mm - 50Hz
Power supply / output 1	-----	2500Vac - 1mm - 50Hz
Power supply / output 2 (JK3000A2 & JK3000A2I)	-----	2500Vac - 1mm - 50Hz
Input / Output 1	-----	2500Vac - 1mm - 50Hz
Input / Output 2 (JK3000A2 & JK3000A2I)	-----	2500Vac - 1mm - 50Hz
Output 1 / Output 2 (JK3000A2)	-----	no isolation
Output 1 / Output 2 (JK3000A2I)	-----	1000Vac - 1mm - 50Hz

# JK3000A1-JK3000A2



## OTHER CHARACTERISTICS (PART 2)

Auxiliary source		
Universal Auxiliary source	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac/60Vac
Consumption		
Maximal consumption	-----	< 4VA
Temperature		
Operating temperature	-----	-10°C/+60°C
Storage temperature	-----	-25°C/+80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Self extinguishable black polyamide ULV0

## SPECIFIC CHARACTERISTICS

**JK3000A1-F** and **JK3000A2-F** references protects API input against lightning impulse protected version :  
Report LCIE 60031114 - 529387

## OPTIONS REFERENCE

### Passive output option

1 Passive output (JK3000A1 & JK3000A2) ----- 15V < U < 36V - 0/4/20mA -----

### ORDER CODE ADDED TO DEVICE REFERENCE

JKAPASS1 - 2

### Varnish option

Varnish JK3000A1, JK3000A2 -----

TROPICALISATION 225

### Supply option 20Vac/60Vac

Auxiliary supply 20Vac/60Vac -----

### DEVICE CODE

JK3009A1 ; JK3009A2

### Lightning impulse protection option

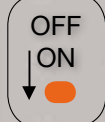
Lightning impulse protection option -----

JK3000A1-F ; JK3000A2-F

## CONFIGURATION - WIRING - DIMENSIONS

### INPUT CONFIGURATION SWITCH

INPUT SWITCH	1	2	3	4	5	6	7
0/100 mV		●		●		●	●
0/10V				●		●	●
+/-10V							●
0/20mA	●	●		●		●	
4/20mA	●	●	●	●	●	●	



### OUTPUT 2 CONFIGURATION SWITCH

SWITCH OF OUTPUT 2	1	2	3	4
Current 0/20mA			●	
Currentt 4/20mA			●	
Tension 0/10V		●		
Tension +/-10V	●			

## OUTPUTS ADJUSTEMENT

- On front face, output 1 is marked S1, output 2 is marked S2 (for **JK3000A2** & **JK3000A2I**).
- Outputs are independent one of the other, then beginning and full scale of each output are independently adjustable.

Input and outputs selection :

- Select with the input switch, chosen input type.
- Select with the output switch (for JK3000A2 & JK3000A2I), chosen output type.

Adjustment principle :

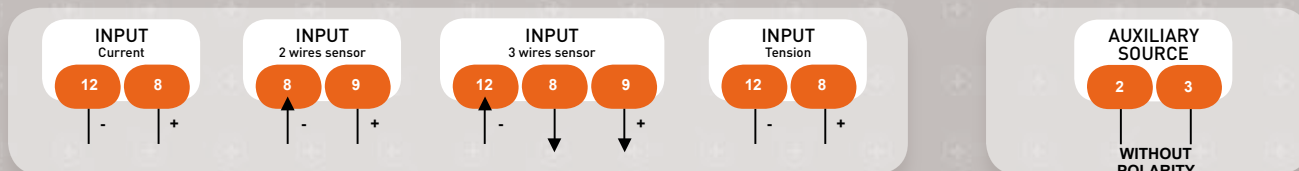
- Wire on input terminals, a current or voltage generator according to used input type.
- Wire on output terminals to adjust, a multimeter in current or in voltage, according to chosen output.
- With generator, generate signal corresponding to input signal low value.
- Adjust with potentiometer called « OFFSET » bottom output scale.
- With generator, generate signal corresponding to input signal high value.
- Adjust with potentiometer « SCALE » top output scale.

Start again successively these 2 operations as much as it is necessary until you have low and high right scale values.

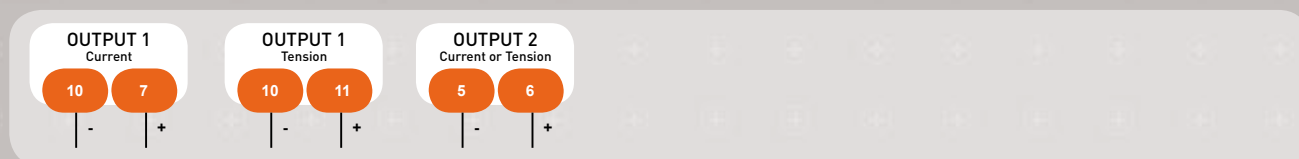
Factory configuration :

- JK3000A1 transmitters are configured exit factory : Input : 4/20mA Output : 4/20mA.
- JK3000A2 & JK3000A2I transmitters are configured exit factory : Input : 4/20mA Output 1 /Output 2 : 4/20mA.

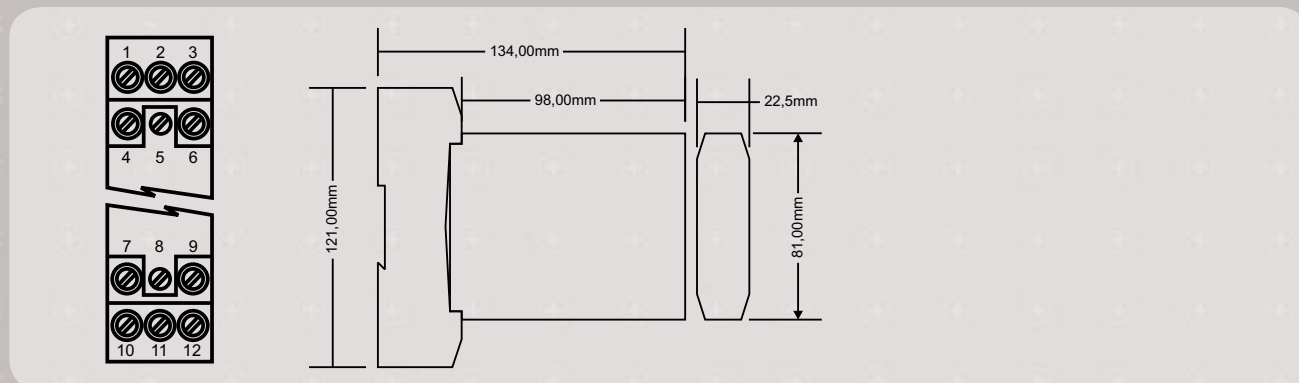
## INPUT WIRINGS



## OUTPUT WIRINGS



## DIMENSIONS AND TERMINALS



## ANALOG TRANSMITTER POTENTIOMETER

# JK7000A1-JK7000A2

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



Isolated analog transmitters for potentiometer **JK7000A1**, **JK7000A2** are designed to provide simple solution for all transmissions problems and signals isolation.

This transducers range is designed in JM Concept unit unplugged from its rail DIN base.

Use of components that are efficient in a wide temperature ensures a very high level of reliability and very low thermal drift.

## TRANSMITTERS RANGE

To provide solutions for potentiometer isolation and transmission problems, JM Concept has designed 2 potentiometer analogue transmitters :

- **JK7000A1** : Input potentiometer transmitter, 1 current or tension output.
- **JK7000A2** : Input potentiometer transmitter, 2 separated non isolated current and/or tension output.

## TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Input potentiometer	-----	All potentiometer from 0-100 Ohms to 0-100 kOhms
Value range		

### OUTPUT CHARACTERISTICS

Output 1 in current	-----	0/20 mA ; 4/20 mA
Output 1 in tension	-----	0/10V
Output 2 in current (JK7000A2)	-----	0/20 mA ; 4/20mA
Output 2 in tension (JK7000A2)	-----	0/10V ; +/-10V

### OTHERS CHARACTERISTICS

Input impedance		
Potentiometer input	-----	Potentiometer supply value 2,5Vdc
Output impedance		
Current output 1	-----	< 900Ω
Tension output 1	-----	> 4.7KΩ
Output 2 in current (JK7000A2)	-----	< 650Ω
Output 2 in tension (JK7000A2)	-----	> 4.7KΩ
Technical characteristics		
Precision class	-----	< 0.10
Current output residual ripple	-----	< 20μA
Tension output residual ripple	-----	< 20mV
Response time	-----	< 20ms – other on demand
Thermal drift	-----	< 50ppm
Isolation		
Power supply / input	-----	2500Vac - 1mm - 50Hz
Power supply / output 1	-----	2500Vac - 1mm - 50Hz
Power supply / output (JK7000A2)	-----	2500Vac - 1mm - 50Hz
Input / Output 1	-----	2500Vac - 1mm - 50Hz
Input / Output 2 (JK7000A2)	-----	2500Vac - 1mm - 50Hz
Output / Output 2 (JK7000A2)	-----	no isolation
Auxiliary source		
Universal Auxiliary source	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac/60Vac

# JK7000A1-JK7000A2



## OTHER CHARACTERISTICS (PART 2)

Consumption		
Maximal consumption	-----	< 4VA
Temperature		
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Self extinguishable black polyamide ULV0

## OPTIONS REFERENCES

Passive output option		ORDER CODE ADDED TO DEVICE REFERENCE
1 Passive Output (JK7000A1 & JK7000A2) {sortie1}	-- 15V < U < 36V - 0/4/20mA -----	JKAPASS1 - 2
Varnish option		
Varnish JK7000A1, JK7000A2	-----	TROPICALISATION 225
Supply option 20Vac/60Vac		DEVICE CODE
Auxiliary supply 20Vac/60Vac	-----	JK7009A1 ; JK7009A2

## CONFIGURATION - WIRING - DIMENSIONS

### OUTPUTS ADJUSTEMENT

- On front face, output 1 is marked S1, output 2 is marked S2 (version **JK7000A2**).
- Outputs are independent one of the other, then beginning and full scale of each output are independently adjustable.

Outputs selection :

- Select with output switch (**JK7000A2**), chosen output type.

Adjustment principle :

- Wire on input terminals, a potentiometer value between 0-100 Ohms to 0-100 kOhms.
- Wire on output terminals to adjust, a multimeter in current or in voltage, according to chosen output.
- Set input potentiometer on low position.
- Adjust with potentiometer called « OFFSET » bottom output scale.
- Set input potentiometer on high position.

- Adjust with potentiometer « SCALE » top output scale.

Start again successively these 2 operations as much as it is necessary until you have low and high right scale values.

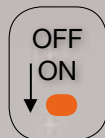
Factory configuration :

- **JK7000A1** transmitters are configured exit factory : Output : 4/20mA.
- **JK7000A2** transmitters are configured exit factory : Output 1 /Output 2 : 4/20mA.

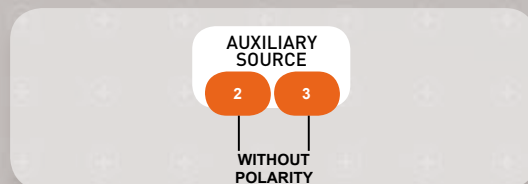
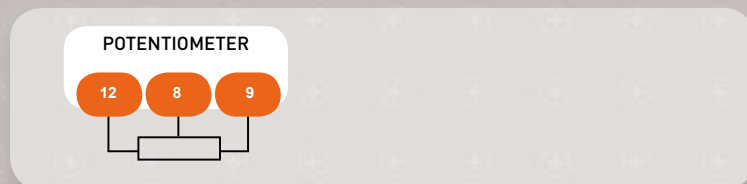
## OUTPUT 2 CONFIGURATION SWITCH

A switch located under the transmitter allows output 2 configuration.

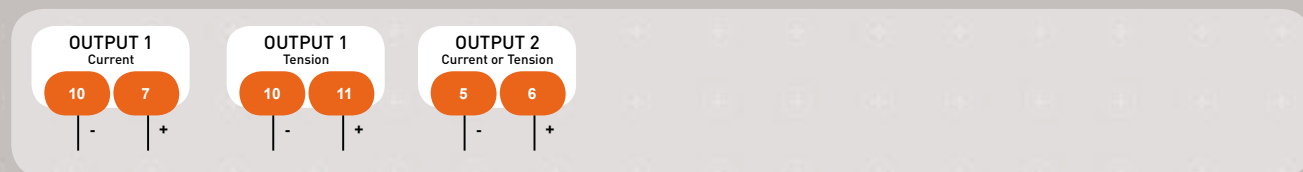
OUTPUT 2 SWITCH	1	2	3	4
Current 0/20mA			ON	
Current 4/20mA			ON	
Tension 0/10V		ON		
Tension +/- 10V	ON			



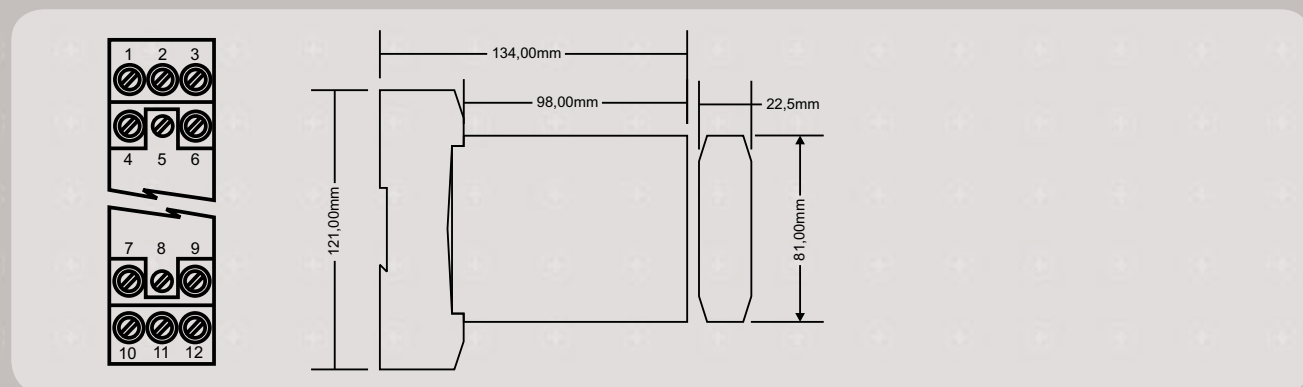
## POTENTIOMETER INPUT WIRINGS



## OUTPUT WIRING



## DIMENSIONS AND TERMINALS



SELF SUPPLIED LOOP ISOLATOR 0...4/20mA-0...4/20mA

# JK2001-JK2002

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



**JK2001 & JK2002** are self supplied loop isolator designed to provide low cost and easy solution for all signals isolation problems and interferences on analogue loop.

This isolator range is designed in a very small size case that can be mounted on symmetric or asymmetric DIN rail.

JM Concept loop isolators are declined in 2 ranges :

- **JK2001** Isolator input 0/4/20mA, output 0/4/20mA (1 channel).
- **JK2002** Input 0...4/20mA, output 0...4/20mA (2 separated channels in the same case).

## TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (dc)	-----	0...4/20 mA
Maximum Input voltage	-----	<28Vdc
Maximum Input current	-----	<50mA

### OUTPUT CHARACTERISTICS

Current	-----	0...4/20 mA
---------	-------	-------------

### OTHER CHARACTERISTICS

Output impedance		
Output impedance JK2001 & JK2002	-----	$150\Omega < R_c < 550\Omega$
Output impedance JK20S1 & JK20S2	-----	$0\Omega < R_c < 250\Omega$
Technical characteristics		
Precision	-----	< 0.15% ( $R_c=350\Omega$ - Temp=25°C)
Thermal drift	-----	< 50ppm
Response time	-----	< 30 ms
Isolation		
Input / Output	-----	2000Vac - 1mm - 50Hz
Channel 1 / Channel 2	-----	totally separated
Auxiliary source		
Auxiliary source	-----	Self-supplied by input loop without auxiliary supply
Temperature		
Operating temperature	-----	-10°C/+60°C
Storage temperature	-----	-25°C/+80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Self-extinguishable grey polyamide UL V0

## OPTIONS REFERENCE

#### Varnish option

Varnish JK20001, JK2002, JK200S2, JK200S2

ORDER CODE ADDED  
TO DEVICE

TROPICALISATION ISO

#### Low impedance option

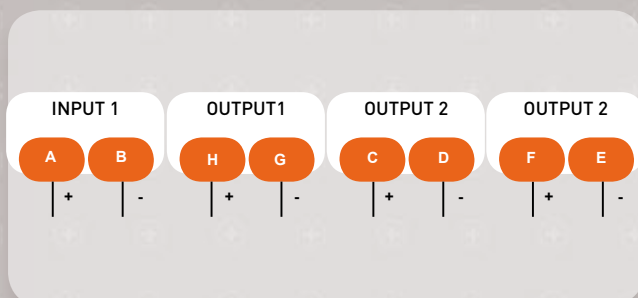
Output impedance -----  $0\Omega < R_c < 250\Omega$  -----

DEVICE CODE

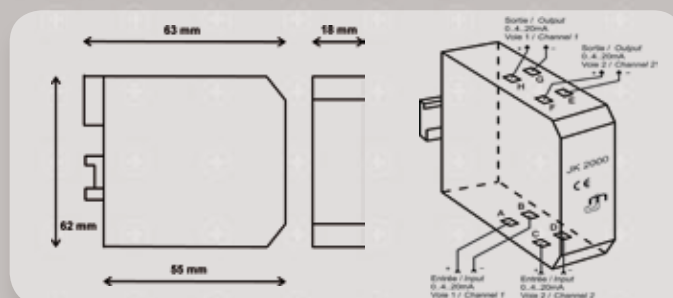
JK20S1 ; JK20S2

## CONFIGURATION - WIRING - DIMENSIONS

### JK2001 & JK2002 WIRINGS



### DIMENSIONS AND TERMINALS



## SENSOR POWER SUPPLY

# JK1000A2-JK1000A4

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



Sensor power supply **JK1000A2** & **JK1000A4** are designed to provide low cost solutions for all 2 wires problems of sensors supply, it allows isolation of supplied loop and, because of its current limitation, protection sensor against current overload in case of short circuit.

This supply range is designed in a JM Concept case unplugged from its rail DIN base.

Sensor power supply are designed in 2 ranges :

- **JK1000A2** Sensor power supply 2 outputs isolated between themselves.
- **JK1000A4** Sensor power supply 4 outputs isolated in two groups.

## TECHNICAL CHARACTERISTICS

### OUTPUT CHARACTERISTICS

Tension output	-----	< 24V
Current output	-----	22 mA for each output
		40mA for channel 1, if channel 2 not used (JK1000A2)
		40mA 1 & 3 for channel 1 & 3, if channel 2 & 4 not used (JK1000A4)

### OTHER CHARACTERISTICS

Isolation		
Supply / output	--	2500Vac - 1mn - 50Hz
Channel 1 / Channel 2 (JK1000A2)	--	2500Vac - 1mn - 50Hz
Channel 1 / Channel 2 (JK1000A4)	--	No isolation
Channel 3 / Channel 4 (JK1000A4)	--	No isolation
Channel 1&2 / Channel 3 & 4 (JK1000A4)	--	2500Vac - 1mn - 50Hz
Auxiliary source		
Universal auxiliary source	--	20Vdc/370Vdc & 80Vac/256Vac
Option	--	20Vac/60Vac
Consumption		
Maximal consumption	-----	< 4VA
Temperature		
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Self extinguishable black polyamide ULV0

## OPTIONS REFERENCE

Varnish option  
Varnish JK1000A2, JK1000A4

Supply option 20Vac/60Vac  
Auxiliary supply 20Vac/60Vac

ORDER CODE ADDED  
TO DEVICE REFERENCE

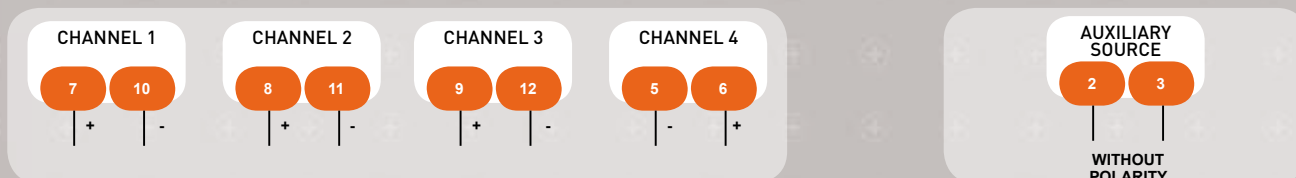
TROPICALISATION 225

DEVICE CODE

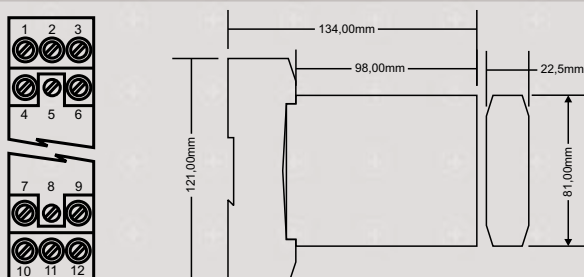
JK1009A2 ; JK1009A4

## CONFIGURATION - WIRING - DIMENSIONS

### SENSOR POWER SUPPLY WIRING



### DIMENSIONS AND TERMINALS



## ALTERNATIVE CURRENT INPUT TRANSDUCER

# JK6010A1

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



**JK6010A1** analog transducers are designed to provide solutions for all transmission and isolation problems on A.C signals. **JK6010A1** transducers are designed in JM Concept unit that can be unplugged from its self short circuiting DIN RAIL base.

Its technology is designed to provide simple and low cost solutions for these measures.

## TECHNICAL CHARACTERISTICS

### INPUT CHARACTERISTICS

Current (Ac)	-----	0/1A ; 0/5A Input <b>JK6010A1</b> on internal current transformer Ac current from 45 to 65 Hz
--------------	-------	---

### OUTPUT CHARACTERISTICS

Output current	-----	0/20mA ; 4/20mA
Output tension	-----	0/10V

### OTHER CHARACTERISTICS

Input		
Input current	-----	0/1A ; 0/5A on internal CT
Overload input	-----	10 In during 1s – 2 In permanent
Minimum measurable current	-----	50mA on scale 0/1A – 200mA on scale 0/5A
Input impedance	-----	< 5mΩ
Output impedance		
Current output	-----	< 900Ω
Tension output	-----	> 4.7KΩ
Technical characteristics		
Precision class	-----	< 0.25
Current output residual ripple	-----	< 20μA
Tension output residual ripple	-----	< 20mV
Response time	-----	< 300ms
Thermal drift	-----	< 100ppm
Measure type	-----	True RMS
Isolation		
Power supply / input	-----	4000 Vac - 1mn - 50Hz
Power supply / output	-----	2500 Vac - 1mn - 50Hz
Input / output	-----	4000 Vac - 1mn - 50Hz
Auxiliary source		
Universal Auxiliary source	-----	20Vdc/370Vdc & 80Vac/256Vac
Option	-----	20Vac / 60Vac
Consumption		
Maximal consumption	-----	< 3VA
Temperature		
Operating temperature	-----	-10°C/+60°C
Storage temperature	-----	-25°C/+80°C
Protection		
Protection index	-----	IP20
Case		
Case	-----	Self extinguishable black polyamide ULV0

# JK6010A-1



## OPTIONS REFERENCE

Varnish option

Varnish JK6010A1

-----

Supply option 20Vac / 60Vac

Auxiliary supply 20Vac / 60Vac

-----

ORDER CODE ADDED  
TO DEVICE REFERENCE

TROPICALISATION 225

DEVICE CODE

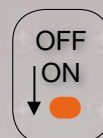
JK6019A1

## CONFIGURATION - WIRING - DIMENSIONS

An accessible switch located on the top of the transducer ensures to configure scale 5A to scale 1A.

### INPUT CONFIGURATION SWITCH

INPUT SWITCH	1	2
0/5 A		
0/1 A		



### OUTPUT ADJUSTEMENT

#### Output setting :

Set with input switch chosen input type.

- Wire on input terminals, an Ac current generator.
- Wire on output terminals to adjust, a multimeter in current or in voltage, according to chosen output.
- With the generator, generate signal corresponding to the input signal low value.
- Adjust with potentiometer called « OFFSET » the output scale bottom.
- With generator, generate signal corresponding to input signal high value.
- Adjust with potentiometer « SCALE » the output scale top.

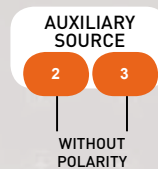
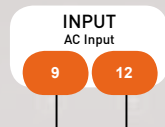
Start again successively these 2 operations as much as it is necessary until you have low and high right scale values.

### Output setting :

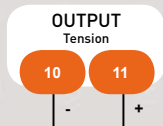
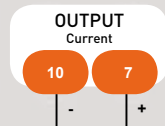
#### Note :

For a.c. input transducers such like **JK6010A1**, in order to be able to unplug it while it is live and in use, wiring base supplied is self-shorting base . Its reference is PLTC01, delivered with the transducer .

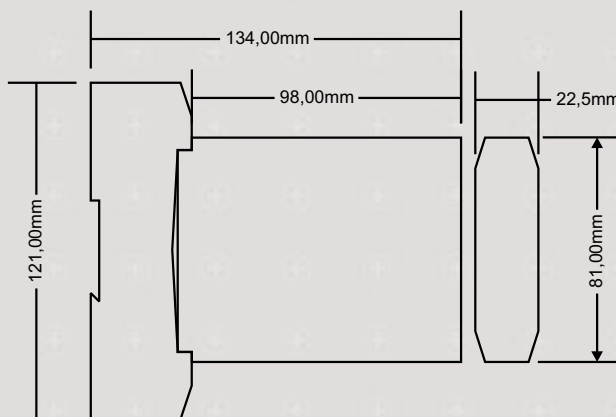
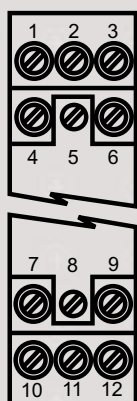
## INPUT WIRING



## OUTPUT WIRING



## DIMENSIONS AND TERMINALS



# WIRING BASES

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



**PLTB01**



**PLTB02**



**PLTB04**



**PLTB08**

JM Concept has designed a reliable wiring base system allowing to unplug the transmitter while it is live and in use and without modifying wiring.

Wiring standardisation allows changing transmitter reference without modifying wiring.

These wiring bases enable to plug one or several transmitters, the multichannel bases have a supply and RS485 bus making wiring easier.

## WIRING BASES RANGE

### WIRING BASES FOR DC INPUT

Wiring base for one transmitter

PLTB01	-----	Wiring base for one transmitter in width 22,5 mm case.
PLTB02	-----	Wiring base for one transmitter in width 45 mm case.

Wiring bases for several transmitters

PLTB02-2	-----	Wiring base for 2 transmitters in width 22,5 mm case. With supply and RS485 bus.
PLTB04	-----	Wiring base for 4 transmitters in width 22,5 mm case. With supply and RS485 bus.
PLTB04-2	-----	Wiring base for 2 transmitters in width 45 mm case. With supply and RS485 bus.
PLTB08	-----	Wiring base for 8 transmitters in width 22,5 mm case. With supply and RS485 bus.
PLTB08-2	-----	Wiring base for 4 transmitters in width 45 mm case. With supply and RS485 bus.

Wiring bases choice has to be done by user, **so they are not delivered with transmitters, and have to be ordered separately.**

### WIRING BASES FOR AC INPUT

PLTC01	-----	Wiring base for one ac transducer <b>JK6010A1</b> with self-shorting contact
PLTW02	-----	Wiring base for one power and energy transducer <b>WK6000TS/WK6000TU</b> With 3 self-shorting contacts.

# ISOLATION AND CONDITIONING INTERFACES FOR ANALOGUE AND DIGITAL SIGNAL

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



JM Concept has designed a simple system combining its analogue or digital transmitters and its prewired wiring bases, to make interface functions :

- From sensors to API or supervisory controls.
- From API to actuators.

Interfacing can be done through analogue bus or digital bus.

JM Concept interfacing system designing allows isolation per channel.

## PRINCIPAL

Analogue or digital JM Concept transmitters are designed as isolation interface and signal conditioning, between

- Sensors **and** API and/or supervisory controls.
- API and/or supervisory controls **and** actuators.

Transmitters can be used either in active input (sensor power supply is available in transmitter) or passive input.

Transmitters are unpluggable from their DIN rail base.

For easier using and installation, JM Concept has developed pre-wired multichannel plates. These wiring bases have :

- SUBD connections that ensure an analogue link between transmitters and API, by a simple wire.
- Unpluggable terminals allowing a simple link for digital signal transmission through digital bus.

This solution makes assembly easier, reduces wiring and maintenance time and increases reliability.

## VANTAGES

Besides easier assembly and high reliability, JM Concept interfacing system, has many advantages against isolation and conditioning API modules :

- Separate isolation between each channel from 2500V to 3750V according to transmitter.
- Sensor power supply avoiding common points.
- Number of transmitter can be adjusted to need.
- It is possible to plug on the same wiring base mA /V /mV/potentiometer and temperature input and allows to use only one standard non isolated analogue API input card.
- It is possible to plug on the same wiring base mA /V /mV/potentiometer and temperature input and allows to recover measures on digital bus.
- Direct link to API through only one cable.
- In case of transmitter failure only one channel will be out of order and thanks to unpluggable in used JM Concept system, this transmitter will be easily replaced without having to stop the API.

JM Concept has furthermore designed transmitters allowing protection against lightning impulse problems (LCIE report N° 60031114-529387). Interfacing systems can include this solution against lightning impulse and so bring more saving cost because it is possible to suppress lightning arrester on API inputs or outputs.

JM Concept analogue or digital interfacing solution enables to answer all API input or output problems while reducing cost as significant way.

## EXAMPLE

Here under example shows interfaces easy installation.  
This example shows acquisition from sensors to API.  
The same pre-wired solution exists in API to actuators way.



Up to 8 sensor inputs  
on wiring base

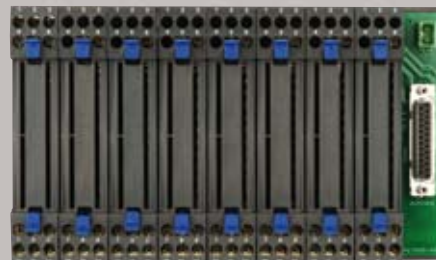
Up to 8 analogue outputs  
to API through only 1  
cable with SUBD

## INTERFACING SENSOR TO API

WIRING BASE TO USE IS REFERENCED PLTB08-AB

- 8 channels wiring base (Width: 202,5 mm)
- 8 transmitters 22,5 mm width can be plugged on.
- Isolated from each other mA inputs on screw terminals.
- Auxiliary supply bus.
- Digital bus.
- Isolated from each other current analogue outputs on SUBD25 points.
- Wiring cable allowing to connect to all API (not delivered with base).
- Isolated from each other mA outputs on screw terminals.

PLTB08-AB



## INTERFACING FROM API TO ACTUATORS

WIRING BASE TO USE IS REFERENCED PLTB08-AA

- 8 channels wiring base (Width: 225 mm)
- 8 transmitters 22,5mm width can be plugged on.
- Isolated from each other mA inputs on SUBD 25 points.
- Auxiliary supply bus.
- Digital bus.
- Isolated from each other current analogue outputs on SUBD25 points.
- Wiring cable allowing to connect to all API (not delivered with base).
- Isolated from each other mA outputs on screw terminals.

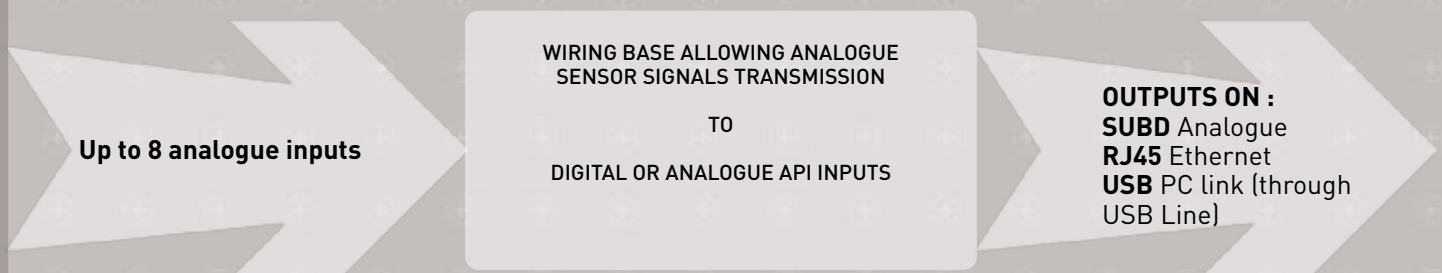


While this wiring base have 2 SUBD, it can also be used in sensor to API way.

**PLTB08-AA**

## NEW INTERFACING WIRING BASE

JM Concept has designed a new space-saving interfacing wiring base allowing outputs and inputs on bus and USB and Ethernet(RJ45) digital interfacing.



## INTERFACING WIRING BASE LINK CABLES

JM Concept manufactures all cable types allowing to connect our interfaces to all available API.

DIGITAL PANEL METER

# AKP-AKU

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



Isolated digital indicators **AKP** and **AKU** are designed to provide display and signals transmission solutions. Its unique programming principle on front plate or by digital output is easy to use.

Large available range functions provide solutions for complementary signals processing needs.

**AKP** and **AKU** indicators are designed in a fitted 48 X 96 X 75 mm case with unplugged connections and use JMConcept universal supply.

Use very efficient components in a wide temperature ensures a very high level of reliability and very low thermal drift.

## DIGITAL PANEL METER RANGE

To provide solutions for all problems, indicators **AKP** and **AKU** are declined in 2 ranges :

- **AKP** range Indicators with mV, V, mA, Potentiometer, and Pt100 input.
- **AKU** range Indicators with mV, V, mA, Potentiometer, Pt100 and Thermocouple input.

**AKP** and **AKU** series put forward different outputs :

- 0, 1 or 2 isolated analogue outputs.
- 0, 2 or 4 relays output 1 C/O.

To make easier their use, all **AKP** and **AKU** indicators have a RS485 MODBUS, JBUS, bidirectional digital link on screw terminal allowing programming and digital recovery of all measurements through :

Free software SET LINE or CKJM enables a very simple product configuration with PC (freely downloadable on our website).

UNI LINE communication interface (RS485 / TCP-IP modbus converter and RS232/RS485 converter).

## DIGITAL PANEL METERS FUNCTIONS

Digital indicators **AKP** and **AKU** have the following functions :

Display	-----	7 red segments display (green as an option) between -19 999 & 99 999.
Input scale factor	-----	Allows to provide a magnifying effect on input in manual or automatic calibration.
Output scale factor	-----	Allows to provide a magnifying effect on outputs and on display.
Min/max memory	-----	Minimum or maximum measured values memorisation.
Safety sensor	-----	Shows sensor break on display, analog output, by entering drop out value, independent for every outputs and on relays.
Simulation function	-----	Basic function on JM Concept devices. Allows action concerning output and display separately from input and without disconnecting input or output.
100 points Linearization	--	Linearization allows to create an output function by input signal segmentation.
Square root	-----	Output is square root of input.
Threshold	-----	Simple mode or band-mode with positive or negative safety. Threshold, hysteresis and temporization adjustment (separately from rise or fall). Direct access to thresholds. Alarm memorizing and alarm deleting.
Others functions	-----	Cut Off ; Resolution ; Comma ; Filtering ; Display light off.
Digital output	-----	All indicators have a RS485 MODBUS, JBUS, bidirectional digital link on screw terminal allowing digital recovery of all measurements, but it's also possible to configurate and drive the indicator.
CJC	-----	Cold Junction Compensation by RTD can automatically compensate terminals change of temperature.
Ajustment	-----	Allows to modify manually CJC factory value.



## GENERAL TECHNICAL CHARACTERISTICS

### TECHNICAL CHARACTERISTICS

Current input impedance	-----	4,75 $\Omega$
Tension & thermocouple input impedance	-	> 10 M $\Omega$
RTD input	-----	Current < 1mA
Current output impedance	-----	< 950 $\Omega$
Voltage output impedance	-----	> 4,7 k $\Omega$
Power supply sensor	-----	U < 24V - I < 29mA
Precision class	-----	< 0.10%
Thermal drift	-----	< 50ppm
Response time	-----	< 250ms
Relay output	-----	1C/O - 2A/250Vac

### OTHER TECHNICAL CHARACTERISTICS

Supply / input / outputs isolation	-----	2500Vac - 1mn - 50Hz
Analogue output / digital output isolation	----	Without
Standard auxiliary source	-----	20Vdc/370Vdc & 80Vac / 256Vac
Auxiliary source in option	-----	20Vac/60Vac
Consumption	-----	< 4VA
Operating temperature	-----	-10°C / +60°C
Storage temperature	-----	-25°C / +80°C
Protection index	-----	Front face IP65
Case	-----	Self extinguishable black polyamide ULV0
Option	-----	Tropicalisation

## AKP INDICATORS RANGE CHARACTERISTICS

### DIGITAL PANEL METERS WITHOUT RELAYS AK3000P0 - AK3000P1

<b>AK3000P0 - AK3000P1 input</b>		
Current (dc)	-----	Standard scales : 0/20mA ; 4/20mA
	-----	Adjustable scales : From -2mA to 20mA
Voltage (dc)	-----	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; +/-10V ; 0/50V ; 0/100V ; 0/200V
	-----	Adjustable scales : From -20mV to 110mV ; From -20V to 200V
Potentiometer	-----	Potentiometer from 100 $\Omega$ to 100K $\Omega$ - other value on demand
RTD	-----	PT100 2 or 3 wires - other on demand
Sensor power supply	-----	Sensor 2 or 3 wires - Sensor power supply : 24V , 29mA max
<b>AK3000P0 outputs</b>		
Current output	-----	no current output
Voltage output	-----	no tension output
Digital output	-----	RS 485 isolated from output - Modbus , Jbus—Digital output enables <b>AKP</b> programming and allows recovering every measurement.
<b>AK3000P1 outputs</b>		
Current output	-----	Standard scales : 0/20mA ; 4/20mA
	-----	Adjustable scales : From 0 to 20mA
Voltage output	-----	Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V
	-----	Adjustable scales : From 0 to 10V
Digital output	-----	RS 485 isolated from output - Modbus , Jbus—Digital output enables <b>AKP</b> programming and allows recovering every measurement.

## DIGITAL PANEL METERS **WITH** RELAY AK3200P0 - AK3200P1 - AK3400P1

### AK3200P0 - AK3200P1 - AK3400P1 input

Current (dc)	---	Standard scales : 0/20mA ; 4/20mA Adjustable scales : From -2mA to 20mA
Voltage (dc)	---	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; +/-10V ; 0/50V ; 0/100V ; 0/200V Adjustable scales : From -20mV to 110mV ; From -20V to 200V
Potentiometer	---	Potentiometer value from 100Ω to 100KΩ - other value on demand
RTD	---	RTD 2 or 3 wires - other on demand
Sensor power supply	---	Sensor 2 or 3 wires - Sensor power supply : 24V , 29mA max

### AK3200P0 outputs

Current output	---	no current output
Voltage output	---	no tension output
Relay output	---	2 Relays 1C/O - 2A /250Vac
Digital output	---	RS 485 isolated from input - Modbus, Jbus - Digital output enables the <b>AKP</b> programming. Digital output allows recovering every <b>AKP</b> measurement.

### AK3200P1 - AK3400P1 outputs

Current output	---	Standard scales : 0/20mA ; 4/20mA Adjustable scales : From 0mA to 20mA
Voltage output	---	Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V Adjustable scales : From 0 to 10V
Relay output	---	2 Relays 1C/O (AK3200P1) and 4 relays 1C/O (AK3400P1)
Digital output	---	RS 485 isolated from input - Modbus, Jbus - Digital output enables the <b>AKP</b> programming. Digital output allows recovering every <b>AKP</b> measurement

## AKU INDICATORS RANGE CHARACTERISTICS

## DIGITAL PANEL METERS **WITHOUT** RELAY AK9000U1

### AK9000U1 input

Current (dc)	---	Standard scales : 0/20mA ; 4/20mA Adjustable scales : From -2mA to 20mA
Voltage (dc)	---	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; +/-10V ; 0/50V ; 0/100V ; 0/200V Adjustable scales : From -20mV to 110mV ; From -20V à 200V
Potentiometer	---	Potentiometer value from 100Ω à 100KΩ - other value on demand
RTD	---	PT100 2 or 3 wires - other on demand
Thermocouple	---	J ; K ; R ; S ; T ; E ; B ; N ; W3 ; NiMo - others thermocouples on demand
Sensor power supply	---	Sensor 2 or 3 wires - Sensor power supply : 24V , 29mA max

### AK9000U1 output

Current (dc)	---	Standard scales : 0/20mA ; 4/20mA Adjustable scales : From 0 to 20mA
Voltage (dc)	---	Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V Adjustable scales : From 0 to 10V
Digital output	---	RS 485 isolated from output - Modbus, Jbus—Digital output enables <b>AKU</b> programming and allows recovering every measurement.

## DIGITAL PANEL METERS **WITH** RELAY AK9200U1 - AK9200U1 - AK9400U2

### AK 9200 U1 - AK 9400 U1 - AK 9400 U2 input

Current (dc)	---	Standard scales : 0/20mA ; 4/20mA / Adjustable scales : From -2mA to 20mA
Voltage (dc)	---	Standard scales : 0/100mV ; 0/1V ; 0/5V ; 1/5V ; 0/10V ; 2/10V ; +/-10V ; 0/50V ; 0/100V ; 0/200V Adjustable scales : From -20mV to 110mV ; From -20V to 200V
Potentiometer	---	Potentiometer from 100Ω à 100KΩ - other value on demand
RTD	---	PT100 2 or 3 wires - other on demand
Thermocouple	---	J ; K ; R ; S ; T ; E ; B ; N ; W3 ; NiMo - other on demand
Sensor power supply	---	Sensor 2 or 3 wires - Sensor power supply: 24V , 29mA max



## DIGITAL PANEL METERS **WITH** RELAY AK9200U1 - AK9200U1 - AK9400U2

### AK9200U1 outputs

- Current output** --- Standard scales : 0/20mA ; 4/20mA  
Adjustable scales : From 0 to 20mA
- Voltage output** --- Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V  
Adjustable scales : From 0 to 10V
- Relay output** --- 2 Relays 1C/O - 2A /250Vac
- Digital output** --- RS 485 isolated from input - Modbus , Jbus – Digital output enables the **AKU** programming.  
Digital output allows recovering every **AKU** measurement

### AK9400U1 outputs

- Current output** --- Standard scales : 0/20mA ; 4/20mA  
Adjustable scales : From 0 to 20mA
- Voltage output** --- Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V  
Adjustable scales : From 0 to 10V
- Relay output** --- 4 Relay 1C/O - 2A /250Vac
- Digital output** --- RS 485 isolated from input - Modbus , Jbus – Digital output enables the **AKU** programming.  
Digital output allows recovering every **AKU** measurement

### AK9400U2 outputs

- Current output 1** --- Standard scales : 0/20mA ; 4/20mA  
Adjustable scales : From 0 to 20mA
- Current output 2** --- Standard scales : 0/20mA ; 4/20mA  
Adjustable scales : From 0 to 20mA
- Voltage output 1** --- Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V  
Adjustable scales : From 0 to 10V
- Voltage output 2** --- Standard scales : 0/10V ; 0/5V ; 1/5V ; 2/10V  
Adjustable scales : From 0 to 10V
- Outputs isolation** --- Output 2 is isolated from output 1 1000Vac permanent
- Relay output** --- 4 Relays 1C/O - 2A /250Vac
- Digital output** --- RS 485 isolated from input - Modbus , Jbus – Digital output enables the **AKU** programming.  
Digital output allows recovering every **AKU** measurement

## OPTIONS REFERENCES

### Passive output option

1 Passive Output (Output 1) ----- 15V < U < 36V - 0/4/20mA ----- AKPASS1-1

### Varnish option

Varnish AK without relay -----

Varnish AK with relay -----

### ORDER CODE ADDED TO DEVICE REFERENCE

TROPICALISATION AK  
TROPICALISATION AKRL

### DEVICE CODE

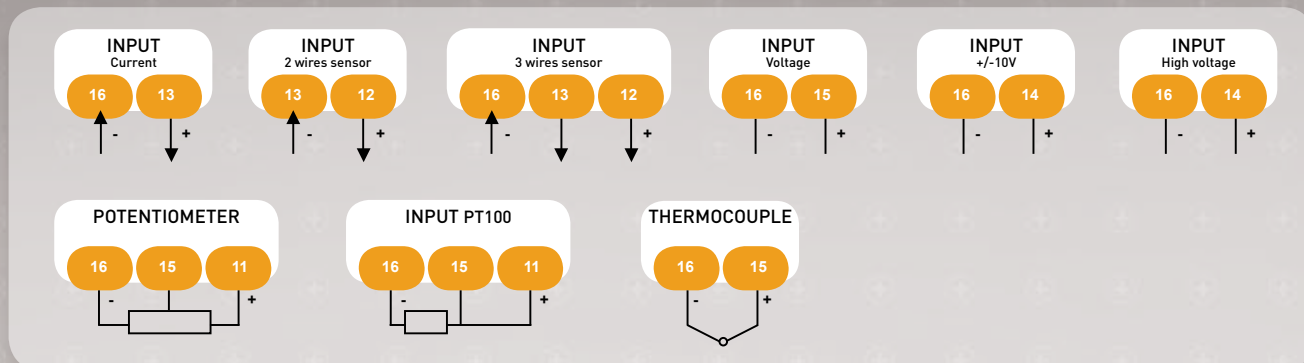
### Supply option 20Vac/60Vac

Auxiliary supply 20Vac/60Vac -----

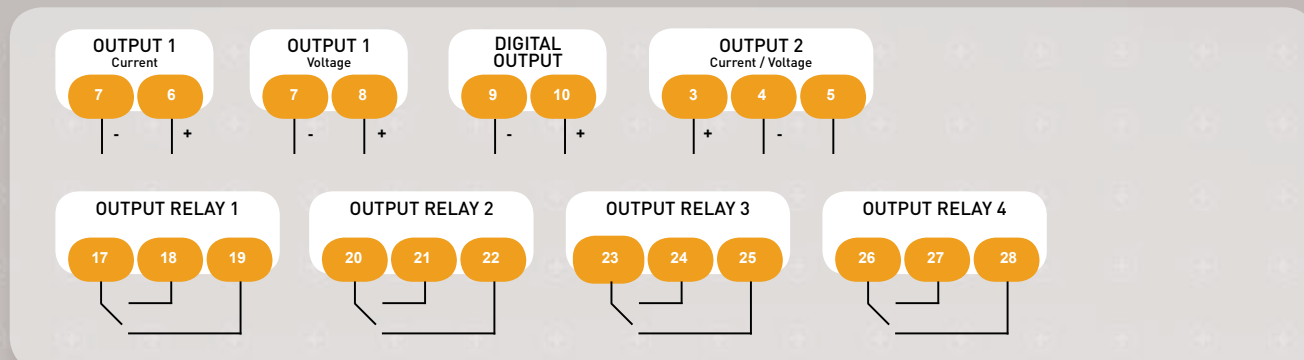
AK3X09PX - AK9X09UX

## CONFIGURATION - WIRING - DIMENSIONS

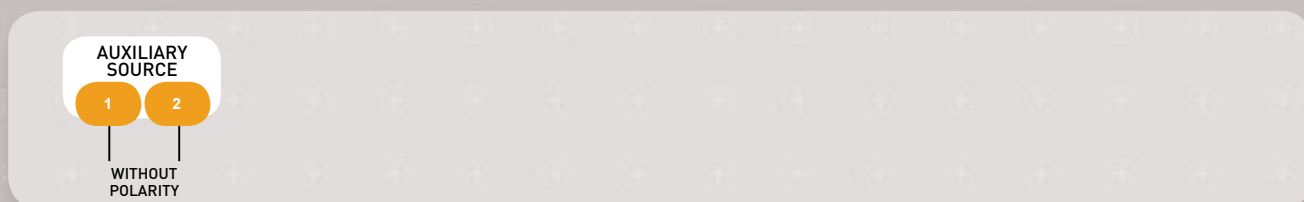
### INPUTS WIRING



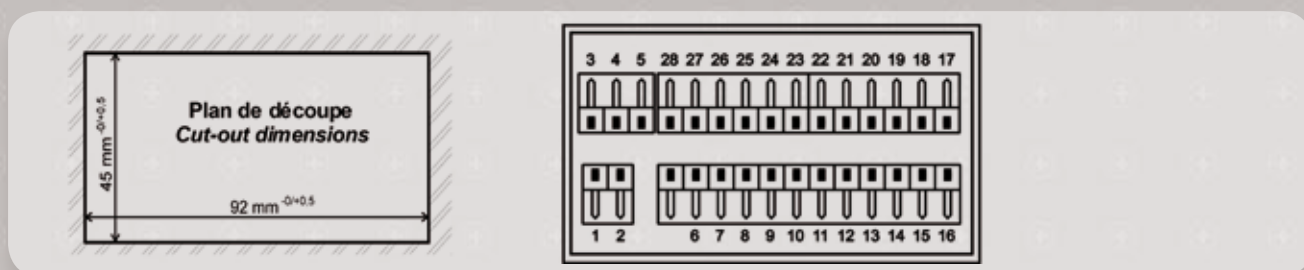
### OUTPUTS WIRING



### POWER SUPPLY WIRING



### DIMENSIONS AND TERMINALS



TRANSDUCERS POWER-ENERGY

# WK6000TS-WK6000TU

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



**WK6000TS** and **WK6000TU** power transducers provide a simple solution to all measurement problems, analysis, transmission, management and conversion of electrical parameters.

**WK6000TS** and **WK6000TU** power transducers are designed in a JM Concept case unplugged from its rail DIN base., with self-shortening contacts on current inputs, and use universal JM Concept supply.

Use of very efficient components in a wide temperature range ensures a very high reliability level and very low thermal drift rate.

**WK6000TS** and **WK6000TU** transducers are easily programmable via PC by free downloadable software.

## WK6000TS-WK6000TU RANGE

In order to give solutions to all problems, **WK6000TS** and **WK6000TU** are available in 2 ranges :

- **WK6000TS** power measurement transducers have digital link RS485 (MODBUS, JBUS) on screw terminals and an USB connector on front face, allowing to recover measures and to transmit them in digital.
- **WK6000TU** power measurement transducers have analogue outputs, pulses outputs, relays outputs and, digital link RS485 (MODBUS, JBUS) on screw terminals and an USB connector on front face, allowing to recover the measures and to transmit them in digital.

Unplugged power measurement **WK6000TS** and **WK6000TU** units are designed to measure and to convert each electrical parameter of primary and composed values, on every electrical network type: monophasic, three-phase balanced or unbalanced, 3 or 4 wires, for all current and tension values.

Unplugged power measurement **WK6000TS** and **WK6000TU** units are sold with their PLTW02 wiring base with self short-circuiting contacts for current inputs.

Current inputs are galvanically isolated between themselves with internal current transformers.

Analogue and relays outputs can be programmed on all available measure on **WK6000TU** only.

Pulses outputs can be programmed on all available energy measure on **WK6000TU** only.

**WK6000** range is declined in two references (width case 45 mm) :

### WK6000TS

Monophasic ,  
3 and 4 phases input  
Balanced or unbalanced

1 RS485 output

1 USB output

### WK6000TU

Monophasic ,  
3 and 4 phases input  
Balanced or unbalanced

1 to 3 Isolated  
analogue output

0 to 2 pulses outputs

2 Relays outputs N/O

1 RS485 output

1 USB output

# WK6000TS-WK6000TU



## WK6000TS-WK6000TU CONFIGURATION

**WK6000TS** and **WK6000TU** power measurement units have a serie bidirectional digital link RS485 MODBUS, JBUS, than it is possible to recover measures and to transmit them in digital, it is also possible to configure and to drive the power measurement unit.

This digital link is availaible on :

- Front face with USB connector allowing through USB LINE cable to wire the tranducer to PC USB connector.
- On screw terminal allowing, as all JM Concept devices, through UNI LINE communication interface (RS485 / TCP-IP modbus converter and RS232/RS485 converter) witch enables to interact with **WK6000TS** and **WK6000TU** power measurement unit in INTRANET, ETHERNET.

Use of free software SET LINE enables a very simple product configuration with PC.

## FUNCTIONS

**WK6000TS** and **WK6000TU** power measurement units have the following functions:

Integration time	-----	Programmable from 1mn to 99mn
Cut off in voltage	-----	Programmable from 5V to 50V
Cut off in current	-----	Programmable from 0.05A to 1.00A
Input scale factor	-----	Allows providing a magnifying effect on the outputs <b>WK6000TU</b> only
CT transformation report	-----	CT: Primary from 1A to 9999A, Secondary from 5A or 1A
VT transformation report	-----	VT: Primary from 1V to 100KV, Secondary from 1V to 700V
Segmentation	-----	A break line can be programmed on analog ouput affected to any parameter <b>WK6000TU</b> only

## WK6000TS-WK6000TU AVAILABLE MEASUREMENTS

PRIMARY MEASUREMENT		NB			NB
Voltage between phases	-----	3	Frequency	-----	3
Average voltage between phases	-----	1	Cos phi per phase	-----	3
Voltage between phase and neutral	-----	3	Cos phi average	-----	1
Line current	-----	3	Tangent phi	-----	1
Neutral current	-----	1	Phase angle	-----	1
Average current	-----	1			

POWER MEASUREMENT		NB			NB
Active power per phase	-----	3	Average active power OUT	-----	1
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

**ENERGY MEASUREMENT**

Active energy IN  
Reactive energy IN  
Active energy OUT

-----  
-----  
-----

**NB**

1  
1  
1

Reactive energy OUT  
Apparent energy IN  
Apparent energy OUT

-----  
-----  
-----

**NB**

1  
1  
1

## TECHNICAL CHARACTERISTICS

### OTHER CHARACTERISTICS

**Precision class**

On primary values (I, U, F)	-----	0.30%
On composed values (P, Q ...)	-----	0.50%
Thermal drift	-----	< 100ppm
Response time	-----	< 300ms
Measurement in true RMS	-----	Until row 11
Testing frequency	-----	2000 Hz per phase

**Isolation**

Supply/ input - outputs isolation	-----	2500Vac - 1mn - 50Hz
Input / outputs isolation	-----	2500Vac - 1mn - 50Hz
Analogue output / digital Output isolation	-----	Without

**Auxiliary source**

Standard auxiliary source	-----	20Vdc/370Vdc& 80Vac/256 Vac
Auxiliary source in option	-----	20Vac/60Vac
Consumption	-----	< 6VA

**Temperature**

Operating temperature	-----	-25°C / +60°C
Storage temperature	-----	-40°C / +80°C

**Protection index**

	-----	IP20
--	-------	------

**Case**

	-----	Self-extinguishable black polyamide ULV0
--	-------	--

### WK6000TS-WK6000TU INPUTS

**Current input**

Current input value (Ac)	-----	0/5A ; 0/1A programmable from 0 to 6,5A or 0 to 1,3A
Measurement type	-----	On Current Transformer
Admissible overload	-----	10 In 1s - 2 In permanent
Minimum measurable signal	-----	50 mA
Maximum measurable signal	-----	2.5A for 0/1A scale - 7A for 0/5A scale
Input impedance	-----	5 mΩ

**Voltage input**

Voltage input value (Ac)	-----	0/100V ; 0/250V ; 0/500V ; 0/700V ; auto
Admissible overload	-----	1000V permanent
Minimum measurable signal	-----	5V scale 0/100V - 10V scale 0/250V ; 15V scale 0/500V - 20V scale 0/700V
Maximum measurable signal	-----	150V scale 0/100V - 340V scale 0/250V - 600V scale 0/500V - 750V scale 0/700V
Input impedance	-----	13.5 MΩ per phase



# WK6000TS-WK6000TU

## WK6000TS-WK6000TU OUTPUTS

### Current output

**Current output load** -----  $< 950 \Omega$

**Residual drift** -----  $20 \mu A$

### Pulse output

**Characteristics** ----- Open collector  
 $U_{min} = 10Vdc$   $U_{max} = 250 Vdc$   $I_{max} = 20mA$

### Relay outputs

**Characteristics** ----- 1N/O - 2A/250Vac - 1N/C on option

## OPTIONS REFERENCES

### Varnish option

**Varnish WK6000 in 45 mm idth case** -----

ORDER CODE ADDED  
TO DEVICE REFERENCE

TROPICALISATION 450

### Supply option 20Vac à 60Vac

**Auxiliary supply 20Vac/60Vac** -----

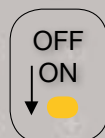
DEVICE CODE

WK6009TS- WK6009TU

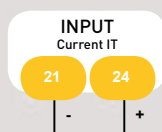
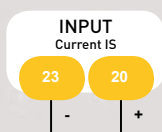
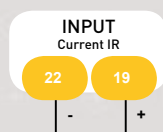
## CONFIGURATION-WIRING-DIMENSIONS

### OUTPUTS WIRING

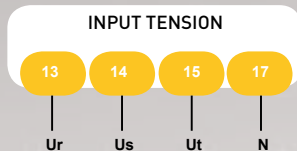
OUTPUT SWITCH	1	2	3	4
Output 2 current	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Output 2 impulsion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Output 3 current	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Output 3 impulsion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



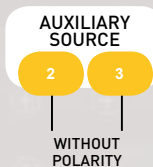
### INPUTS CURRENT WIRING



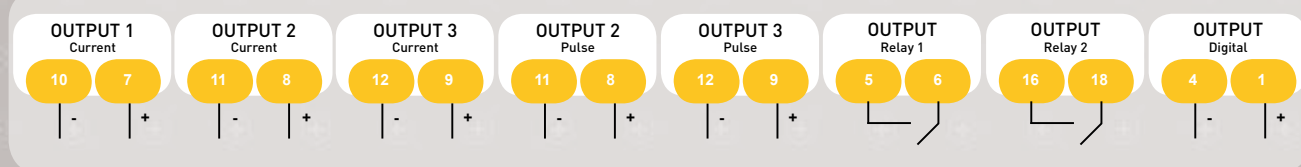
## INPUTS VOLTAGE WIRING



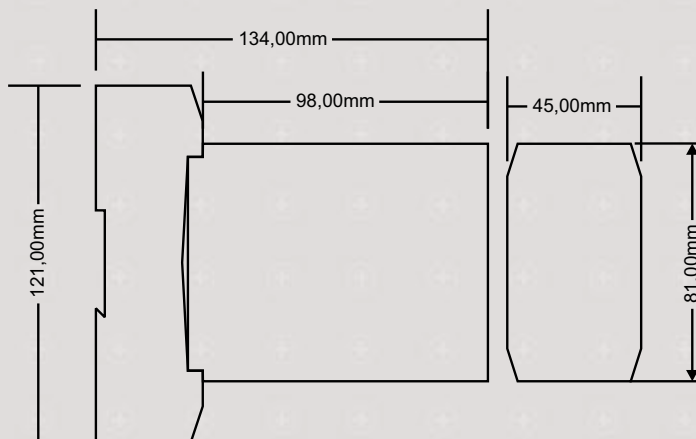
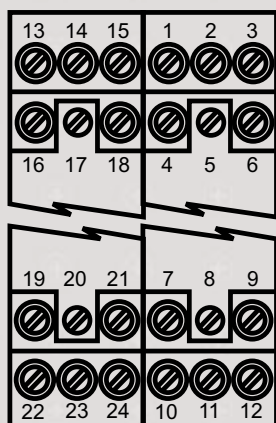
## AUXILIARY SOURCE WIRING



## OUTPUTS WIRING



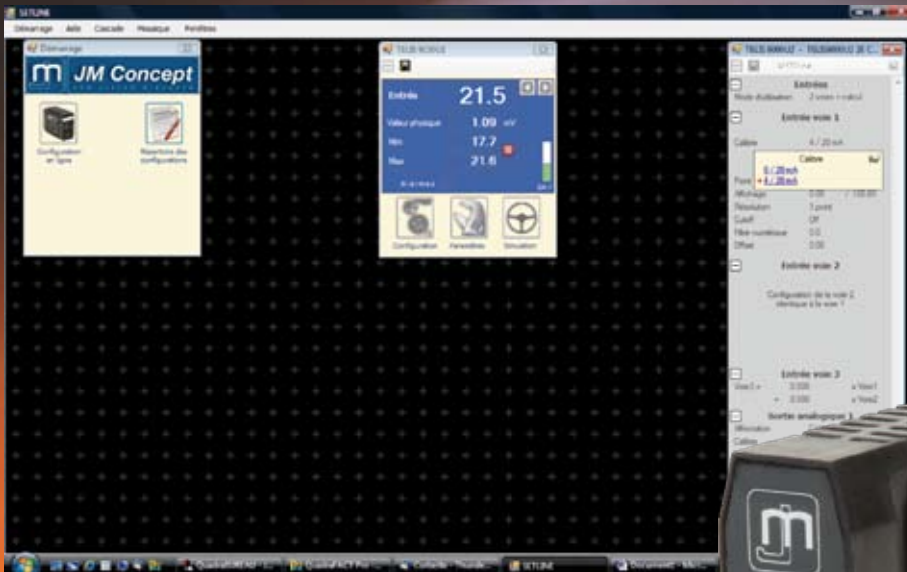
## DIMENSIONS AND TERMINALS



# PROGRAMMATION & COMMUNICATION TOOLS AND INTERFACES

JM Concept s.a. - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)

**5** years  
warranty



SETLINE



USBLINE



UNILINE

**JM Concept** has designed a very easy using communication and programming interfaces range in order to answer to different possibilities of digital output transmitter using.

## USBLINE

**USBLINE** is a wiring cable between JM Concept new transmitter front face USB plug and PC USB plug. JM Concept transmitters can be programmed with our software **SETLINE**, freely downloadable on our website.

## UNILINE

**UNILINE** is a multi-communication interface allowing conversion of our RS485 transmitter digital output to :

- TCP-IP modbus.
- USB, via **USBLINE**.

**UNILINE** has to be plugged on JM concept 22,5 mm wiring base or interfacing wiring base. Available outputs are located on front face on :

- RJ45 plug for TCP-IP output.
- USB plug for digital output.

**UNILINE** enable communication from :

- PC or API (INTRANET, ETHERNET) link, to JM Concept digital transmitters RS485 digital output.
- USB PC plug via **USBLINE** to JM Concept digital transmitters RS485 digital output.

**UNILINE** Characteristics

- Universal auxiliary supply 20Vdc/370Vdc & 80Vac/256Vac.
- 22,5 mm width case unpluggable from DIN RAIL wiring base or from multichannel wiring base.
- Delivered without wiring base.

## SETLINE

In order to make easier configuration JM Concept has designed a very friendly and advanced human machine interface.

All our configuration softwares are freely downloadable on our website <http://www.jmconcept.com>

**SETLINE** is a very easy using PC software allowing JM Concept transmitter configuration and communication.

CKJM is a very easy using PC software allowing JM Concept old range transmitters configuration and communication, for **SETLINE** not referenced transmitters.

SOON

Alternative input for **TELIS**



## INFORMATION

**JM Concept** can complete its selling offer with different types of current transformers mounted ahead WK power transducers or alternative current input transducers.

## INTERNATIONAL RULES CONFORMITY FOR JM CONCEPT DEVICES

### ENVIRONMENTAL TESTING

Cold	-----	IEC 60068 - 2 - 1
Dry heat	-----	IEC 60068 - 2 - 2
Damp heat steady state	-----	IEC 60068 - 2 - 78
Sinusoidal vibrations	-----	IEC 60068 - 2 - 6
Change of temperature	-----	IEC 60068 - 2 - 14
Chock	-----	IEC 60068 - 2 - 27
Bump	-----	IEC 60068 - 2 - 29
Degrees of protection (IPcode)	-----	IEC 60529

### INDUSTRIAL PROCESS MEASUREMENT

Climatic conditions	-----	IEC 60654 - 1
Power supply	-----	IEC 60654 - 2
Technical influences	-----	IEC 60654 - 3

### ELECTROMAGNETIC COMPATIBILITY

Radio frequency disturbance	-----	EN 55011 Classe A
Requirement for household appliances	-----	EN 55014
Limits for harmonic current emissions	-----	EN 61000 - 3 - 2
Limitations of voltage exchange	-----	EN 61000 - 3 - 3
Electrostatic discharge immunity test(Contact)	-----	IEC 61000 - 4 - 2 4KV
Electrostatic discharge immunity test (Air)	-----	IEC 61000 - 4 - 2 8KV
Electromagnetic field immunity test	-----	IEC 61000 - 4 - 3 10V/m
Electrical fast transient / burst immunity test	-----	IEC 61000 - 4 - 4 4KV
Surge immunity test	-----	IEC 61000 - 4 - 5 3KV
Immunity to conducted disturbances	-----	IEC 61000 - 4 - 6
Power frequency magnetic test	-----	IEC 61000 - 4 - 8 30A/m
Pulse magnetic immunity test	-----	IEC 61000 - 4 - 9 1000A/m
Short interrupt.and voltage variations immunity	-----	IEC 61000 - 4 - 11
Oscillatory waves immunity test	-----	IEC 61000 - 4 - 12 3KV
Dielectric strenght	-----	IEC 60255 - 5 2.5KV - 50Hz


### PRINTED CIRCUIT BOARD (PCBS)

Foil side varnish protection	-----	UL 94V0
Rigid multilayer printed boards	-----	IEC 62326 - 4

## INTERNATIONAL RULES CONFORMITY ONLY FOR WK6000

### ELECTRICAL MEASUREMENTS

Electronical measuring transducers	-----	IEC 60688
------------------------------------	-------	-----------



Our distributor :



**JM Concept s.a.** - 18 chemin des Tard-Venus - BP37 - F 69530 BRIGNAIS - FRANCE  
Tel. : 33 472 318 318 - Fax : 33 472 318 311 - mail : [jmc@jmconcept.com](mailto:jmc@jmconcept.com) - site : [www.jmconcept.com](http://www.jmconcept.com)