

**Modules**

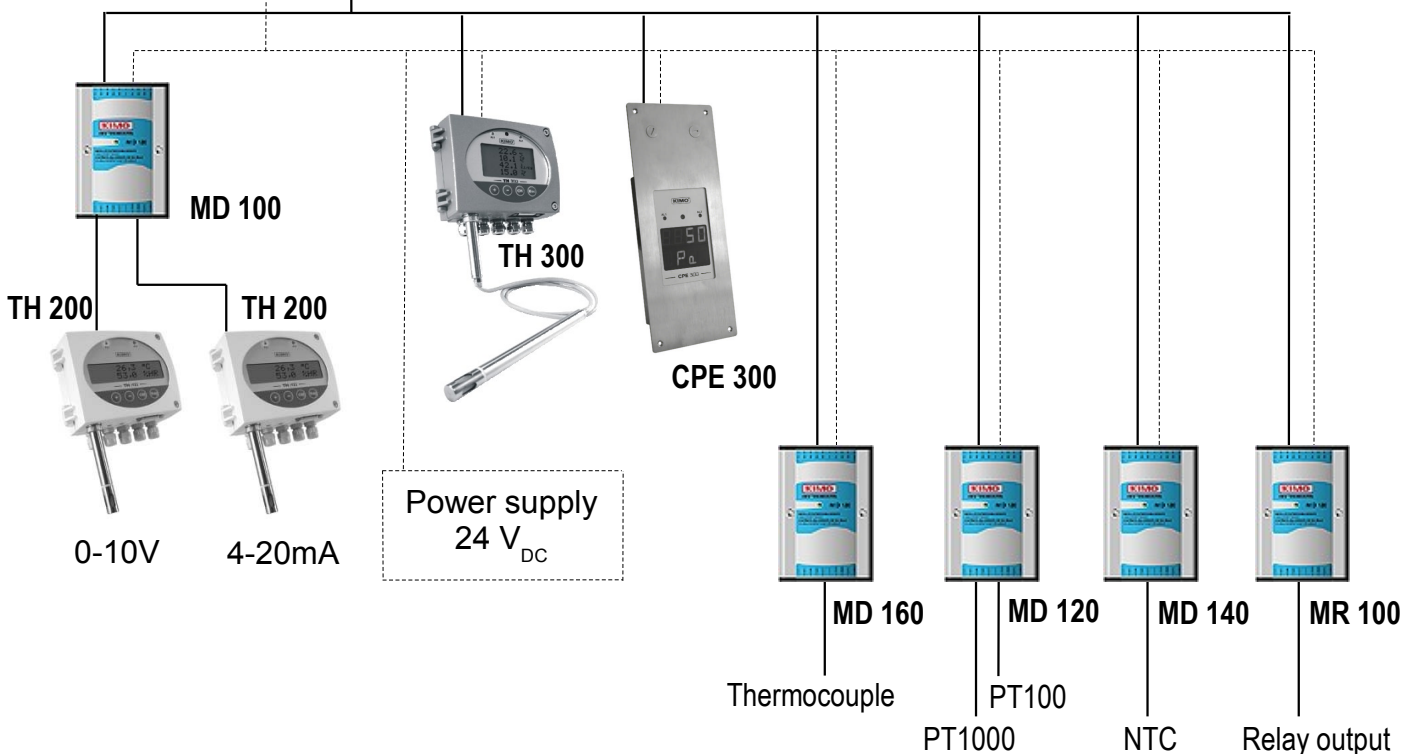
**MD 100, MD 120, MD 140,  
MD 160 and MR 100.**



Modules enable to receive and transmit voltage, current, thermocouple temperature, RTD temperature data. Modules can be configured with AKIVISION software.



RS 485



## Analog input and relay output modules

	<b>MD 100</b>	<b>MR 100</b>
	<b>Analog input modules</b> 8 analog inputs 0-10V or 4-20mA Modbus-enabled	<b>Relay modules</b> 8 relay outputs, Modbus-enabled
<b>Specifications</b> <i>Connectors</i> <i>Power consumption</i> <i>Dimensions</i> <i>Housing</i> <i>Mounting</i> <i>Power supply</i> <i>Watchdog timer</i>	2 plug-in terminal block (#14-28AWG) 1.2W @ 24V <sub>DC</sub> 31 x 70.5 x 102 mm Anodised aluminum DIN rail, wall Unregulated 10~30 V <sub>DC</sub> included	2 plug-in terminal block (#14-28AWG) 0.6W @ 24V <sub>DC</sub> 31 x 70.5 x 102 mm Anodised aluminum DIN rail, wall Unregulated 10~30 V <sub>DC</sub> included
<b>Environment</b> <i>Humidity</i> <i>Operating temperature</i> <i>Storage temperature</i>	From 5 to 95%RH From -10 to +70°C From -25 to +85°C	From 5 to 95%RH From -10 to +70°C From -25 to +85°C
	<b>Analog input</b> <i>Accuracy</i> ± 0.1% or better <i>Bandwidth</i> 13.1Hz @ 50Hz, 15.72Hz @ 60Hz <i>Input range</i> ±150mV, ±500mV, ±1V, ±5V <i>Channels</i> 8 differential <i>Input impedance</i> 20 MΩ <i>Input type</i> mV, V, mA <i>Resolution</i> 16 bits <i>Isolation voltage</i> 3000 V <sub>DC</sub> <i>Overvoltage</i> Withstands <i>Protection</i> up to ±35V <i>Sampling rate</i> 10 samples/sec.	<b>Relay output</b> <i>Breakdown voltage</i> 500V <sub>AC</sub> (50/60 Hz) <i>Channels</i> 4 x form A 4 x form C ±10V, ±20mA, 4-20mA <i>Contact rating</i> AC : 0.6A @ 125V 0.3A @ 250V DC : 2A @ 30V 0.6A @ 110V <i>Insulation resistance</i> 1GΩ min. at 500V <sub>DC</sub> <i>Relay off time</i> 4ms <i>Relay on time</i> 3ms  <i>Span drift</i> ±25 ppm/°C <i>Zero drift</i> ±6 mV/°C



## Temperature modules

	<b>MD 120</b>	<b>MD 140</b>	<b>MD 160</b>
	6 temperature inputs (PT100/PT1000) Modbus-enabled	6 temperature inputs (NTC) Modbus-enabled	8 temperature inputs (thermocouple) Modbus-enabled
<b>Specifications</b>			
<i>Connectors</i>	2 plug-in terminal block (#14-28AWG)	2 plug-in terminal block (#14-28AWG)	2 plug-in terminal block (#14-28AWG)
<i>Power consumption</i>	1.2W @ 24V <sub>DC</sub>	1.2W @ 24V <sub>DC</sub>	0.8W @ 24V <sub>DC</sub>
<i>Wire-burnout detector</i>	Yes	Yes	Yes
<i>Dimensions</i>	31 x 70.5 x 102 mm	31 x 70.5 x 102 mm	31 x 70.5 x 102 mm
<i>Housing</i>	Anodised aluminum	Anodised aluminum	Anodised aluminum
<i>Mounting</i>	DIN rail, wall	DIN rail, wall	DIN rail, wall
<i>Power supply</i>	Unregulated 10~30 V <sub>DC</sub>	Unregulated 10~30 V <sub>DC</sub>	Unregulated 10~30 V <sub>DC</sub>
<i>Watchdog timer</i>	1.6 sec. (system) Protection SVT/DES included	1.6 sec. (system) Protection SVT/DES included	1.6 sec. (system) Protection SVT/DES included
<b>Environment</b>			
<i>Humidity</i>	From 5 to 95%RH	From 5 to 95%RH	From 5 to 95%RH
<i>Operating temperature</i>	From -10 to +70°C	From -10 to +70°C	From -10 to +70°C
<i>Storage temperature</i>	From -25 to +85°C	From -25 to +85°C	From -25 to +85°C
<b>Analog input</b>			
<i>Accuracy</i>	± 0.05% or better	± 0.05% or better	± 0.1% for voltage input
<i>Bandwidth</i>	2.62 Hz	2.62 Hz	13.1Hz @ 50Hz, 15.72Hz @ 60Hz
<i>CMR @ 50-60 Hz</i>	150dB	150dB	92dB
<i>Resolution</i>	16 bits	16 bits	16 bits
<i>Channels</i>	6 differential	6 differential	8 differential
<i>Input connections</i>	2 or 3 wires	2 or 3 wires	2 wires
<i>Input impedance</i>	10 MΩ	10 MΩ	20 MΩ
<i>Input type</i>	PT, Balco and Ni RTD	Thermistance	Thermocouple
<i>Isolation voltage</i>	3000 V <sub>DC</sub>	3000 V <sub>DC</sub>	3000 V <sub>DC</sub>
<i>NMR @ 50-60 Hz</i>	100dB	100dB	100dB
<i>Sampling rate</i>	10 samples/sec.	10 samples/sec.	-
<i>Span drift</i>	±25 ppm/°C	±25 ppm/°C	±25 ppm/°C
<i>Zero drift</i>	±3 μV/°C	±3 μV/°C	±3 μV/°C
	<b>RTD type and measuring range</b>	<b>RTD type and measuring range</b>	<b>Thermocouple type and measuring range</b>
	<b>PT100RTD</b> From -50°C to +150°C From 0°C to +100°C From 0°C to +200°C From 0°C to +400°C From -200°C to +200°C <b>CEI RTD</b> 100 Ω (a=0.00385) <b>JIS RTD</b> 100 Ω (a=0.00392) <b>PT 1000 RTD</b> From PT -40°C to +160°C <b>Balco 500 RTD</b> From -30°C to +120°C <b>Ni 50 RTD</b> Ni From -80°C to +100°C <b>Ni 508 RTD</b> Ni From -80°C to +100°C	Thermistance 3k From 0 to 100°C Thermistance 10K From 0 to 100°C	<b>J</b> From 0 to 760°C <b>K</b> From 0 to 1370°C <b>T</b> From -100°C to +400°C <b>E</b> From 0°C to +1000°C <b>R</b> From 500°C to +1750°C <b>S</b> From 500°C to +1750°C <b>B</b> From 500°C to +1800°C

## Configuration of communication parameters

According to module, configuration occurs by either switching or wiring

### • Wiring (MD 120, MD 140 and MR 100)

Go to configuration mode	<ul style="list-style-type: none"> <li>- Power-down the module</li> <li>- Plug INIT with GND</li> <li>- Power-up, the module is ready to configure</li> </ul>
Back to measurement mode	<ul style="list-style-type: none"> <li>- Power-down the module</li> <li>- Unplug INIT and GND</li> <li>- Power-up, the new configuration is activated</li> </ul>

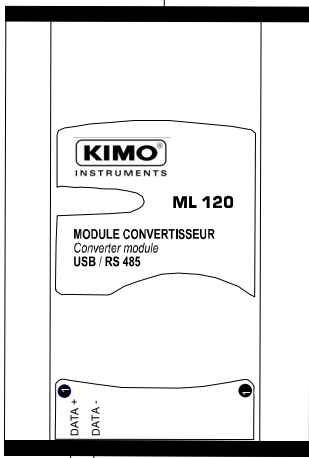
### • Reset by switching INIT/Normal button (MD 100 and MD 160)

Go to configuration mode	<ul style="list-style-type: none"> <li>- Power-down the module</li> <li>- Put the push-button on INIT</li> <li>- Power-up the module, the module is ready to configure</li> </ul>
Back to measurement mode	<ul style="list-style-type: none"> <li>- Power-down the module</li> <li>- Push the button on "Normal"</li> <li>- Power-up, the new configuration is activated</li> </ul>

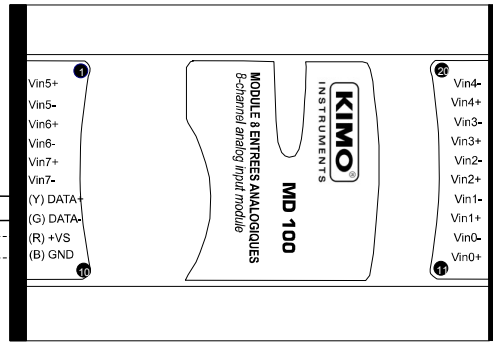
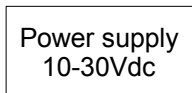
# Application wiring



USB

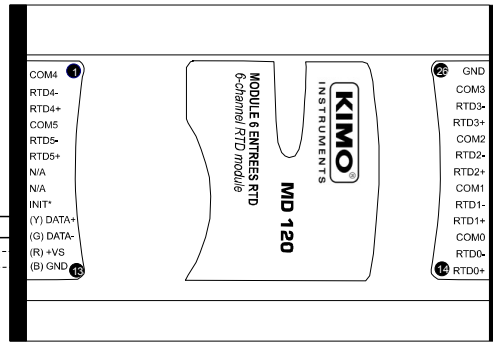


RS485



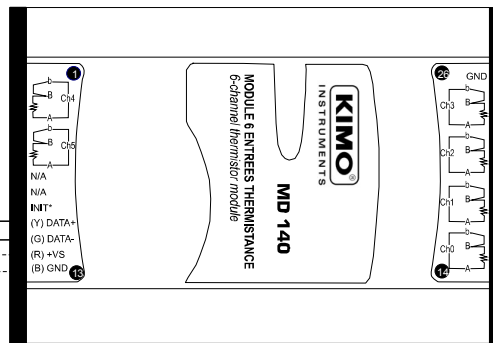
Analog input module

mA  
mV/V



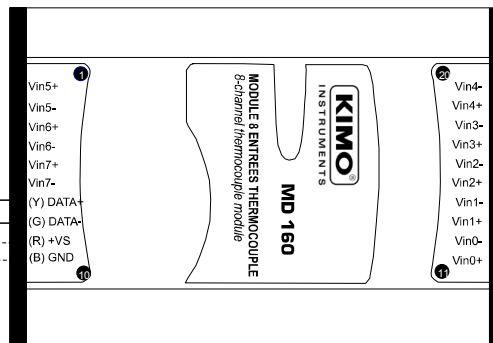
Temperature input module (PT100/PT1000)

RTD 2 wires  
RTD 3 wires



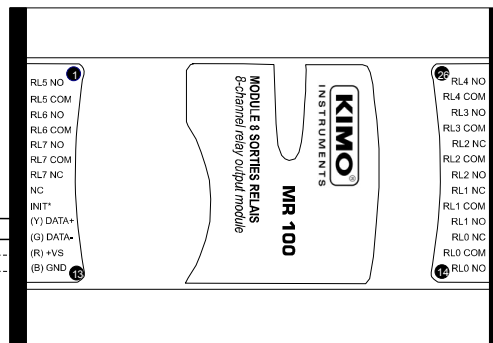
Temperature input module (NTC)

NTC



Temperature input module (Thermocouple)

T/C



Relay module

Outputs relays

[www.kimo.fr](http://www.kimo.fr)

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