Millenium Slim

> Logic Controller Millenium Slim

- A logic controller in a 17.5 mm (0.69") width
- > DIN rail mount and panel mount
- > 8 I/Os: 4 digital inputs (convertibles to analog in DC versions) and 4 digital outputs (relay or static)
- > Highspeed & PWM inputs available in DC versions, PWM outputs available in static versions
- > DC (24V) and AC (110-240V) power supply available
- > Removable connectors
- > Wireless Bluetooth to communicate with other MilleniumSlim logic controllers, retrieve datalog and program transfer
- > Virtual display possible in mobile devices trough Crouzet app
- > Intuitive & easy-to-use graphical programming software (FBD)
- > Certified CE, cULus Listed, NOM, RCM, SCM, UKCA



Millenium Slim

Product Sele	Product Selection						
Туре	Total I/Os	Input	Output	Supply Voltage	Communication	Screen	Part Number
CB8R (AC)	8	4 Inputs > 4 x Digital	4 Outputs > 4 x 6 A Relay	110-240 V∼	Bluetooth Embedded	Via App: Crouzet Virtual Display	88983903
CB8R (DC)	8	4 Inputs > 2 x Convertibles to Digital Analog High-Speed 2 x Convertibles to Digital Analog PWM	4 Outputs > 4 x 6 A Relay	24 V	Bluetooth Embedded	Via App: Crouzet Virtual Display	88983901
CB8S (DC)	8	4 Inputs > 2 x Convertibles to Digital Analog High-Speed 2 x Convertibles to Digital Analog PWM	4 Outputs 4 x 0.5 A Static (Transistor - Sourcing)	24 V	Bluetooth Embedded	Via App: Crouzet Virtual Display	88983902

You have a project? Contact us on www.crouzet.com

Description:

Millenium Slim: The smallest logic controller ever!

Designed for **space reduction** in any control panel or machine thanks to its 17.5 mm (0.69") body, this multipurpose industrial logic controller with 8 highly configurable I/Os, can replace dozens of control panel products, and will give **wireless capabilities** to your applications via Bluetooth. Powered by the **easiest-to-use** and free programming software "CrouzetSoft", a virtual display from any smartphone or PC, remote program transferring and plenty of pre-programmed applications ready to quick-start your next small-scale automation project.

For more information about *Millenium Slim*, please visit www.crouzet.com.



	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
General Characteristics			
Part Number	88983903	88983901	88983902
Safety certifications	CE, cULus Listed, NOM, R	CM, SCM, UKCA	
Environmental certifications	Reach, RoHS		
Conformity with programmable controllers' standard	CEI/EN 61131-2 (Open equ	ipment)	
Conformity with the RADIO directive (in accordance with 2014/53/UE)	 EN 61010-1 & EN 61010- EN 301489-1 & EN 30148 EN 61000-6-1, EN 61000- EN 300328: Radio require EN62311: Health requiren 	9-17: EMC requirements 6-2, EN 61000-6-3 & EN 61000 ments	0-6-4: EMC requirements
Power supply earthing	None		
Overvoltage category	II (in accordance with IEC/E	N 60664-1)	
Pollution Degree	2 (in accordance with IEC/E		
Maximum utilization altitude		11 01101-2)	
maximum utilization attitude	Operation: 2000 mTransport: 3000 m		
Mechanical resistance	Immunity to vibrations IEC Immunity to shock IEC/EN Degrees of protection pro	I 60068-2-27, Ea test	ıl equipment against external mechanical o, 40cm high)
Resistance to electrostatic discharge	Immunity to ESD IEC/EN 6	1000-4-2, level 3	
Resistance to HF interference (Immunity)	Immunity to fast transientsImmunity to shock waves	rostatic fields IEC/EN 61000-4- s (burst immunity) IEC/EN 6100 IEC/EN 61000-4-5 on mode IEC/EN 61000-4-6, le	00-4-4, level 3
Conducted and radiated emissions (in accordance with EN 55032)	Class B	,	-
Bluetooth protocol	Bluetooth ≥ V5.0		
Bluetooth range	≤ 10 m (max. 20 m in free f	ields)	
Operating temperature	Ventilated enclosure: -20 °C Non-ventilated enclosure: - UL: maximum surrounding	20 °C (-4 °F) to +40 °C (104 °F))
Storage temperature	-40 °C (-40 °F) to +80 °C (1	76 °F)	
Humidity	95% max. (no condensation	n or dripping water)	
Connecting capacity	Flexible wire with ferrule:Rigid wire: 1 conductor: 0Rigid wire: 2 conductors: (,
Housing material	Makrolon, UL94V0		
Housing Color	Light Gray RAL 7035		
Degree of protection	 IP 40 on front panel IP 20 excluding terminal b 	locks	
Weight	• Without packing: 103 g (8	8983903), 97 g (88983901), 79 g (88983903), 113 g (8898390	
Dimensions	Without packing: 18 x 90 xWith unitary packing: 22 x	c 69.6 mm (excluding terminal to	olocks and DIN rail clip)
Connectors Type	Removable Connectors with compatibility for Screw connectors or Cage Clamp connectors (see installation sheet for compatible connectors recommended)		
DIN rail mounting	Mounting in 35 mm symme modular enclosures	trical DIN rail (see installation s	heet of instructions), compatible with
Panel mounting	Flat panel mounting by scre	ews (see installation sheet of ins	structions)

	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
Processing Characteristics			
Part Number	88983903	88983901	88983902
HMI / MMI	■ 1 green Led for Power/Status		
	 1 blue Led for Bluetooth 		
	 Virtual display & keypad with 0 	Crouzet Virtual Display or Crouzet	Soft
Programming Software	Crouzet Soft		
Programming method	FBD (Function Block Diagram),	including SFC (Sequential Function	on Chart) (Grafcet)
Program size	Function blocks: typically 350	blocks (1024 max.)	
	■ Macro blocks: 127 max. (255 k	olocks per macro)	
Program memory	Flash		
Data memory	2 k octets		
Back-up time (in the event of power failure)	Program and settings in the controller: 10 years		
	Data memory: 10 years		
Data back-up	Data backup in the flash memor	y is guaranteed if the product is p	owered on more than 10 seconds
Cycle time	From 2 ms* to 90 ms, default va	lue: 10 ms	
	*: Depending on program memory		
Clock data retention	10 years (lithium battery) at 25 °	C (77 °F)	
Clock drift	Drift < 12 min/year (at 25 °C (77	°F))	
	6 s / month (at 25 °C (77 °F) wit	h user-definable correction of drift).
Timer block accuracy	0.5 % ± 2 cycle time		
Startup time on power up	< 3 s		
Self-test	Test firmware integrity (checksum memory)		
	 Stability of the internal power s 	supply	
	 Check the conformity of the de 	vice configuration with the configu	ration in the application program.

Power Supply			
Part Number	88983903	88983901	88983902
Nominal supply voltage	110 V∼ → 240 V∼	24 V	
Voltage supply tolerance	-15% / +10%	-15% / +20%	
Operating limits	93.5 → 264 V~	20.4 → 28.8 V	
	 * Accepts temporary overvoltage occurring on the power network 	* Accepts temporary overvoltage	occurring on the power network
AC supply voltage frequency	50/60Hz (-6% / +5%) so 47Hz \rightarrow 53Hz / 57 \rightarrow 63Hz	N/A	
Immunity to power micro cuts	≤ 10 ms (repetition 20 times)	≤ 1 ms (repetition 20 times)	
Max. absorbed power	• 6.9 VA @ 240 V∼ • 6 VA @ 240 V∼ I/Os = 0	■ 1.2 W @ 24 V ■ 1.56 W @ 28.8 V, ■ 0.5 W @ 24 V I/Os = 0	• 0.75 W @ 24 V • 0.8 W @ 28.8 V, • 0.5 W @ 24 V I/Os = 0
Protection against polarity inversions	Not applicable	Yes	
Power monitoring	Yes, but no value available through the application "FB Status"	Yes, and value available through 1/10V, 5% of full scale	the application "FB Status",

	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
Inputs			
Part Number	88983903	88983901	88983902
Used as Digital Inputs			
Quantity	4 digital inputs -> from I1 to I4		
Rated voltage	110 V \sim \rightarrow 240 V \sim	24 V	
Voltage tolerance	-15% / +10%	-15% / +20%	
Operating limits	$93.5 \rightarrow 264 \text{ V} \sim$	20.4 → 28.8 V	
Input current	• 0.25 mA @ 93.5 V \sim	■ 1.8 mA @ 20.4 V	
	= 0.3 mA @ 110 V \sim	= 2.1 mA @ 24 V	
	• 0.6 mA @ 230 V \sim • 0.7 mA @ 265 V \sim	■ 2.5 mA @ 28.8 V	
Input frequency	50/60Hz (-6% / +5%) so 47% → 53Hz / 57 → 63Hz	N/A	
Input impedance	559 kΩ	11.7 kΩ	
Logic 1 voltage threshold	≥ 79 V∼	≥ 11 V	
Making current at logic state 1	≥ 0.2 mA	≥ 1 mA	
Logic 0 voltage threshold	≤ 45 V∼	≤ 9 V 	
Release current at logic state 0	≤ 0.1 mA	≤ 0.8 mA	
Response time	1 to 2 cycle times		
Sensor type	Contact or 3-wire PNP		
Conforming to IEC/EN 61131-2	Type 1		
Input type	Resistive		
Isolation between power supply and inputs	None		
Isolation between inputs	None		
Protection against polarity inversions	Not applicable	Yes	
Status indicator	Yes, on Virtual Display (CVD &	Crouzet Soft)	
Cable length	≤ 30 m		
Used as High-Speed Inputs			
Quantity	N/A	2 High-Speed inputs -> from I1	to I2
Input voltage	N/A	24 V	
Voltage tolerance	N/A	-5% / +20%	
Operating limits	N/A	22.8 → 28.8 V	
Input current	N/A	• 1.9 mA @ 22.8 V • 2.1 mA @ 24 V	
	ALIA	= 2.5 mA @ 28.8 V	
Input impedance	N/A	11.7 kΩ	
Logic 1 voltage threshold	N/A	≥ 22.8 V	
Making current at logic state 1	N/A	≥ 1.9 mA	
Logic 0 voltage threshold	N/A	≤ 12 V	
Release current at logic state 0	N/A	≤ 1 mA	
Maximum counting frequency	N/A	 2 independent counters: 5 kHz Function: UP and DOWN * with a time cycle ≤ 10 ms and < 12V and level 1 > 22.8V 	
Cable length	N/A	≤ 3 m with shielded twisted cabl	e
-		1	

	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
Used as PWM Inputs			
Quantity	N/A	2 PWM inputs -> from I3 to I4	
Input voltage	N/A	24 V	
Voltage tolerance	N/A	-5% / +20%	
Operating limits	N/A	22.8 → 28.8 V 	
Input current	N/A	• 1.9 mA @ 22.8 V • 2.1 mA @ 24 V • 2.5 mA @ 28.8 V	
Input impedance	N/A	11.7 kΩ	
Logic 1 voltage threshold	N/A	≥ 22.8 V	
Making current at logic state 1	N/A	≥ 1.9 mA	
Logic 0 voltage threshold	N/A	≤ 12 V	
Release current at logic state 0	N/A	≤ 1 mA	
Input frequency	N/A	from 10 Hz to 1 KHz	
Restitution	N/A	0 to 100% duty cycle reading	
Accuracy	N/A	5% with duty cycle between 10%	% and 90%
Cable length	N/A	≤ 30 m	
Used as Analog Inputs			
Quantity	N/A	4 analog inputs -> from I1 to I4	
Measuring range	N/A	■ 0 \rightarrow 10 V ■ 0 \rightarrow V power supply or Voltme	eter
Input impedance	N/A	11.7 kΩ	
Maximum value without destruction	N/A	 28.8 V max for 0 → 10 V and 30.5 V max for Voltmeter 	d 0 → V power supply
Input type	N/A	Common mode	
Resolution	N/A	12 bits at maximum input voltag	e (10 bits at 10V)
Value of LSB	N/A	7.03 mV	
Conversion time	N/A	Controller cycle time	
Maximum error in 0-10V mode	N/A	• ± 3.5 % of full scale at 25 °C (7 • ± 5 % of full scale at 55 °C (13	,
Maximum error in 0-V power supply mode	N/A	• ± 5 % of full scale at 25 °C (77 • ± 6.2 % of full scale at 55 °C (,
Repeat accuracy at 55 °C (131 °F)	N/A	± 2 %	
Voltmeter	N/A	from 0 to 30.5 V Accuracy: ±5% of full scale at 2 ±6.2 % of full scale at 55 °C (13	
Isolation between analogue channel and power supply	N/A	None	
Protection against polarity inversions	N/A	Yes	
Potentiometer control	N1/A	2.2 kΩ / 0.5 W (recommended),	10 1/0
	N/A	2.2 K12 / 0.5 VV (recommended),	10 KQ max.

	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
Outputs			
Part Number	88983903	88983901	88983902
Relay Outputs			
Quantity	4 relay outputs, from O1 to O4		N/A
Breaking voltage	■ 30 V max		N/A
D 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:	■ 250 V~ max	0.4	AL/A
Breaking current in the outputs	• @ 25 °C -> O1, O2, O3, & O4 • @ 40 °C -> O1, O2, O3, & O4 • @ 55 °C -> O1, O2, O3, & O4 • @ 60 °C -> O1, O2, O3, & O4	: 4A max : 2A max	N/A
Breaking current in the common	• @ 25 °C -> C1: 10A max & C2 • @ 40 °C -> C1 & C2: 8A max • @ 55 °C -> C1 & C2: 4A max • @ 60 °C -> C1 & C2: 2.6A ma	2: 8A max	N/A
Mechanical life	10 000 000 operations (cycles)		N/A
Electrical durability	100 000 operations (cycles) res	istive loads, @ 25 °C	N/A
Electrical durability for 100 000 operating cycles	Resistive • 24 V tau = 0 ms: 6 A (UL/CU • 250 V \(\sigma \) cos phi = 1: 6 A Inductive • 1/4 HP 250 V \(\sigma \) @ 25 °C	JL: 5A)	N/A
Minimum switching capacity	100 mA (at minimum voltage of	12V)	N/A
Maximum operating rate	360 per hour		N/A
Response time	Make = 1 cycle time + 8 ms mRelease = 1 cycle time + 5 ms		N/A
Isolation between power supply and outputs	Reinforced insulation		N/A
Isolation between outputs	Simple isolation between block	C1 / O1 / O2 and C2 / O3 / O4	N/A
Built-in protections	Against short-circuits: NoneAgainst over voltages and over	rload: None	N/A
Status indicator	Yes, on Virtual Display (CVD &	Crouzet Soft)	N/A
Cable length	≤ 30 m		N/A
Static (Transistor) Outputs			
Quantity	N/A		4 static outputs -> from O1 to O4
Breaking voltage	N/A		10 → 28.8 V
Nominal voltage	N/A		12 / 24 V
Nominal breaking current	N/A		0.5 A
Maximum breaking current	N/A		0.7 A
Breaking current in the common	N/A		2.8 A
Voltage drop	N/A		< 2V for I=0.5A
Min. load	N/A		1 mA
Response time	N/A		 Make = 1 cycle time + 60 μs max Release = 1 cycle time + 60 μs max
Built-in protections	N/A		 Against overloads and short-circuits: Yes Against over voltages (*): Yes (*) In the absence of a volt-free contact between the output of the logic controller and the load Against inversions of power supply: Yes Current limitation (min: 1.1A, max: 2.6A, @VCC: 24 V, Rload < 10mOhms)

	Millenium Slim CB8R (AC)	Millenium Slim CB8R (DC)	Millenium Slim CB8S (DC)
Isolation between power supply and outputs	N/A	'	None
Isolation between outputs	N/A		None
Wiring	N/A		PNP (Load Common at 0V)
Status indicator	N/A		Yes, on Virtual Display (CVD & Crouzet Soft)
Cable length	N/A		≤ 10 m
Static PWM Outputs			
Quantity	N/A		4 static outputs -> from O1 to O4
PWM frequency	N/A		20 Hz to 1500 Hz
PWM duty cycle	N/A		0 → 100 %
PWM Max. error	N/A		< 2% (de 10% à 90%)
Built-in protections	N/A		 Against overloads and short- circuits: Yes
			 Against over voltages (*): Yes
			(*) In the absence of a volt-free contact between the output of the logic controller and the load
			 Against inversions of power supply: Yes
			 Current limitation (min: 1.1A, max: 2.6A, @VCC: 24 V, Rload < 10mOhms)

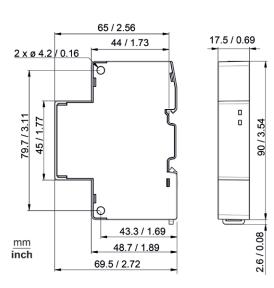
≤ 10 m

N/A

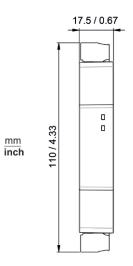
Cable length

Millenium Slim CB8R (AC) Millenium Slim CB8R (DC) Millenium Slim CB8S (DC) Dimensions valid for: 88983903 - 88983901 - 88983902

Without connectors



With connectors



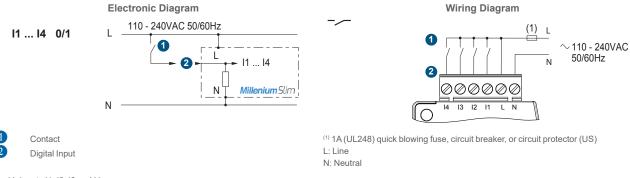
Electronic & Wiring Diagrams

Inputs

Digital Inputs (AC Voltage)

Product Dimensions Side and Front Dimensions

Millenium Slim - Type CB8R AC - 88983903 $\,\,
ightarrow$ Inputs I1, I2, I3 and I4

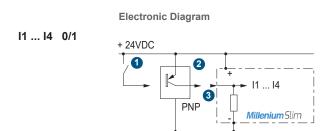


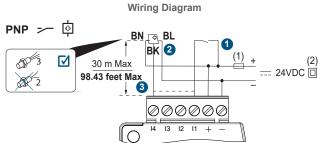
I1.. I4: Inputs I1, I2, I3 and I4

Inputs

Digital Inputs (DC Voltage)

Millenium Slim - Type CB8R DC - 88983901 $\,\rightarrow$ Inputs I1, I2, I3 and I4 Millenium Slim - Type CB8S DC - 88983902 $\,\rightarrow$ Inputs I1, I2, I3 and I4





- (1) 1A (UL248) quick blowing fuse, circuit breaker, or circuit protector (US)
- (2) Isolating source
- BN: Brown cable of the 3-Wire PNP sensor BL: Blue cable of the 3-Wire PNP sensor BK: Black cable of the 3-Wire PNP sensor

Digital Input I1.. I4: Inputs I1, I2, I3 and I4

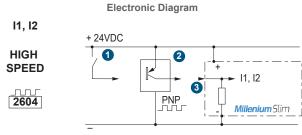
Contact

3-wire PNP sensor

Inputs

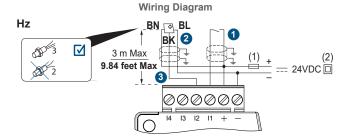
High-Speed Inputs (Wiring of 3-wire PNP sensors)

Millenium Slim - Type CB8R DC - 88983901 $\,\rightarrow$ Inputs I1 and I2 Millenium Slim - Type CB8S DC - 88983902 $\,\,\,\,\,\,\,\,\,\,$ Inputs I1 and I2





I1, I2: Inputs I1 and I2

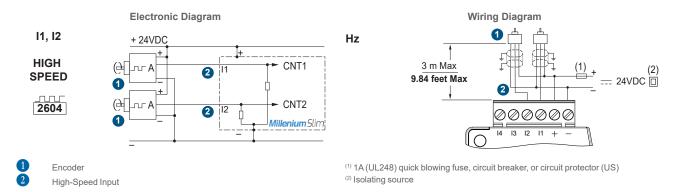


- ⁽¹⁾ 1A (UL248) quick blowing fuse, circuit breaker, or circuit protector (US)
- (2) Isolating source
- BN: Brown cable of the 3-Wire PNP sensor
- BL: Blue cable of the 3-Wire PNP sensor
- BK: Black cable of the 3-Wire PNP sensor

Inputs

High-Speed Inputs (Wiring of Encoders)

Millenium Slim - Type CB8R DC - 88983901 \to Inputs I1 and I2 Millenium Slim - Type CB8S DC - 88983902 \to Inputs I1 and I2

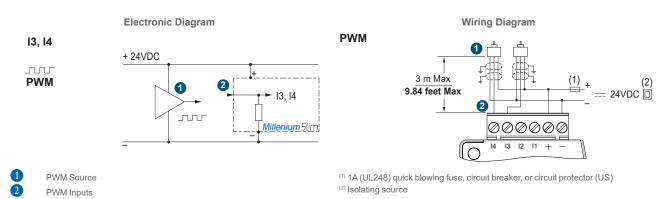


I1, I2: Inputs I1 and I2

Inputs

PWM Inputs

Millenium Slim - Type CB8R DC - 88983901 \rightarrow Inputs I3 and I4 Millenium Slim - Type CB8S DC - 88983902 \rightarrow Inputs I3 and I4



I3, I4: Inputs I3 and I4

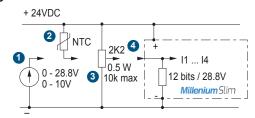
Inputs

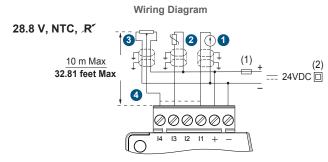
Analog Inputs

Millenium Slim - Type CB8R DC - 88983901 \rightarrow Inputs I1, I2, I3 and I4 Millenium Slim - Type CB8S DC - 88983902 \rightarrow Inputs I1, I2, I3 and I4

Electronic Diagram

I1 ... I4 U





- (1) 1A (UL248) quick blowing fuse, circuit breaker, or circuit protector (US)
- (2) Isolating source



11... 14: Inputs I1, I2, I3 and I4

Outputs

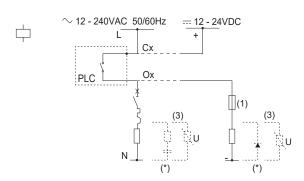
Relay Outputs

Millenium Slim - Type CB8R AC - 88983903 $\,\rightarrow$ Outputs O1, O2, O3 and O4

Millenium Slim - Type CB8R DC - 88983901 $\,\rightarrow$ Outputs O1, O2, O3 and O4

Electronic Diagram

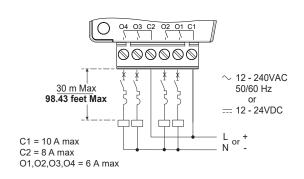
01 ... 04



(*) Protection
*PLC: Millenium Slim Logic Controller

Wiring Diagram

6 A



Common limits currents O1+O2= 10A max @25C (8A @40C, 4A @55C, 2.6 @ 60C) O3+O4=8A max @25C (8A @40C, 4A @ 55C, 2.6 @ 60C)
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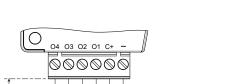
).5 A

Outputs

Static / PWM Outputs

Millenium Slim - Type CB8S DC - 88983902 $\,\rightarrow$ Outputs O1, O2, O3 and O4

(3) Inductive load *PLC: Millenium Slim Logic Controller



(2) ---12 - 24VDC 🔲

Wiring Diagram

- ⁽¹⁾ 1A (UL248) quick-blowing fuse, circuit-breaker, or circuit protector (US)
- (2) Isolating source

10 m Max 32.8 feet Max
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Accessories

BLUETOOTH DONGLE

USB Dongle Bluetooth, CE, FCC and IC certified Part Number 88980124

SIGNAL CONVERTER

Description	Part Number
0-20 mA to 0-10 V	88950108

TEMPERATURE PROBES

Description	Part Number
NTC2, PVC probe	89750174
NTC1, TPE probe	89750180
NTC2, INOX probe	89750182
NTC2, POM probe	89750185
NTC3, SILICONE probe	89750186

TEMPERATURE CONVERTERS

Description	Part Number
Pt1000 3-wire	88950150
Pt100 3-wire (-40 → +40°C)	88950151
Pt100 3-wire (0 → +100°C)	88950152
Pt100 3-wire (0 → +250°C)	88950153
Thermocouple J	88950154
Thermocouple K	88950155

POWER SUPPLIES

	Description	Part Number
***	Modular of 10W	89451001
	Modular of 30W	89451003
	Modular of 60W	89451006
	Modular of 100W	89451010

TEMPERATURE SENSORS

	Description	Part Number
n.C. f.	Air Sensor	89750190
T	Duct Probe	89750191
	External Probe	89750192
	Remote/Submersible	89750193

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