

EXERGEN *Global*

Industrial Sales



Handbook Manual
AutoSmart IRt/c

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Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

office@exergenglobal.com
www.exergenglobal.com

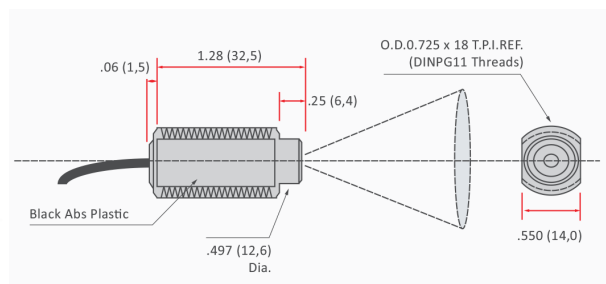
MA-2020-01-EN-V0

AUTOSMART 01

Product Overview

The AutoSmart 01 features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



Dimensions are in inches (mm)

* IRT/c.01 including lock nuts

Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	0 to 160°F (-18 to 70°C)
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:1 (60°) approximately
Minimum Spot Size	0.3" (8mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds

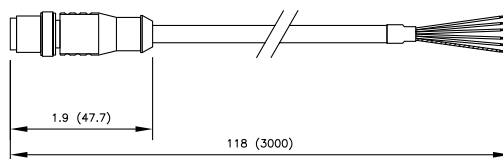
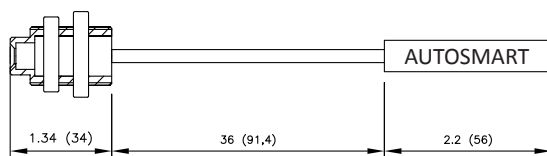
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0,9M) Thermocouple extension grade, PVC jacket, unshielded
Sensor Dimensions	1.28" x .71" Dia. (32.5 x 20mm)
Weight	Sensor: 1.4oz (40g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: High strength ABS, hermetically sealed, exceeds NEMA, 4,4x; IP65,67. Two locknuts supplied. Transmitter: Heavy Duty SS, NEMA, IP54
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	$\pm 10\text{mA}$ (without output signal drive)
Loop Impedance	(4-20mA models) >500Ω

Ordering Information

AutoSmart 01 - - -	
Power:	
12 = 12VDC	
24 = 24VDC	
Output:	
005 = 0-5V	Temperature range:
010 = 0-10V	70 = -31-158°F (-35-70°C)
420 = 4-20mA	100 = 32-212°F (0-100°C)
	250 = 32-482°F (0-250°C)



Dimensions



Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

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office@exergenglobal.com
www.exergenglobal.com

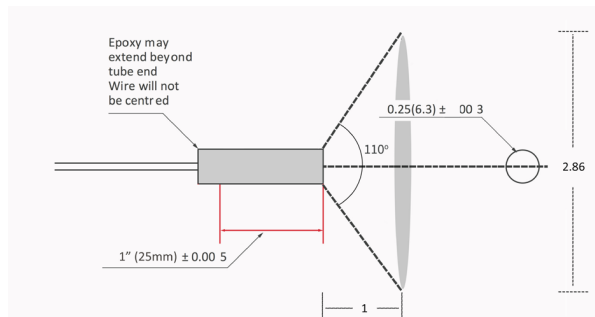
DS-907-EN-V1

AUTOSMART M

Product Overview

The AutoSmart M features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	-40 to 185°F (-40 to 80°C) with air off -40 to 347°F (-40 to 175°C) with air on
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:2 (110°) approximately
Minimum Spot Size	0.1" (3mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0.9M) Unshielded, duplex insulated, type K, 24AWG, PFA jacket rated to 500°F (260°C)

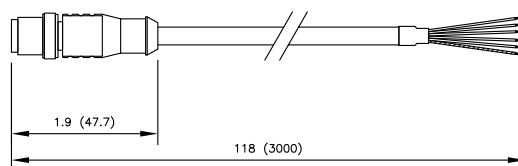
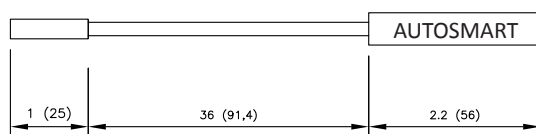
Sensor Dimensions	0.25" (6.3mm) Dia. x 1.0" (25.4mm)
Weight	Sensor: 1oz (30g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4X, IP67. Transmitter: Heavy Duty SS, NEMA, IP54. Air Purge: Makrolon-9415
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	± 10 mA (without output signal device)
Loop Impedance	(4-20mA models) >500Ω
Including Air Purge	Efficient in design, the Air Purge requires as little as 3.5 SCFH (1.7L/min) of air to protect a micro IRT/c. In addition to keeping a micro IRT/c clean, the airflow through the air purge can cool a micro IRT/c up to 347°F (175°C) with only 35 SCFH (17L/min) at 5 psig (0.33 bar). For more information see Datasheet DS-250-1-EN

Ordering Information

AutoSmart M -	-	-	-
Power:			
12 = 12VDC			
24 = 24VDC			
Output:			
005 = 0-5V			
010 = 0-10V			
420 = 4-20mA			
Temperature range:			
70 = -31-158°F (-35-70°C)			
100 = 32-212°F (0-100°C)			
250 = 32-482°F (0-250°C)			



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The Netherlands
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5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

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www.exergenglobal.com

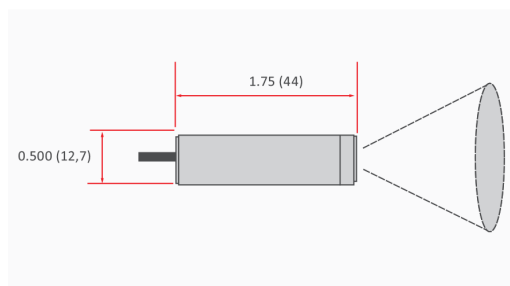
DS-908-EN-V1

AUTOSMART IR

Product Overview

The AutoSmart IR features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



Dimensions are in inches (mm)

Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	0 to 212°F (-18 to 100°C)
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:1 (60°) approximately
Minimum Spot Size	0.3" (8mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds

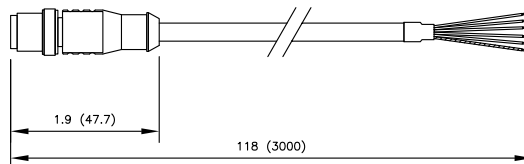
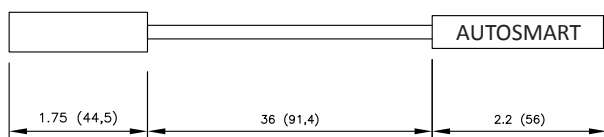
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0.9M) Twisted shielded pair of base thermocouple material (J,K,E,T) Telfon sheathed, rated to 392°F (200°C) continuous service
Sensor Dimensions	1.75" x 0.50" Dia. (44 x 12.7mm)
Weight	Sensor: 1.4oz (40g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4,4x; IP65,67, cable shield grounded to housing and electrically isolated from signal. Transmitter: Heavy Duty SS, NEMA, IP54
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	$\pm 10\text{mA}$ (without output signal device)
Loop Impedance	(4-20mA models) >500Ω

Ordering Information

AutoSmart IR -	-	-	-
Power:			
12 = 12VDC			
24 = 24VDC			
Output:		Temperature range:	
005 = 0-5V		70 = -31-158°F (-35-70°C)	
010 = 0-10V		100 = 32-212°F (0-100°C)	
420 = 4-20mA		250 = 32-482°F (0-250°C)	



Dimensions



Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

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www.exergenglobal.com

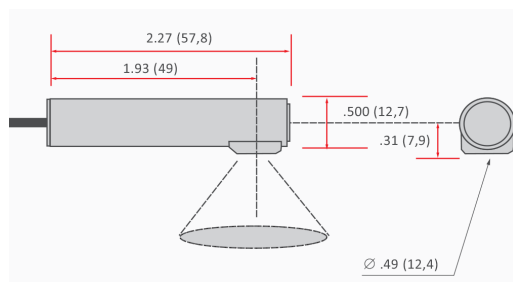
DS-909-EN-V1

AUTOSMART SV

Product Overview

The AutoSmart SV features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



Dimensions are in inches (mm)

Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	0 to 212°F (-18 to 100°C)
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:1 (60°) approximately
Minimum Spot Size	0.3" (8mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds

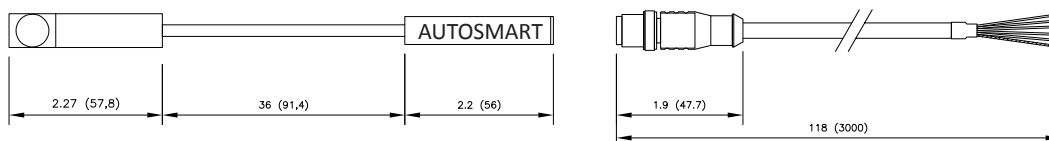
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0.9M) Twisted shielded pair of base thermocouple material (J,K,E,T) Telfon sheathed, rated to 392°F (200°C) continuous service
Sensor Dimensions	2.27" x 0.50" Dia. (57.8 x 12.7mm)
Weight	Sensor: 1.4oz (40g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4,4x; IP65,67, cable shield grounded to housing and electrically isolated from signal. Transmitter: Heavy Duty SS, NEMA, IP54
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	$\pm 10\text{mA}$ (without output signal device)
Loop Impedance	(4-20mA models) >500Ω

Ordering Information

AutoSmart SV -	-	-	-
Power:			
12 = 12VDC			
24 = 24VDC			
Output:			
005 = 0-5V			
010 = 0-10V			
420 = 4-20mA			
Temperature range:			
70 = -31-158°F (-35-70°C)			
100 = 32-212°F (0-100°C)			
250 = 32-482°F (0-250°C)			



Dimensions



Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
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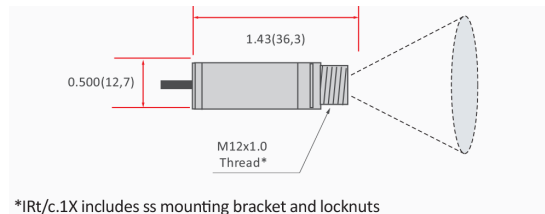
DS-910-EN-V1

AUTOSMART 1X

Product Overview

The AutoSmart 1X features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



*IRT/c.1X includes ss mounting bracket and locknuts

Dimensions are in inches (mm)

Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	0 to 212°F (-18 to 100°C)
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:1 (60°) approximately
Minimum Spot Size	0.3" (8mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds

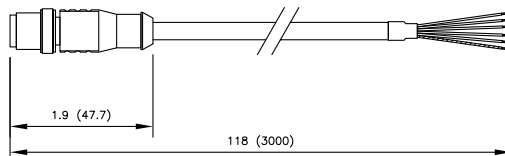
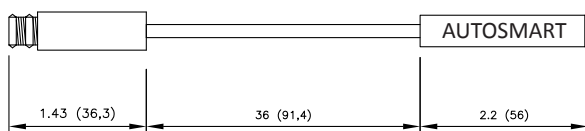
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0.9M) Twisted shielded pair of base thermocouple material (J,K,E,T) Telfon sheathed, rated to 392°F (200°C) continuous service
Sensor Dimensions	1.43" x 0.50" Dia. (36 x 12.7mm)
Weight	Sensor: 1.4oz (40g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4,4x; IP65,67, cable shield grounded to housing and electrically isolated from signal. Transmitter: Heavy Duty SS, NEMA, IP54
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	$\pm 10\text{mA}$ (without output signal device)
Loop Impedance	(4-20mA models) $>500\Omega$

Ordering Information

AutoSmart 1X - ☐ - ☐ - ☐	
Power:	
12 = 12VDC	
24 = 24VDC	
Output:	
005 = 0-5V	Temperature range:
010 = 0-10V	70 = -31-158°F (-35-70°C)
420 = 4-20mA	100 = 32-212°F (0-100°C)
	250 = 32-482°F (0-250°C)



Dimensions



Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

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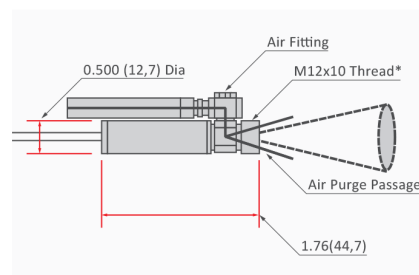
DS-911-EN-V1

AUTOSMART 3X

Product Overview

The AutoSmart 3X features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



*IRT/c.3X includes ss mounting bracket & locknuts
Dimensions are in inches (mm)

Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	0 to 212°F (-18 to 100°C)
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	3:1 (17°) approximately
Minimum Spot Size	0.25" (6mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds
Air Purge	Built-in; designed for severe paint or ink environment

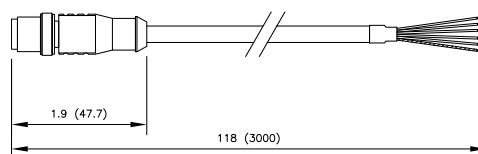
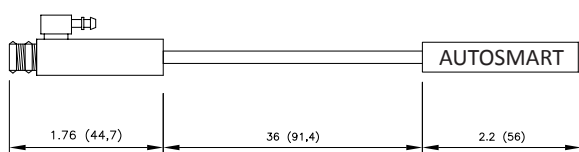
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0,9M) Twisted shielded pair of base thermocouple material (J,K,E,T) Teflon sheathed, rated to 392°F (200°C) continuous service
Sensor Dimensions	1.76" x 0.50" Dia. (44.7 x 12.7mm)
Weight	Sensor: 1.4oz (40g) with cable. Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4,4x; IP65,67, cable shield grounded to housing and electrically isolated from signal. Transmitter: Heavy Duty SS, NEMA, IP54
Emissivity Setting	0.90
Power	12 or 24VDC (10%). Shuts off when voltage is functionally low
Power Consumption	$\pm 10\text{mA}$ (without output signal device)
Loop Impedance	(4-20mA models) $>500\Omega$

Ordering Information

AutoSmart 3X - - -	
Power:	
12 = 12VDC	
24 = 24VDC	
Output:	Temperature range:
005 = 0-5V	70 = -31-158°F (-35-70°C)
010 = 0-10V	100 = 32-212°F (0-100°C)
420 = 4-20mA	250 = 32-482°F (0-250°C)



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Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

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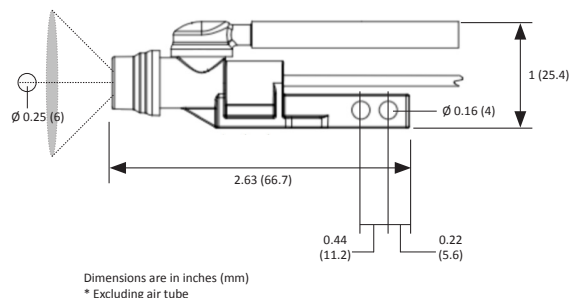
DS-912-EN-V2

AUTOSMART MA

Product Overview

The AutoSmart MA features:

- Output 0-5V, 0-10V, 4-20mA
- Non-contact
- Repeatability error 0.1% full scale
- Interchangeability $\pm 1.5\%$ full scale
- Resolution approx. 0.1°C
- Small size sensor



Technical Data

Sensing Range	-31 to 932°F (-35 to 500°C)
Sensor Ambient Temperature Range	-40 to 185°F (-40 to 80°C) with air off -40 to 347°F (-40 to 175°C) with air on
Transmitter Ambient Temperature Range	32 to 158°F (0 to 70°C)
Storage Temperature Range	14 to 158°F (-10 to 70°C)
Field of View	1:2 (110°) approximately
Minimum Spot Size	0.1" (3mm)
Spectral Response	5.0 to 20μm
Update Time	Approximately 250 msec.
First Reading Upon Power Up	Approximately 2 seconds
Cable	1. 9.8ft (3M) 22AWB*4C + F + Jacket black PUR cable OD=5.0mm -40°C~+105°C 2. 3ft (0.9M) Unshielded, duplex insulated, type K, 24AWG, PFA jacket rated to 500°F (260°C)

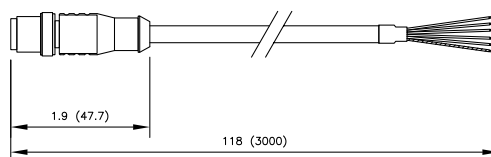
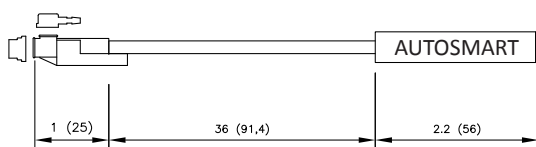
Sensor Dimensions	0.25" (6.3mm) Dia. x 1.0" (25.4mm)
Weight	Sensor: 1oz (30g) Transmitter: Approximately 1.702oz. (50g)
Housing	Sensor: Stainless steel, hermetically sealed, exceeds NEMA 4X, IP67. Transmitter: Heavy Duty SS, NEMA, IP54. Air Purge: Makrolon-9415
Emissivity Setting	0.90
Power	12 or 24VDC ($\pm 10\%$). Shuts off when voltage is functionally low
Power Consumption	± 10 mA (without output signal device)
Loop Impedance	(4-20mA models) >500Ω
Including Air Purge	Efficient in design, the Air Purge requires as little as 3.5 SCFH (1.7L/min) of air to protect a micro IRT/c. In addition to keeping a micro IRT/c clean, the airflow through the air purge can cool a micro IRT/c up to 347°F (175°C) with only 35 SCFH (17L/min) at 5 psig (0.33 bar). For more information see Datasheet DS-250-1-EN

Ordering Information

AutoSmart MA -	-	-	-
Power:			
12 = 12VDC			
24 = 24VDC			
Output:		Temperature range:	
005 = 0-5V		70 = -31-158°F (-35-70°C)	
010 = 0-10V		100 = 32-212°F (0-100°C)	
420 = 4-20mA		250 = 32-482°F (0-250°C)	



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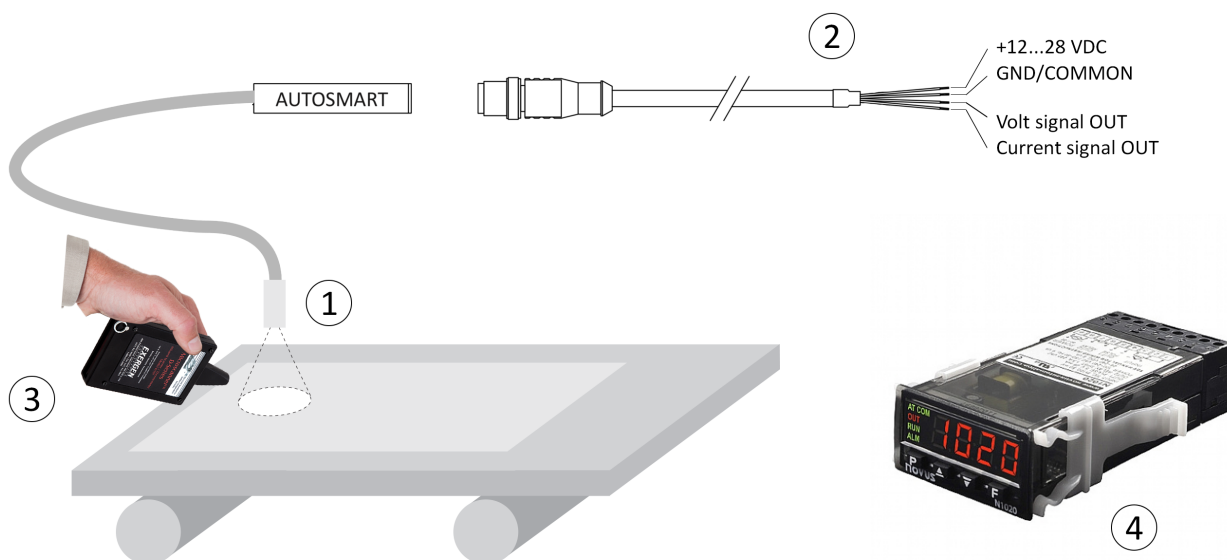
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DS-913-EN-V1

INSTALLATION INSTRUCTIONS

The following procedure is recommended:

1. Install the AutoSmartIRt/c as close as practical to view the target material to be measured.
2. Wire the AutoSmartIRt/c to the controller, PLC, etc. in standard fashion (see PINOUT and WIRING DIAGRAM)
3. Bring the process up to normal operating temperature and measure the actual temperature of the target material with the Microscanner D-Series, Infrared Thermometer or any other reliable reference.
4. If using a PID controller: adjust "input offset," "zero", "low cal," on the readout device to match the reading of your reference.
5. Installation Complete. (For OEM installations preset the same adjustments. Individual calibration is not required.)



WIRING DIAGRAM

PINOUT					
Pin	Color	Function			
1	Brown	+12...28 VDC			
2	Blue	GND/Common			
3	Black	Volt signal OUT			
4	White	Current signal OUT			

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The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
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Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

office@exergenglobal.com
www.exergenglobal.com

MA-2020-02-EN-V0

TECHNICAL SPECIFICATIONS

Temperature

Measuring range	Freely scalable - depending on the used IRT/c
Accuracy (typical)	up to $\pm 0,3$ °C - depending on reference
Resolution	0.01°C
Nonlinearity	< 0,5 % (typical)
Hysteresis	$\pm 1\%$ total measuring range
Repeatability	$\pm 0.01\%$ °C
Reaction time	Depending on the used IRT/c

Power supply

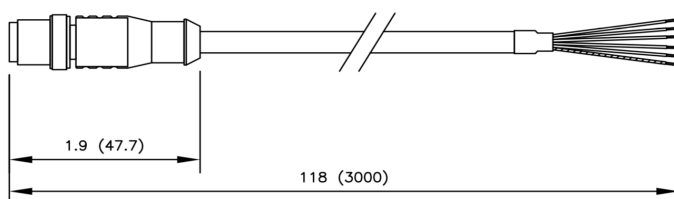
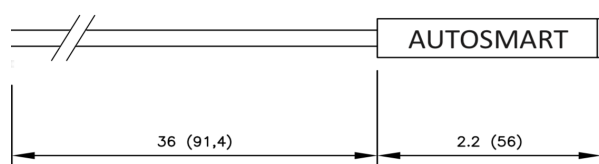
Supply voltage	28V max. DC regulated
Current consumption	< 30 mA
Reverse polarity protection	Yes

Outputs

Current output	4 ... 20mA / 0...20mA
Voltage output	0...10V / 0...5V, 0...2,5V / 0...1V
Operating system	Win 7, Win 8, Win 10

Connector: Female connector M12 4-pin A-coded

TRANSMITTER DIMENSIONS



Exergen Global offices:

The Netherlands
Pastoor Clercxstraat 26
5465 RH Veghel
Tel: +31 (0)413 376 599
Fax: +31 (0)413 379 310

USA
400 Pleasant Street
Watertown, MA 02472
Tel: +1 617 649 6322
Fax: +1 617 923 9911

office@exergenglobal.com
www.exergenglobal.com

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