CEMS
(Continuous Emissions Monitoring System)

autocontrol
process instrumentation

• Sensing • Measuring • Controlling • Automation

www.autocontrolpi.com

UK I USA I UAE I INDIA I ITALY I IRAQ I KSA I OMAN I TURKEY

autocontrol
process instrumentation
• Sensing • Measuring • Controlling • Automation

About Us

Autocontrol Process Instrumentation (API) Originates from Autocontrol Technologies, a Company established in 1994 Italy.

Autocontrol Process Instrumentation (API) provide the complete Design, Engineering, Integration, fabrication, Technical support, Test, Commissioning and handover for all package system for Oil & Gas, Petrochemical, Chemical and Power industries as per the customer requirement. We also focused on Sensing Technologies, Measuring Instruments, Controlling Equipment, Automation Systems and all related Accessories. While API's activities cover a wider range of products, services and packages.

API's products are approved by International and National Oil and Gas Operators, Energy, Utilities and Industrial Companies.

We study and research on your requested systems and utilize best and competitive Technologies and instruments to meet your requirements.

For more information, please ask for a copy of our integrated company profile, or visit:
www.autocontrolpi.com

Whatever you need, we can sense it...
Measure it... Control it and if necessary...
automate it.....

SYSTEM CERTIFICATION ISO 9001 SGS
SYSTEM CERTIFICATION ISO 14001 SGS
SYSTEM CERTIFICATION ISO 45001 SGS

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

Continuous Emission Monitoring System (CEMS)

Continuous Emission Monitoring System (CEMS) is the total equipment necessary for the determination of a gas or particulate matter concentration or emission rate using pollutant analyzer measurements and a conversion equation, graph, or computer program to produce results in units of the applicable emission limitation or standard.

CEMS are required under some of the EPA regulations for either continual compliance determinations or determination of exceedances of the standards. The individual subparts of the EPA rules specify the reference methods that are used to substantiate the accuracy and precision of the CEMS.

Performance Specifications are used for evaluating the acceptability of the CEMS at the time of or soon after installation and whenever specified in the regulations.

Continuous Emission Monitoring System measures high concentrations of gas at the point of emission, namely from a chimney or stack. These gases may include SO2 , NOx, CO, H2S and NH3 , monitored using specially designed gas analyzers.

CEMS measures high concentrations of gas at the point of emission, namely from a chimney or stack. These gases may include SO2 , NOx, CO, H2S and NH3 , monitored using specially designed gas analyzers.

Industries and environmental agencies use these measurements, often coupled with ambient and background measurements, to give them accurate information about emission levels and a better understanding of how emissions might affect the environment and local community.

Autocontrol Process Instrumentation (API) has been designing, supplying and maintaining the highest quality emission monitoring systems for a variety of applications. Our systems are used by smelting, power generation, refining, steel, chemical and minerals processing industries worldwide.

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

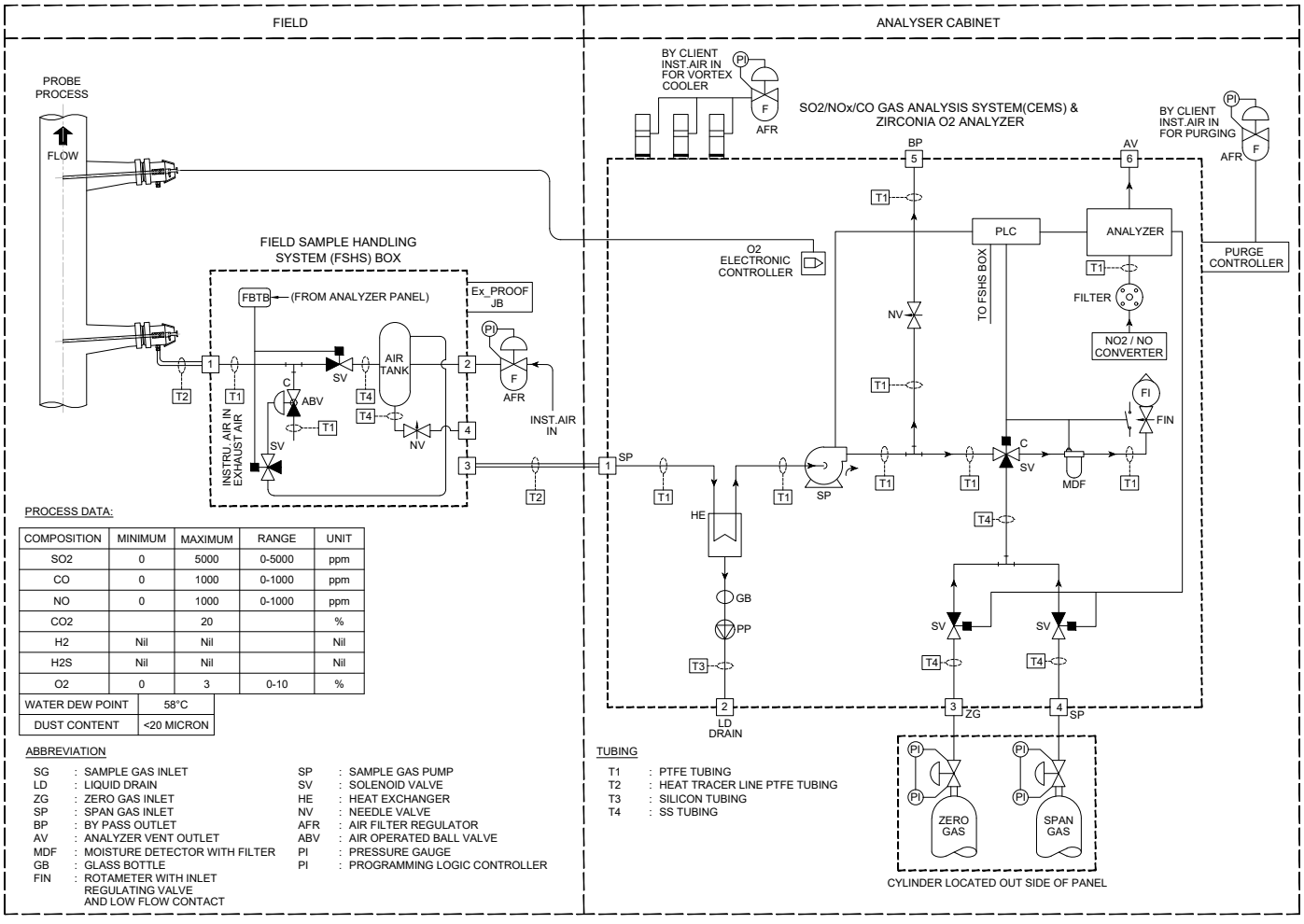
Continuous Emission Monitoring System (CEMS)

The CEMS is used in a wide range of industrial processes and is designed for continuous measurements of pollutants from hot, wet and corrosive gas streams. The system is typically used in:

- Waste Incineration Plants
- Cement Plants
- Power Plants
- Aluminium Production
- Fertilizer & Nitric Acid Production
- Carbon Capture & Storage

CEMS can simultaneously measure the following 16 gases as standard: H2O, CO2, CO, N2O, NO, NO2, SO2, HCl, HF, NH3, CH4, C2H6, C3H8,C2H4, C6H14 and CH2O as well as combination of components such as NOx and TOC. There is also an option for certified oxygen measurement.

Sample Schematic Diagram:



PROCESS DATA:

COMPOSITION	MINIMUM	MAXIMUM	RANGE	UNIT
SO2	0	5000	0-5000	ppm
CO	0	1000	0-1000	ppm
NO	0	1000	0-1000	ppm
CO2		20		%
H2	Nil	Nil		Nil
H2S	Nil	Nil		Nil
O2	0	3	0-10	%
WATER DEW POINT	58°C			
DUST CONTENT	<20 MICRON			

ABBREVIATION

SG	:	SAMPLE GAS INLET	SP	:	SAMPLE GAS PUMP
LD	:	LIQUID DRAIN	SV	:	SOLENOID VALVE
ZG	:	ZERO GAS INLET	HE	:	HEAT EXCHANGER
SP	:	SPAN GAS INLET	NV	:	NEEDLE VALVE
BP	:	BY PASS OUTLET	AFR	:	AIR FILTER REGULATOR
AV	:	ANALYZER VENT OUTLET	ABV	:	AIR OPERATED BALL VALVE
MDF	:	MOISTURE DETECTOR WITH FILTER	PI	:	PRESSURE GAUGE
GB	:	GLASS BOTTLE	PI	:	PROGRAMMING LOGIC CONTROLLER
FIN	:	ROTAMETER WITH INLET REGULATING VALVE AND LOW FLOW CONTACT			

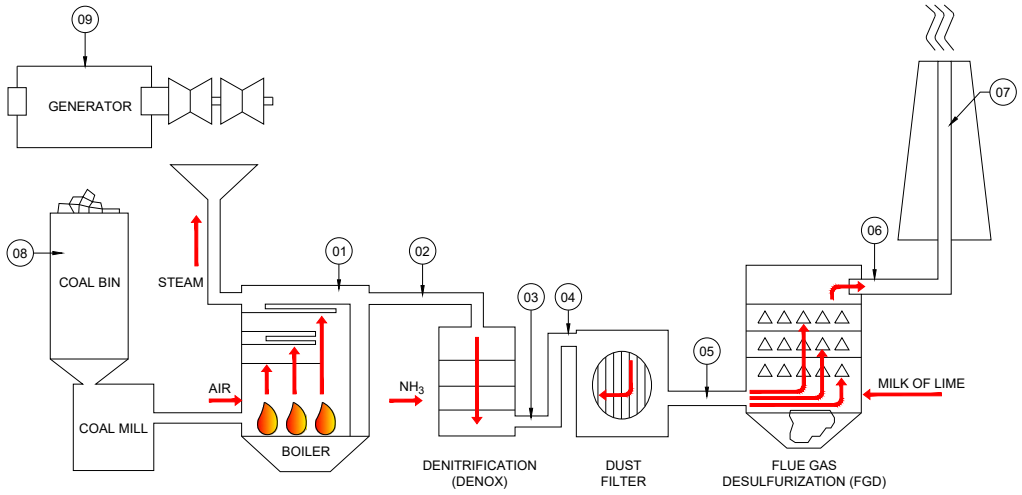
TUBING

T1	:	PTFE TUBING
T2	:	HEAT TRACER LINE PTFE TUBING
T3	:	SILICON TUBING
T4	:	SS TUBING

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

CEMS - Few Measuring Points

Thermal Power Plant:

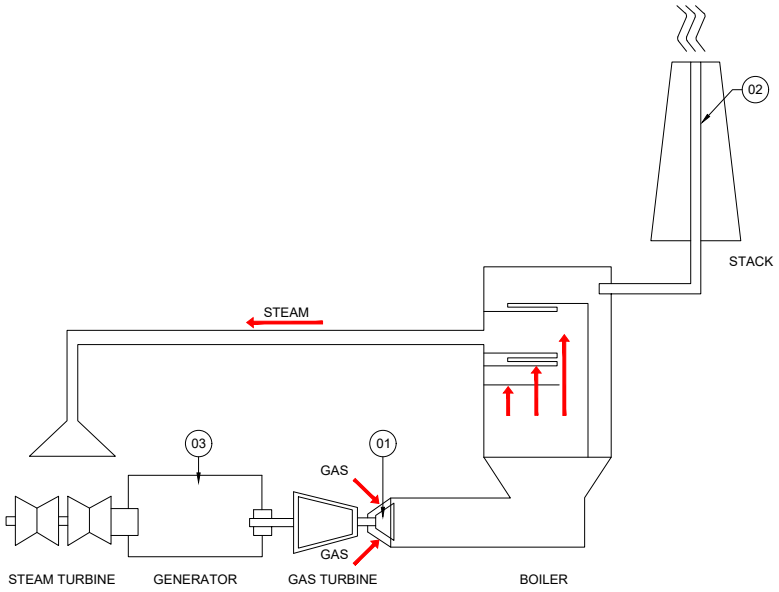


Measuring Points	Application	Measuring Task	Measuring Components
01	Combustion control	• Optimization of combustion • Lower fuel consumption	CO, O2
02	DeNOx upstream	• Monitor NOx to control Treatment process	NO, NO2, NOx, O2
03	DeNOx downstream	• Effectiveness of DeNOx • NH3 slip control	NO, NO2, NOx, NH3, O2
04	Dust filter monitoring	• Safety measurement • Explosion protection	CO, CO2, O2
05	FGD upstream	• Control of FGD process • For example, milk of lime dosing	SO2
06	FGD downstream	• Effectiveness of FGD	SO2, O2
07	Stack	• Emission monitoring	CO, NOx, SO2, O2, HCl, NH3, HF, flow
08	Coal bin monitoring Coal mill monitoring	• Safety measurement • Detection of smoldering fire	CO
09	Turbo generator monitoring	• Safety measurement • Leakage monitoring • Inertization and filling	H2 in air, CO2 in air, H2 in CO2

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

CEMS - Few Measuring Points

Gas Turbine Power Plant:

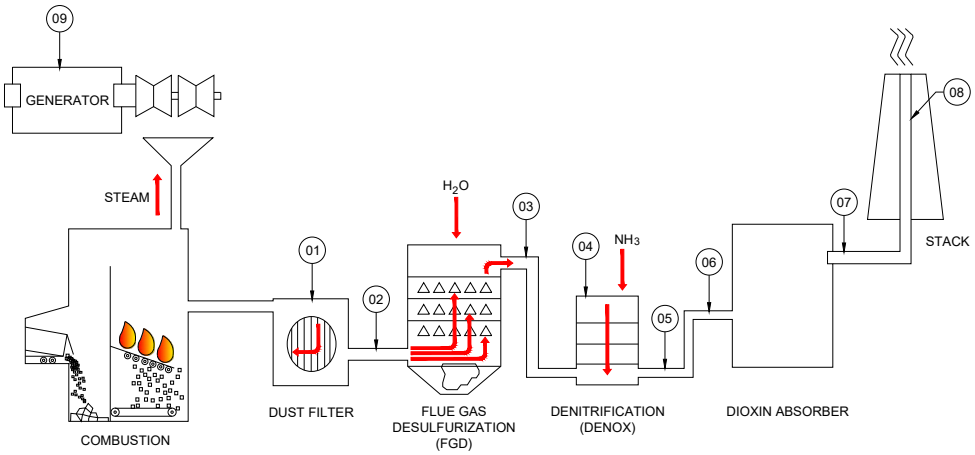


Measuring Points	Application	Measuring Task	Measuring Components
01	Gas turbine	• Fuel mix monitoring • Process control	CH4, C2H6, C3H8, CO2, H2, O
	Boiler control	• Optimization of combustion • Lower fuel consumption	CO, O2
02	Stack	• Emission monitoring	CO, NOx, SO2, O2, NH3, flow
03	Turbo generator monitoring	• Safety measurement • Leakage monitoring • Inertization and filling	H2 in air, CO2 in air, H2 in CO2

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

CEMS - Few Measuring Points

Incinerator:

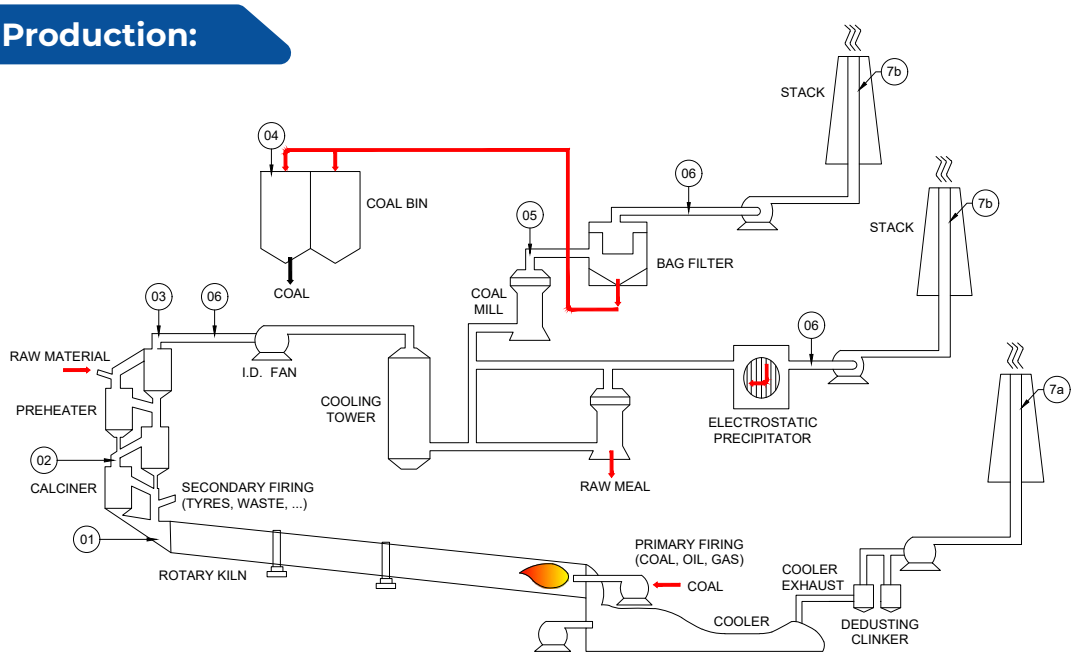


Measuring Points	Application	Measuring Task	Measuring Components
01	Combustion and dust filter control	• Optimization of combustion • Dust filter explosion protection • Catalyzer protection	CO, O2
02	Flue gas scrubber Upstream	• Process control • For example, milk of lime dosing	SO2, HCl, H2O
03	Flue gas scrubber Downstream	• Efficiency of flue gas scrubber	SO2, HCl, H2O
04	DeNOx upstream	• Monitor NOx to control treatment Process	NO, NO2, NOx, O2
05	DeNOx downstream	• Efficiency of SCR/SNCR	NO, NO2, NH3, O2, H2O
06	Dioxin absorber upstream	• CO for absorber efficiency	CO
07	Dioxin absorber Downstream	• Delta CO for absorber efficiency	CO
08	Stack	• Emission monitoring	CO, NOx, N2O, SO2, O2, NH3, HCl, HF, VOC
09	Turbo generator monitoring	• Safety measurement • Leakage monitoring • Inertization and filling	H2 in air, CO2 in air, H2 in CO2

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

CEMS - Few Measuring Points

Cement Production:



Measuring Points	Application	Measuring Task	Measuring Components
01	Kiln gas outlet	• Optimization of primary firing • Lower fuel consumption • Maintain clinker quality	CO, O2, NO, CO2, CH4, SO2
02	Calciner	• Optimization of secondary firing • Lower fuel consumption	CO, O2
03	Preheater	• Safety measurement • Prevention of explosion in ESP • Control of false air in preheater	CO, O2
04	Coal bin	• Safety measurement • Prevention of smoldering (monitor of air entrance)	CO, (O2)
05	Coal mill	• Safety measurement • Prevention of smoldering • Monitor of air entrance	CO, O2
06	DeNOx	• NH3 measurement	NH3
7a	Stack	• Emission monitoring	CO, O2
7b	Stack	• Emission monitoring	CO, NO, NO2, NOx, SO2, O2, CO2, HCl, VOC, HF

autocontrol process instrumentation
• Sensing • Measuring • Controlling • Automation

Installation, Commissioning & Service

Installation & Commissioning:

Many of our clients have engaged us in the installation and commissioning of the equipment we supply and can therefore be fully confident in site system performance, safety and reliability as was engineered.

Benefits:

- Turn-key, fully seamless integrated solution, one stop shop with added advantages of foresight.
- Single point of contact and accountability
- Installation and commissioning by engineers experienced and cognizant with the platform and design and who can deliver Innovative Solutions to unexpected site issues as are often encountered.
- Bespoke arrangements
- Immediate and full access to the project engineering team responsible for the application design to advise in any unforeseen site Implementation problems at no additional cost.

Key Business Benefits Derived:

- Confidence in effective and competent installation and commissioning with easy access to engineering base support
- Contributes to lifetime performance, functional efficacy and safety.
- Cost effective, simplifies management overhead with reduced contractual risk.
- Ensures against third party systematic errors with immediate and/or potential later incurred costs.

Our Service offering:

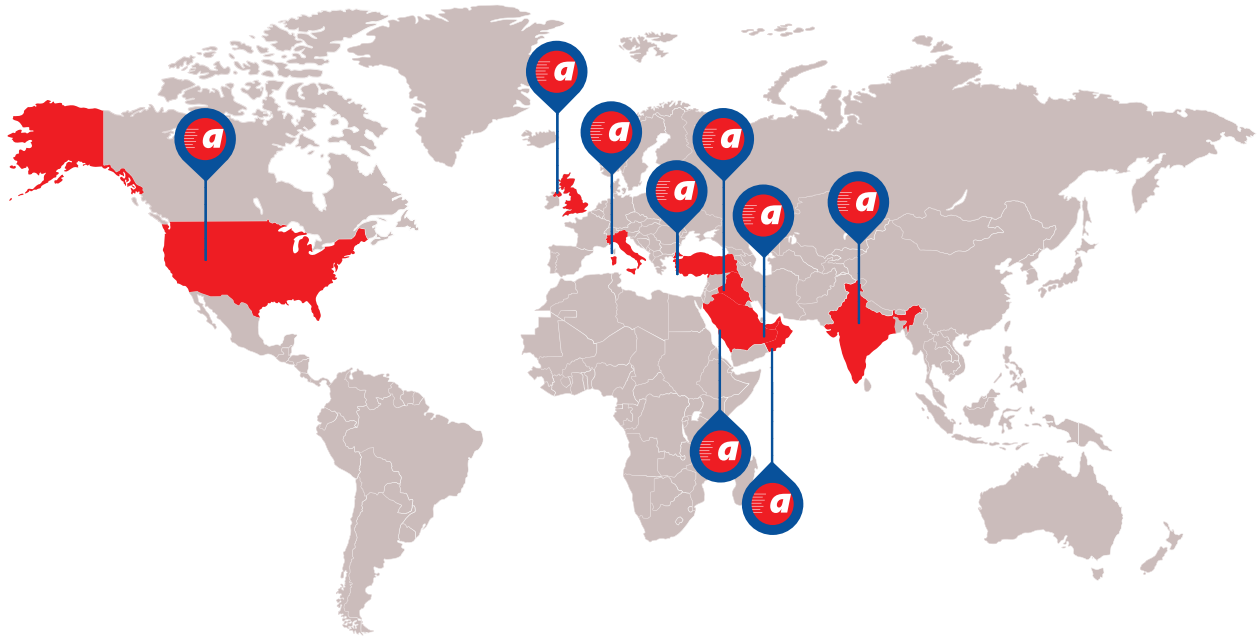
The system you have purchased has been engineered, manufactured and tested to the highest standard. However, we recognize that The system will serve its purpose to the maximum efficacy where competent engineering is engaged throughout its entire life cycle and not just up to point of delivery and later application of highly competent operations and maintenance. An engineering solution that is well designed, built and tested can easily be compromised by insufficiently enlightened installation or Commissioning that can act in detriment to the longer term system performance, safety, reliability and application. It is more often So, as an imperative, that installation and commissioning requires extensive knowledge of the platform, application and site Integration.

API works with its partners to offer you complete fabrication services for skid-mounted / modular equipment, from the supply of material, through fabrication, inspection, testing, and assembly, including surface finishing, electrical and instrumentation work, insulation, and packing.

We deliver Skids to Petrochemical, Oil & Gas, and Water Industries, with certified welding procedures and professional experience enabling us to work with a comprehensive array of materials, including carbon and low temp carbon steel, stainless and alloy steels, as well as HDPE and GRE. Integration, Assembly, Calibration & Testing.

autocontrol
process instrumentation
• Sensing • Measuring • Controlling • Automation

Our Global Presence



UK

Autocontrol Process Instrumentation Ltd.

Unit B4; Greeba Road; Southmoor Industrial Park Wythenshawe; Greater Manchester, England Post Code - M23 9XS, United Kingdom

+44 161 5074 443

sales.uk@autocontrolpi.com

www.autocontrolpi.com

USA

Autocontrol Americas Inc.

Unit 24/26 220 Barren Springs Dr, Houston, Texas 77090, United States of America

sales.usa@autocontrolamericas.com

www.autocontrolamericas.com

UAE

Autocontrol Process Instrumentation FZC.

Plot No. 1H-08B, PO Box 51722, Hamriya Free Zone , Phase 1, Sharjah, United Arab Emirates.

sales.uae@autocontrolpi.com

www.autocontrolpi.com

INDIA

Autocontrol Process Instrumentation Pvt. Ltd.

Plot No-B-85/4, Ambernath Additional MIDC, Anand Nagar, Nr. ASB Company, Ambernath, Thane, Maharastra, India - 421506

sales.india@autocontrolpi.com

www.autocontrolpi.com

ITALY

Autocontrol Europe Srl.

Via Vittorio Veneto, 23, Cap 20010 Bernate Ticino Milano, Italy

sales.europe@autocontroleurope.com

www.autocontroleurope.com

IRAQ

Autocontrol Process Instrumentation FZE.

Italian City1, Villa 59 Erbil Kurdistan, Iraq

sales.iraq@autocontrolpi.com

www.autocontrolpi.com

KSA

Autocontrol Process Instrumentation LLC.

Unit S1/2/44, Dammam 2nd Industrial Area, West (SCOOP) Kingdom of Saudi Arabia

sales.ksa@autocontrolpi.com

www.autocontrolpi.com

OMAN

Autocontrol Process Instrumentation LLC.

Ghala Al Sanaiah, Bousher, Postal Code 112, Muscat Governorate, Muscat, Oman

sales.oman@autocontrolpi.com

www.autocontrolpi.com

TURKEY

Autocontrol Process Instrumentation Elektronik Imalat Ticaret Sanayi Limited Sirketi

Ornek, Bestekar Amir Ates Cd. No. 10A, 34704 Atasehir, Istanbul, Turkey

sales.turkey@autocontrolpi.com

www.autocontrolpi.com

Notes

autocontrol
process instrumentation

• Sensing • Measuring • Controlling • Automation

UK I USA I UAE I INDIA I ITALY I IRAQ I KSA I OMAN I TURKEY

www.autocontrolpi.com