



On-Line Instruments

2007-2008



TETHYS Instruments



UV400

On-line water analyser



Paramètres

- UV254 (COD)
- Nitrate
- Ammonia
- Hydrocarbons
- H₂S
- Chlorophyll A
- Rhodamine
- Phosphate
- Turbidity
- Conductivity
- pH / ORP
- Dissolved Oxygen
- Colour

The UV400 is the new generation of on-line water analyser launched by Tethys Instruments.

It offers the possibility to measure by UV spectroscopy several parameters such as organic matters, nitrates, ammonia, hydrocarbons, H₂S, chlorophyll A and rhodamine. This method is well-known for its unparalleled reliability and good stability with an extremely low operating cost.

In order to complete its offer, this analyser integrate in the same time the phosphate analysis by colorimetry, the turbidity by IR nephelometry and external probes for conductivity, pH and Dissolved Oxygen measurements.

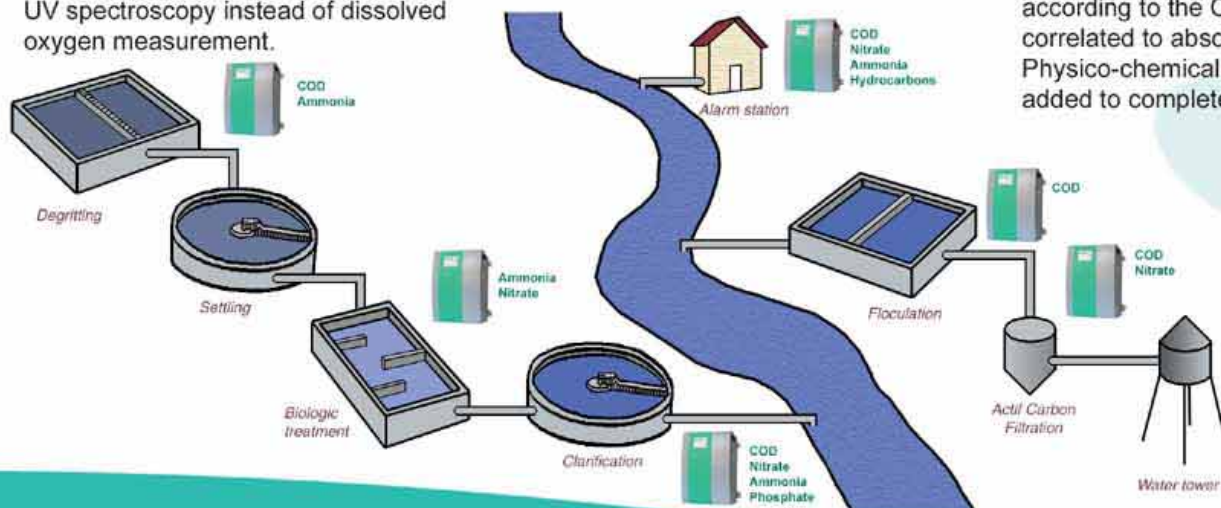
Applications

In waste water treatment plant, the elimination process of nitrogen compounds is mainly done by biological treatments. The optimisation of this process can be improved by measuring the nitrates and ammonia by UV spectroscopy instead of dissolved oxygen measurement.

The new regulation obliges factories to monitor the hydrocarbons concentration on their stormwater runoff. The fluorescence method offers a good selectivity.

The production of drinking water from surface water requires an addition of coagulant to eliminate the organic matter.

In order to optimize this process, a coagulant pump can be monitored according to the COD concentration correlated to absorption at 254nm. Physico-chemical probes can be added to complete the analysis.





Features

- UV spectroscopy method for main parameters
- Up to 12 parameters thanks to its modular concept
- Measuring time less than 10 seconds for most parameters
- Accept samples with high concentration of suspended solid
- Built-in automatic cleaning system
- User-friendly colour touch screen interface
- USB port to download memorised data on memory stick
- 10 years typical lamp life time
- Mono-board concept

Maintenance and drift problems are negligible by using UV spectroscopy. This method doesn't require any reagents and doesn't have any elements in contact with sample.

The analyser can monitor simultaneously up to 12 parameters.

The measuring time is inferior to 10 seconds for all parameters, except ammonia and H₂S (measurement in gas phase), and phosphate (measurement by colorimetry).

The new flow cell design (patented) enables high concentration of suspended solid without risk of clogging.

For strong applications, a built-in automatic cleaning system can preserve measurement performances.

The user-friendly colour touch screen interface enables an intuitive use of the analyser.

The USB port enables to download on memory stick the last recorded measurements and diagnosis of each parameter.

The UV xenon lamp is specified for 10⁹ flashes that give more than 10 years of lifetime with a measurement every minute.

The main electronic functions are located in one board to reduce the maintenance.

Specifications

| Parameters | Range | Method |
|-------------------------|--|---|
| COD | 0 - 100 mg/l / 0 - 1000 mg/l / 0 - 20,000 mg/l | COD UV absorption by correlation |
| Nitrate | 0 - 100 mg/l / 0 - 1000 mg/l | NO ₃ ⁻ UV absorption |
| Ammonia | 0 - 5 mg/l / 0 - 100 mg/l / 0 - 5000 mg/l | NH ₄ ⁺ UV absorption in gas phase |
| Hydrocarbons | 0 - 2 mg/l / 0 - 10 mg/l / 0 - 100 mg/l | PAH UV fluorescence |
| H ₂ S | 0 - 10 mg/l / 0 - 100 mg/l | S ₂ ⁻ UV absorption UV in gas phase |
| Chlorophyll A | 0 - 300 mg/l | CHLOA UV fluorescence |
| Rhodamine | 0 - 200 mg/l | RHOD UV fluorescence |
| Phosphate | 0 - 2 mg/l / 0.2 - 20 mg/l | P-PO ₄ ³⁻ Colorimetry |
| Turbidity | 0 - 100 NTU / 0 - 1500 NTU | IR Nephelometry |
| Conductivity | 0 - 2000 µS | Electrode |
| pH | 0 - 14 | Electrode |
| Dissolved Oxygen | 0 - 20 mg/l | O ₂ Electrode |
| Colour | 0 - 100 Pt-Co unit / 0 - 1000 Pt-Co unit | Visible absorption |
| Data storage | 3000 measurements per parameter | |
| Interfaces | RS232 (Windows application, MODBUS or Modem) / RS485 (MODBUS) / USB Port (for memory stick) / WIFI (IEEE 802.11 B) (option) / Ethernet 10 Base-T (IEEE 802.3) (option) | |
| Signals | 1 to 12 analog outputs 4-20 mA opto-isolated (option) 1 to 6 relay contacts programmable (option) | |
| Display | LCD colour screen (TFT) with backlight 320x240 pixels | |
| Power supply | 90-264 VAC / 50 VA / 50-60Hz - 12-15V DC, 3A | |
| Operating limits | 0 to 60 °C | |
| CE standards | Electromagnetic compatibility EN 61010-1, IEC 61010-1 / EN 61326, IEC 61326 | |
| Enclosure | IP54 (IP65 / Nema 4X as an option), Coated steel | |
| Dimensions | 390 x 560 x 280 mm (W x H x D) | |
| Weight | 18 kg to 25 kg | |



EL400

Universal controller



Parameters

- Conductivity
- pH / ORP
- Dissolved oxygen
- Turbidity
- Temperature

The EL400 is the new generation of multi-parameter controller launched by Tethys Instruments.

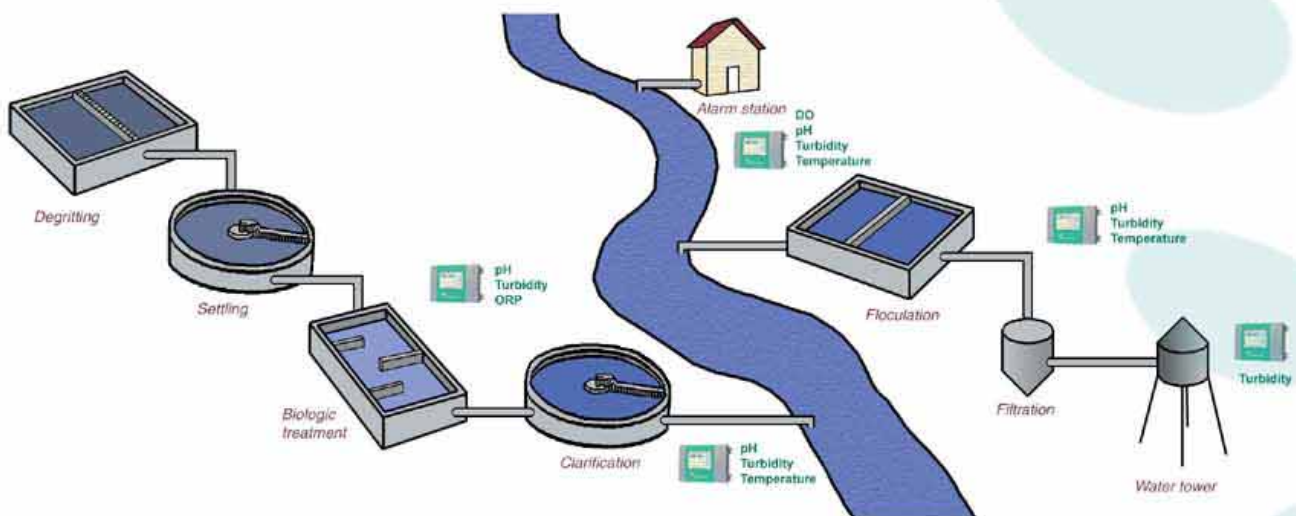
It enables to monitor several physicochemical parameters like conductivity, pH, dissolved oxygen, turbidity and temperature.

For turbidity, a new nephelometric sensor has been developed in order to improve the evacuation of suspended solids and to open the possibility of working on pressured water.

Applications

For industrial applications, pH, conductivity and dissolved oxygen probes associated in a same controller reduce significantly the overall cost and simplify the installation.

The turbidity measurement is an important organoleptic standard for drinking water. For application where several measuring points are required, the universal controller offers a low-cost solution by integrating up to 6 turbidity sensors.





Features

- Up to 12 parameters thanks to its modular concept
- Possibility to add 4-20mA inputs to monitor independent probes
- User-friendly colour touch screen interface
- USB port to download memorised data on memory stick
- Mono-board concept

The controller can monitor simultaneously up to 12 parameters even if there are similar (except for turbidity where the number of sensors is limited to 6).

In addition of input modules such as turbidity, conductivity, pH and dissolved oxygen, this controller offers the possibility to integrate 4-20mA input module with 12-15V power supply for independent probes (chlorine, ozone, etc...).

The user-friendly colour touch screen interface enables an intuitive use of the analyser.

The USB port enables to download on memory stick the last recorded measurements and diagnosis of each parameter.

The main electronic functions are located in one board to reduce the maintenance.

Specifications

| | Turbidity | pH | Conductivity | Temperature | Dissolved oxygen |
|-------------------|-----------|----------|----------------|----------------------|------------------|
| Range | 0-100 NTU | 0-14 | 0-2000 μ S | 0-50 $^{\circ}$ C | 0-20 mg/l |
| Resolution | 0.01 NTU | 0.01 | 0.01 μ S | 0.1 $^{\circ}$ C | 0.01 mg/l |
| Accuracy | +/- 2% | +/- 0.01 | +/- 1% | +/- 0.2 $^{\circ}$ C | +/- 5% |

Data storage Interfaces

3000 measurements per parameter
RS232 (Windows application, MODBUS or Modem) / RS485 (MODBUS) / USB port (for memory stick) / WIFI (IEEE 802.11 B) (option) / Ethernet 10 Base-T (IEEE 802.3) (option)

Signals

1 to 12 analog outputs 4-20 mA opto-isolated (option)
1 to 6 relay contacts programmable (option)

Display

LCD colour screen (TFT) with backlight 320x240 pixels

Power supply

90-264 VAC / 50 VA / 50-60Hz - 12-15V DC, 3A

Operating limits

0 to 60 $^{\circ}$ C

CE standards

Electromagnetic compatibility EN 61010-1, IEC 61010-1 / EN 61326, IEC 61326

Enclosure

IP54 (IP65 / Nema 4X as an option), Coated steel

Dimensions

200 x 300 x 120 mm (W x H x D) (controller only)

Weight

5 kg (controller only)



EXM400 & CEM400

On-line gas analyser



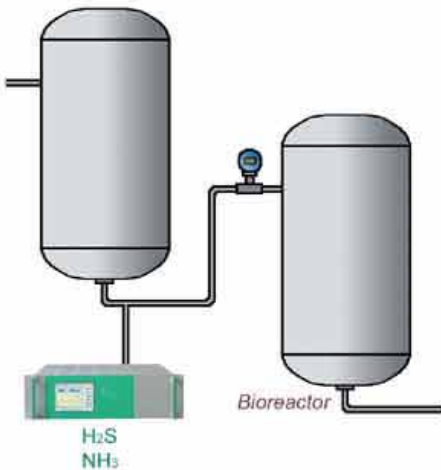
Parameters

- NH₃
- SO₂
- NO
- NO₂
- H₂S
- CS₂
- Benzene
- Toluene
- Xylene
- Formaldehyde
- Acetaldehyde
- Acetylene

The EXM400 and the CEM400 are the new generations of on-line gas analysers launched by Tethys Instruments. The EXM400 is mounted in a rack 19" for laboratory applications. The CEM400 is dedicated to industrial applications with a weatherproof wall mounting enclosure.

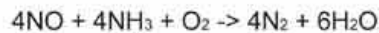
It offers the possibility to measure by UV spectroscopy several gases by using different algorithms. For gases with a periodic spectrum such as NH₃, SO₂, CS₂, formaldehyde or acetylene, an algorithm based on FFT guarantees a very good selectivity of measurement.

Application



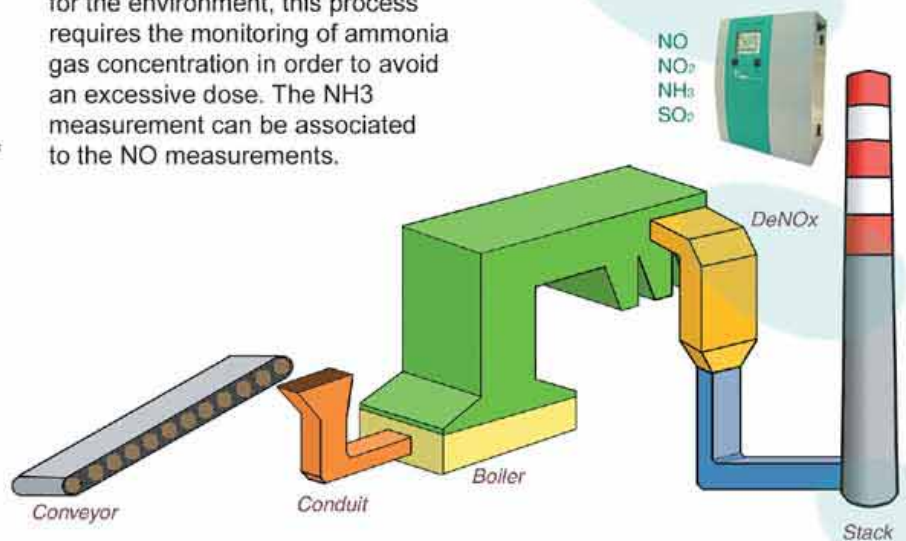
Bioreactors are increasingly used for production of sustainable energy (methane). It is based on the organic wastes decomposition. Besides producing methane gas, it generates H₂S which is corrosive and therefore undesirable. The analyser enables to monitor its concentration without risk of interference with other gases.

For depollution applications, the DeNO_x system is commonly used for reducing NO to nitrogen according to this reaction:



Since NH₃ is corrosive and noxious for the environment, this process requires the monitoring of ammonia gas concentration in order to avoid an excessive dose. The NH₃ measurement can be associated to the NO measurements.

On combustion applications, the analyser can simultaneously measure NO_x and SO₂ in a selective way thanks to their periodic spectrum.





Features

- High reliability and selectivity of measurements
- Optional heated version (190°C)
- Multi-gas configuration
- Automatic compensation of pressure and temperature
- No risk of interference with CO, CO₂, H₂O, and CH₄
- Minimum response time less than one second
- User-friendly colour touch screen interface
- USB port to download memorised data on memory stick
- Optional auto-calibration and built-in sampling system for CEM400

By using the UV spectroscopy methods and appropriate algorithms, the analyser guarantees a good reliability and selectivity of measurement.

If the dew-point temperature is higher than ambient, the heated version is required.

Several gases can be measured in a same enclosure if the sample gas composition permits it.

The analyser corrects each measurement functions of pressure and temperature.

The CO, CO₂, H₂O and CH₄ don't interfere in the spectral band used by the analyser.

For process which requires fast measurement, the analyser is able to measure within 200 milliseconds.

The user-friendly colour touch screen interface enables an intuitive use of the analyser.

The USB port enables to download on memory stick the last recorded measurements and diagnosis of each parameter.

The CEM400 can correct itself by using the optional auto-calibration and a built-in sampling system avoids using heated lines.

Specifications

| | Standard range* | Measurement method / Algorithm |
|------------------------|--|---------------------------------------|
| NH ₃ | 0-100 ppm | UV spectroscopy / FFT |
| NO | 0-2000 ppm | UV spectroscopy / absorption |
| NO ₂ | 0-2000 ppm | UV spectroscopy / absorption |
| SO ₂ | 0-500 ppm | UV spectroscopy / FFT |
| H ₂ S | 0-100 ppm | UV spectroscopy / absorption |
| CS ₂ | 0-100 ppm | UV spectroscopy / FFT |
| Benzene | 0-100 ppm | UV spectroscopy / absorption |
| Toluene | 0-30 ppm | UV spectroscopy / absorption |
| Xylene | 0-30 ppm | UV spectroscopy / absorption |
| Formaldehyde | 0-100 ppm | UV spectroscopy / FFT |
| Acetaldehyde | 0-100 ppm | UV spectroscopy / absorption |
| Acetylene | 0-5000 ppm | UV spectroscopy / FFT |
| Data storage | 2500 measurements per gas | |
| Interfaces | RS232 (Windows application, MODBUS or AK for EXM400) / USB port (for memory stick) / WIFI (IEEE 802.11 B) (option) / Ethernet10 Base-T (IEEE 802.3) (option) | |
| Signals | 1 to 8 analog outputs 4-20 mA opto-isolated (up to 12 for CEM400) (option) 1 to 4 relay contacts programmable (up to 6 for CEM400) (option) | |
| Display | LCD colour screen (TFT) with backlight 320x240 pixels | |
| Power supply | 90-264 VAC / 1000 VA / 50-60 Hz | |
| Operating limits | 0 °C to 40 °C | |
| CE standards | Electromagnetic compatibility EN 6010-1, IEC 6010-1 / EN 61326, IEC 61326 | |
| Enclosure | Rack 19" 3U (EXM400) | Wall mounting enclosure IP65 (CEM400) |
| Dimensions (W x H x D) | 482.6 x 133 x 560 mm (EXM400) | 450 x 570 x 253 mm (CEM400) |
| Weight | 20 kg (EXM400) | 30 kg (CEM400) |

* other range on request



Distributors:

AUSTRALIA

Ecotech
1492 Ferntree Gully Road
Knoxfield VIC 3180
Australia
Tel +61 1300 364 946
Fax +61 1300 668 763
ecotech@ecotech.com.au

BRAZIL

ICR3 Científica
Rua Ratclif, 84
20950-170, Rio de Janeiro
Brasil
Tel + (55) (21) 2241 2477
Fax +(55) (21) 2241 2477
e-mail: icr@icr3.com.br

ICR3 Científica
Av. Luiz Dumont Villares,
2.078 C.J.78 - Parada Inglesa
São Paulo -SP - CEP 02239 000
Brasil
Tel + (55) (11) 6983 2224
e-mail: icr3-sp@icr3.com.br

CANADA

BESTOBELL AQUATRONIX
241 Norseman Street
Toronto, Ontario M82 2R5
Canada
Tel +1 416 231 9216
Fax +1 416 231 9121
salesdesk@bestobell.com

CHILI

Ambiente Y Tecnología
Los Alerces 2425
Nunoa - Santiago
Chile
Tel +(56) 2 238 1604
Fax +(56) 2 239 7013
ayt@ayt.cl

CHINA

Beijing Leader Kings Co. Ltd
7 Eastern Rongjing Road
100176 Beijing
China
Tel +(86) 10 6787 6688
Fax +(86) 10 6787 6684
sales@beijingleader.com.cn

COLOMBIA

ICCE
Calle 62 N° 1bis-15
Ofc. 401A - Cali
Colombia
Tel/Fax: + (57) 2 550 10 40
gdenutte@gmail.com

CZECH REPUBLIC

ECM ECO Monitoring spol. s.r.o.
Dobra 240 - 739 51 Dobra
Czech Republic
Tel: +(420) 558 601 717
Fax: +(420) 558 601 727
ecmdobra@vuhz.cz

FINLAND

OY Anatec Instruments AB
Kumitehtankatu 5 F
FIN - 04260 Kerava
Finland
Tel + (35) 89 6899 5250
Fax + (35) 89 6899 5259
sales@anatec.net

GERMANY

PAI
Gruner Ring 6
D-27432 Hipstedt
Germany
Tel + (49) 04768 922100
Fax +(49) 04768 922101
info@p-a-i.de

GREECE

Ionplus
Monastiriou 90
54627 Thessaloniki
Greece
Tel +(30) 2310 500365
Fax +(30) 2310 511608
info@ionplus.gr

HUNGARY

Aqua-Terra Lab. Kft
Wartha V. Str. 1
H-8200 Veszprem
Hungary
Tel: +(36) 88 568 710
Fax: +(36) 88 560 712
info@aquaterra.hu

INDIA

Sunjay Biotech Solutions
B-27 Shri Ram Ind. Estate 13
Wadala - Mumbai 400 031
India
Tel +91 22 2417 1475
Fax +91 22 2417 1473
info@anmalliance.com

IRAN

Mehrgan Sanat AB Co. Ltd
No 17 Sepahan Str.
PO Box 19395 - 4537 Teheran
Iran
Tel +(98) 21 2269 717
Fax +(98) 21 2250 124
info@mehrgan-sanat.com

ISRAEL

Lemico Ltd
PO Box 2154
Ra'anana 43625
Israel
Tel +(972) 9 741 2659
Fax +(972) 9 744 2419
sales@lemico.com

ITALY

AST Analytica
Via Montallegro, 6
I-16145 Genova
Italy
Tel +(39) 010 318620
Fax +(39) 010 311172
maurizio@ast-analytica.it

MALAYSIA

Bioclear
14, Jalan Industri PBP 9
47100 Puchong - Selangor
Malaysia
Tel +(60) 3 58825525
Fax +(60) 3 58824889
bioclear@po.jaring.my

NORWAY

Houm AS
Postboks 83 Grefsen
N-0409 Oslo
Norway
Tel +(47) 22 09 40 00
Fax +(47) 22 09 40 40
firmapost@houm.no

POLAND

Intrrol SC
Ul. T. Kosciuszki 112
40-519 Katowice
Poland
Tel +(48) 32 205 33 44
Fax +(48) 32 205 33 77
intrrol@intrrol.pl

PORTUGAL

F.Fonseca S.A.
Rua João Francisco do Casal 87/89
Esgueira-3801 - 997 - Aveiro
Portugal
Tel +(35) 1 234 303 900
Fax +(35) 1 234 303 910
ffonseca@ffonseca.com

ROMANIA

Electric-Control
Str.Simion Barnutiui no 44
Deva-330065
Romania
Tel +(40) 254 219232 / 220265
Fax +(40) 254 219232 / 220265
electric_control@deva.rdsnet.ro

SLOVAK REPUBLIC

ECM ECO Monitoring
Nevadzova street No.5
821 01 Bratislava
Slovak Republic
Tel +(421) 2 4828 7263
Fax +(421) 2 4342 7465
miroslav.zezula@ecm.sk

SOUTH AFRICA

ACI Holdings Pty Ltd
32 Antbear Street Estherpark
PO Box 8792 - Edlieen 1625
South Africa
Tel +(27) 11 393 3030
Fax +(27) 11 393 3036
support@aciholdings.com

ANYSCO SA C.C.
65 Cleeve Road - PO box 1034
1960 Henley on Klip Meyerton
South Africa
Tel +(27) 16 366 1336
Fax +(27) 16 366 1337
ansyco@mweb.co.za

SPAIN

Instrumentacion Analítica, S.A.
Penedes, 46
SP-08820 El Prat del Llobregat (Barcelona)
Spain
Tel +(34) 93 47 87 161
Fax +(34) 93 47 87 984
barcelona@instru.es

Instrumentacion Analítica, S.A.
Isabel Colbrand s/n nave 89
28050 Madrid
Spain
Tel +(34) 913588879
Fax +(34) 913588946
madrid@instru.es

TAIWAN

Luzcogi International Co., Ltd
9F., No.510, Da-an Rd., Shulin City,
Taipei County 238,
Taiwan (R.O.C.)
Tel +(886) 2 2684 3991
Fax +(886) 2 2687 4407
andyhsu.luze@msa.hinet.net

UNITED ARAB EMIRATES

Process Systems Gulf
PO Box 30150
Dubai
UAE
Tel +(971) 4 339 0539
Fax +(971) 4 339 0668
psg@psg.ae

UNITED KINGDOM

Achromatic
Falkirk Road - Grangemouth
Stirlingshire FK3 8XS
UK
Tel +44 (0) 1324 619360
Tel +44 (0) 7971 579596
Fax +44 (0) 1324 878601
achromatic@btinternet.com

TETHYS Instruments

57 Chemin du Vieux Chêne, 38240 Meylan Inovalée, France

Tel. +(33) 476 41 86 39 / Fax +(33) 476 41 92 27 / sales@tethys-instruments.com / www.tethys-instruments.com