

*Production lot traceability,  
 at your fingertips*

**Pyrotracer<sup>®</sup>  
 Vidéo  
 C.A 650**



**NEW**  
 4 economical  
 limited versions

- 3 analogue channels
- 3 analogue channels + 6 relays
- 6 analogue channels
- 6 analogue channels + 6 relays

"Plug & play" paperless recorder for the traceability needs of the most demanding industry environments. Rapid set-up and ease of use.

Tamper-proof encrypted files for totally secure "Quality" recording.

- Very-high-definition 6.4-inch 256 colour TFT screen
- Up to 18 configurable isolated measurement channels
- Data back-up using 2 GB Compact Flash memory
- 21 CFR part 11 compliance
- Includes as standard Ethernet link + PC processing software

209	HiAlarm	AI2	11/23 10:05:08	11/23 10:
210	HiAlarm	AI1	11/23 10:05:11	11/23 10:
211	HiHiAlarm	AI2	11/23 10:05:28	11/23 10:
212	HiHiAlarm	AI1	11/23 10:05:28	11/23 10:
213	LoAlarm	AI2	11/23 10:05:37	11/23 10:
214	LoAlarm	AI18	11/23 10:05:37	11/23 10:
215	HiHiAlarm	AI13	11/23 10:05:44	11/23 10:
216	LoAlarm	AI18	11/23 10:05:44	11/23 10:
217	HiHiAlarm	AI13	11/23 10:05:52	11/23 10:
218	LoAlarm	AI18	11/23 10:05:52	11/23 10:
219	HiHiAlarm	AI7	11/23 10:06:57	11/23 10:
220	HiHiAlarm	AI8	11/23 10:07:09	11/23 10:
221	HiHiAlarm	AI1	11/23 10:07:12	11/23 10:
222	HiHiAlarm	AI8	11/23 10:07:27	11/23 10:
223	HiHiAlarm	AI1	11/23 10:07:27	11/23 10:

**Pyro-Contrôle** presents a "plug & play" paperless recorder equipped with an **18-bit converter**, offering **extremely high precision measurements** and a **polling speed of 200 ms per channel!**

With a very high definition 6.4" TFT display screen, and 18 isolated measurement channels, the **Pyrotracer Video** measures up to the most demanding of thermal process industry requirements.

The replacement of conventional recorders by paperless recorders offers the following advantages:

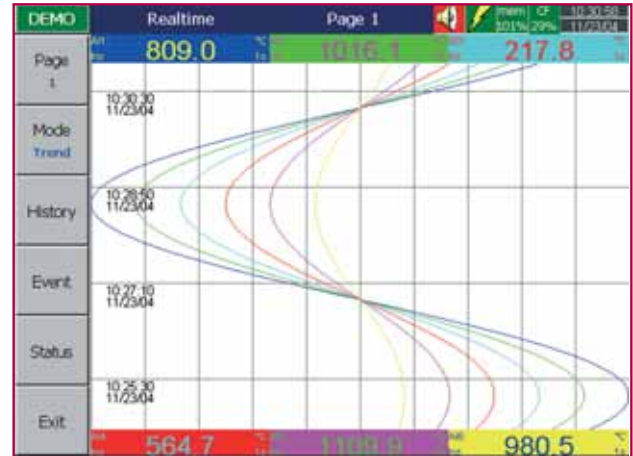
- Simpler maintenance - no longer any need to replace used parts;
- The increased benefits of digital precision over electromechanical precision;
- Computerised processing of data via PC link;
- Remote adjustment and calibration via field bus;
- Possibility of both on-site and remote processing of data.

Whatever the industry - food processing, laboratories & hospitals, chemicals, metallurgy, steel-making, petrochemicals or glass manufacturing - these instruments permit the acquisition, recording & display of the physical quantities of processes, thereby providing on-demand traceability for quality departments; as well as data for testing and calibration, the analysis and development of processes, and their troubleshooting and maintenance.

In addition to the simplicity of access provided by its system of "plug & play" cards, the Pyrotracer Video ensures total security of use, thanks to 18 fully-isolated channels and tamper-proof file encryption. Data is recorded in the instrument's integrated 8MB memory, and automatically transferred to the memory card when the memory use reaches 95%.

With total autonomy of use guaranteed by its 8 MB memory capacity, very-high-definition screen and Windows CE ergonomics, the recorder offers greatly enhanced data representation and analysis capabilities thanks to their direct processing on PC. For this reason, the Ethernet link and data processing software are included as standard. Data may also be accessed via a field bus connected to an RS 232 or RS 485 link.

### Trend Mode



- ▶ Vertical or horizontal display of 6 curves in real time
- ▶ Curves identified by colour and process indicators
- ▶ Simplified "Page" display function
- ▶ Permanent date-time display
- ▶ Automatic "Alarm" and "Memory Full" Warning icon

### Histogram mode



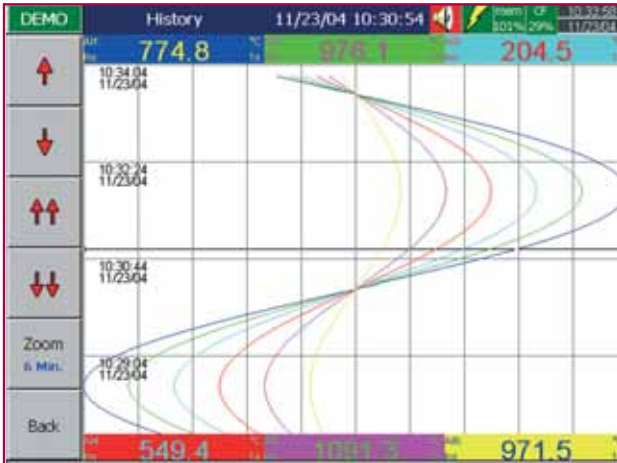
- ▶ 6-column bar graph display
- ▶ Individual scale configuration for each histogram
- ▶ Curves identified by colour and process indicators
- ▶ "Hi/Lo" alarm status indicators
- ▶ Permanent date-time display
- ▶ Automatic "Alarm" and "Memory Full" Warning icon

### Digital input display



- ▶ Real-time display of 6 analogue inputs
- ▶ Colour differentiated value and process indicators
- ▶ "Hi/Lo" alarm status indicators
- ▶ Permanent date-time display
- ▶ Automatic "Alarm" and "Memory Full" Warning icon

## Historical mode



- Vertical or horizontal display of 6 time series curves
- Automatic display of numerical values - selected by cursor
- "ZOOM" function for expanding and reducing Time scale
- Curves identified by colour and process indicator

## Alarm log

Mode	Event/Alarm	Report				
Event	Ack	Type	Source	Active Time	Clear Time	Value
	2085	HiAlarm	A11	11/23 10:04:58	11/23 10:08:40	781.8
	2090	HiAlarm	A12	11/23 10:05:08	11/23 10:08:40	1060.
	2100	HiHiAlarm	A11	11/23 10:05:11	11/23 10:08:40	864.7
	2110	HiHiAlarm	A12	11/23 10:05:28	11/23 10:08:41	1176.
	2120	HiAlarm	A13	11/23 10:05:28	11/23 10:08:41	270.8
	2130	HiAlarm	A113	11/23 10:05:37	11/23 10:08:41	80.80
	2140	LoAlarm	A118	11/23 10:05:37	11/23 10:08:41	19.20
	2150	HiHiAlarm	A113	11/23 10:05:44	11/23 10:08:41	87.80
	2160	LoLoAlarm	A118	11/23 10:05:44	11/23 10:08:41	12.20
	2170	HiAlarm	A114	11/23 10:05:52	11/23 10:08:41	80.53
	2180	LoAlarm	A117	11/23 10:05:52	11/23 10:08:41	19.47
	2190	HiAlarm	A17	11/23 10:06:57	11/23 10:08:41	1436.
	2200	HiAlarm	A38	11/23 10:07:09	11/23 10:08:41	1942.
	2210	HiHiAlarm	A17	11/23 10:07:12	11/23 10:08:41	1588.
	2220	HiHiAlarm	A38	11/23 10:07:27	11/23 10:08:41	2154.
	2230	HiAlarm	A39	11/23 10:07:27	11/23 10:08:41	521.1
	2240	LoAlarm	A11	11/23 10:08:18		86.2
	2250	LoAlarm	A12	11/23 10:08:26		109.5
	2260	LoLoAlarm	A11	11/23 10:08:31		15.3
	2270	LoLoAlarm	A12	11/23 10:08:48		-6.0
	2280	LoAlarm	A13	11/23 10:08:48		-120.

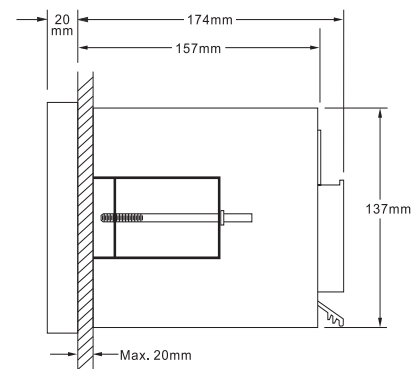
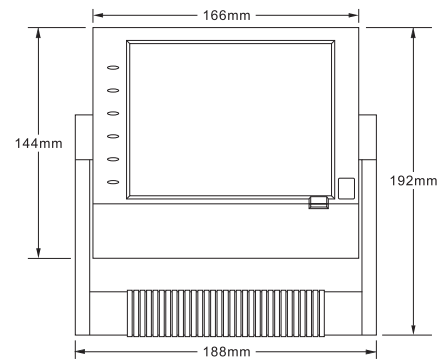
- Log includes full date/time listing of all alarms
- "Browse" function to select and clear alarms
- Uncleared alarms displayed in red for High, green for Low

## Configuration of entry settings

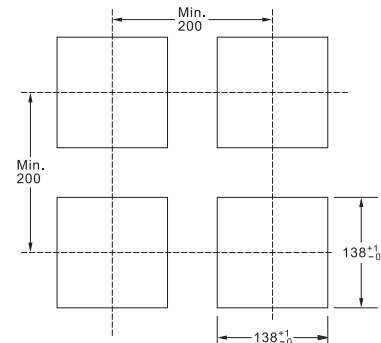
AI	AI1										
No	Type	Setpoint	Job 1	Job 2							
1	H	776.0	Log Alarm	No Action							
2	L	104.0	Log Alarm	No Action							
3	HH	860.0	Log Alarm	No Action							
4	LL	20.0	Log Alarm	No Action							

- Configuration of input/output/name/event pens
- Page configuration (colours, pens, decimal format, pen + link, etc.)
- Configuration of timer
- Configuration of internal functions (storage memory, display, communication, real-time clock, etc.)

## DIMENSIONS

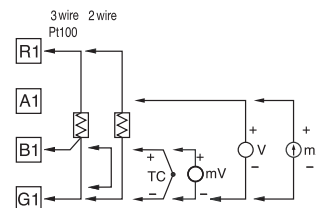


## Subdivisions of the panels

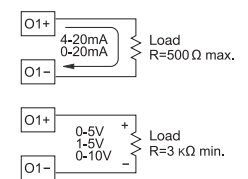


## Connection of analogue inputs

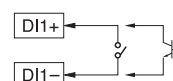
Pt100, TC, mV, V, mA



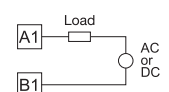
## Connection of analogue outputs



## Connection of logical inputs



## Connection of relay outputs





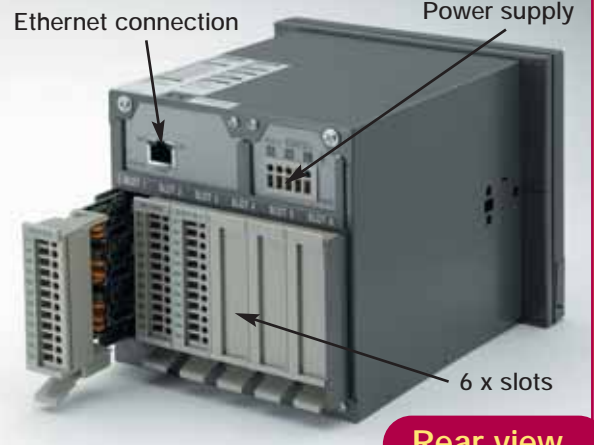
## Front panel



6 Programming keys

View of the programming keys and memory card protection strip

Memory card



Ethernet connection

Power supply

6 x slots

## Rear view

6 slots for input/output boards  
Each type of board is recognized individually.  
Up to 18 analogue inputs possible (3 inputs x 6 slots)

Infrared sensor for screen saver

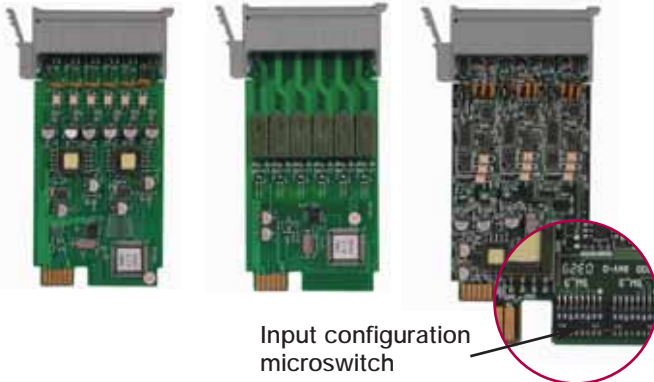


## Type of input/output boards

Logical input

Relay output

Analogue input



Input configuration microswitch

## Portable version



On/Off switch

Carrying handle

Memory card

# « 21CFR part 11 » compliance

The *Pyrotracer Vidéo*, equipped with the “Mathematical” option, complies with the provisions of the « 21 CFR part 11 » regulation.

This concerns the quality and security of electronic records and electronic signatures in order to obtain FDA (Food & Drug Administration) validation of pharmaceutical and agrifood processes.

The requirements of the « 21CFR part 11 » regulation are as follows:

- Ability to generate accurate and complete copies of records in both human-readable and electronic form for inspection, review, and copying by the Administration.
- Protection of records to enable accurate and immediate consultation throughout the record retention period.
- Limiting of system access to authorised individuals.
- Use of secure, computer-generated, time-stamped audit trails to independently record the date and time of operator actions which create, modify or delete electronic records. Record changes must not obscure previously recorded information. This audit trail documentation shall be retained for at least as long as retention period for the electronic records in question.



- Use of authorisation checks to ensure that only authorised individuals can use the system, electronically sign a record, access the input or output systems of the computer or instrument, alter a record or perform an operation manually.
- Use of verification systems to determine, as appropriate, the validity of the source of the input data or operational instructions.
- Guarantee that people developing, maintaining or using electronic record/electronic signature systems have the education, training and experience to accomplish the tasks assigned to them.
- Implementation of appropriate control over the system's documentation, including suitable control over the distribution of, access to and use of documentation for system operation and maintenance; this must be backed by a revision and change control procedure to maintain a time-stamped audit trail of documentation drafting and modifications.

## MATHEMATICAL OPTION

See **TO ORDER** (next page)

7 C.A 650 software, option 1

## Power supply

90-264 V<sub>AC</sub>, 47-63 Hz, 60 VA, 30 W maximum  
11-18, 18-36 or 36-72 V<sub>DC</sub> 60 VA, 30 W maximum

## Display / Screen

6.4" LCD TFT, 640 x 480 pixels, 256 colours

## Memory

Basic storage memory: 8 MB  
Compact Flash: 128 MB standard  
512 MB optional

## Analogue input board

Channels: 3 per board  
Resolution: 18 bits

Polling time: 200 ms

Maximum value: -2 V<sub>DC</sub> minimum, 12 V<sub>DC</sub> maximum  
(1 minute max. for mA)

Temperature drift: ±1.5µV/°C except mA inputs  
±3.0µV/°C for the mA inputs

Influence of line resistance: TC: 0.2 µV/Ω

Pt100, 3 wires: 2.6°C/Ω of difference between two branches

Break-induced sensor current: 200 nA

Common mode rejection: 120 dB

Serial mode rejection: 55 dB

Insulation voltage between channels: at least 430 V<sub>AC</sub> min

Detection of sensor failure:

Sensor open-circuit for TC, Pt100 and mV inputs,  
below 1 mA for the 4-20 mA input, below 0.25 V for the 1-5 V input,  
not applicable to the other inputs

Response time after a sensor failure:

10 seconds for TC, Pt100 and mV, 0.1 second for 4-20 mA and 1-5 V.

Type	Scale	Precision at 25 °C	Impedance
J	+120 ... +1 000 °C	±1 °C	2.2 MΩ
K	-200 ... +1 370 °C	±1 °C	2.2 MΩ
T	-250 ... +400 °C	±1 °C	2.2 MΩ
E	-100 ... +900 °C	±1 °C	2.2 MΩ
B	0 ... +1 820 °C	±2 °C	2.2 MΩ
S	0 ... +1 767.8 °C	±2 °C	2.2 MΩ
R	0 ... +1 767.8 °C	±2 °C	2.2 MΩ
N	-250 ... +1 300 °C	±1 °C	2.2 MΩ
L	-200 ... +900 °C	±1 °C	2.2 MΩ
Pt100 (DIN)	-210 ... +700 °C	±0.4 °C	1.3 kΩ
Pt100 (JIS)	-200 ... +600 °C	±0.4 °C	1.3 kΩ
mV	-8 ... +70 mV	±0.05 %	2.2 MΩ
mA	-3 ... +27 mA	±0.05 %	70.5 Ω
V	-0.12 ... +1.15 V	±0.05 %	332 kΩ
0/5 V	-1.3 ... +11.5 V	±0.05 %	332 kΩ
1/5 V	-1.3 ... +11.5 V	±0.05 %	332 kΩ
0/10 V	-1.3 ... +11.5 V	±0.05 %	332 kΩ

## Logical inputs board

Channels: 6 per board

Low level: -5 V minimum, 0.8 V maximum

High level: 2 V minimum, 5 V maximum

External pull-down resistance: 1 kΩ maximum

External pull-up resistance: 1.5 MΩ maximum

## Relay outputs board

Relays: 6 per board

Type of contact: N.O. (normally open).

Type of relay: 5 A/240 V<sub>AC</sub>, number of cycles: 200,000 (resistive load).

## Analogue currents outputs board

Measurement input duplication board with function for possible multiplication, addition or subtraction of the inputs. Type: 0/4 - 20 mA.

## Communication module

Interface: RS232 (1 x C.A 650), RS485, or RS422 (up to 247)

Protocol: Modbus RTU

Address: 1-247

Speed: 0.3-38.4 kbits/sec.

Data bits: 7 or 8 bits

Parity bit: None, Even, or Odd

Stop bit: 1 or 2 bits

## Ethernet communication module

Protocoles : ModBus TCP/IP, 10 BaseT, Self-bias correction for 10 BaseT

Ports: AUI and RJ-45, auto-detect capability

## Dimensions and environmental conditions

Operating temperature: 5°C to 50°C

Storage temperature: -25°C to 60°C

Humidity: 20 to 80% RH (without condensation)

Insulation resistance: at least 20 MΩ (at 500 V<sub>DC</sub>)

Dielectric strength: 3 kV<sub>AC</sub> 50/60 Hz for 1 minute

Vibration resistance: 10-55 Hz, 10 m/s<sup>2</sup> for 2 hours

Impact resistance: 30 m/s<sup>2</sup> (3 g) in operation, 100 g during transport

Dimensions: 166 mm (W) x 144 mm (H) x 174 mm (D), cabinet mounting

## Compliance with standards

Safety: UL873 (11<sup>th</sup> edition, 1994) CSA C22.2 No. 24-93

CE: EN61010-1 (IEC1010-1)

Overvoltage category II, Pollution degree 2

Protection class for indoor use:

IP30 for front panel of cabinet, IP20 for wiring

EMC

Emission: EN50081-1, EN61326 (EN55011 class B, EN61000-3-2, EN61000-3-3)

Immunity: EN50082-2, EN61326 (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4 11, EN50204)

## TO ORDER

### CONFIGURABLE VERSIONS

C.A 650 **1** **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

Caution: the recorder has a maximum of 6 slots

#### 1 Power supply

4: 90-264 V<sub>AC</sub> 47-63Hz

6: 11-18 V<sub>DC</sub>

7: 18-36 V<sub>DC</sub>

8: 36-72 V<sub>DC</sub>

Code

standard

LR00110-000

LR00111-000

LR00129-000

LR00112-000

#### 2 Analogue inputs\*

0:	No analogue input	0
3:	3 Analogue inputs	1 slot
6:	6 Analogue inputs	2 slots
A:	9 Analogue inputs	3 slots
B:	12 Analogue inputs	4 slots
C:	15 Analogue inputs	5 slots
D:	18 Analogue inputs	6 slots

#### 3 Logical inputs\*

0:	No logical input	0
1:	6 Logical input	1 slot
2:	12 Logical input	2 slots

LR00113-000

#### 4 Relays outputs\*

0:	No relay	0
1:	6 Relays	1 slot
2:	12 Relays	2 slots

LR00114-000

#### 5 Communication

0: standard → Ethernet communication

1: RS232/422/485 (3 in 1) + Ethernet interface

LR00116-000

#### 6 Configuration software

1: standard « Observer 1 » software

#### 7 Software of the C.A 650

0: basic

1: mathematical, metering and totalizer functions  
+ 21 CFR part 11

LR00117-000

#### 8 Compact Flash

1: 128 MB standard

#### 9 Mounting the C.A 650

1: Standard: cabinet mounting version

2: Portable version with carrying handle

LR00118-000

#### 10 Option\*

0: no option

1: 24 V<sub>DC</sub> transmitter power supply (up to 6) [1 slot]

LR00115-000

#### 11 Analogue outputs\*

0:	No analogue output	0
3:	3 Analogue mA outputs	1 slot
6:	6 Analogue mA outputs	2 slots
A:	9 Analogue mA outputs	3 slots

LR00123-000

### ACCESSORIES:

"Observer 2" software

512 MB Compact Flash memory

LR00122-000

LR00121-000

\* Can be sold separately

### LIMITED VERSIONS

#### C.A 650 Limited Version

3 analogue inputs:

CA650LV 4300-010-110-00

LR00104-000

3 analogue inputs + 6 relays outputs:

CA650LV 4301-010-110-00

LR00105-000

6 analogue inputs:

CA650LV 4600-010-110-00

LR00106-000

6 analogue inputs + 6 relays outputs:

CA650LV 4601-010-110-00

LR00107-000



# For total control of the thermal process line



## Temperature transmitters

For conditioning all temperature and process signals, a range of converters and transmitters, 1 or 2 channels, analogue or digital output, ...



## Bluetooth radio modem/ RS485

Wireless communication, reliable and safe. Replaces RS485/RS232 wire connections. Bluetooth® technology.

Signal  
transmission



## Temperature controllers

A broad range of digital and analogue controllers, simple or elaborate models. Several formats, single or multi-input, ...

Signal  
processing



## Power blocks with thyristors

A range of thyristor power controllers, from 8 A to 2,900 A. Single or three-phase, for resistive and inductive loads. Several control and monitoring functions, ...

Electric  
actuator



## Digital panel meters

Several programmable digital panel meters for temperature and process signals. Memorisation of minimum and maximum values, ...

Display  
monitoring



## Recorders

Paperless model with very high definition video screen, up to 18 configurable measurement channels, PC software data processing, ...

Setting up



## Help service

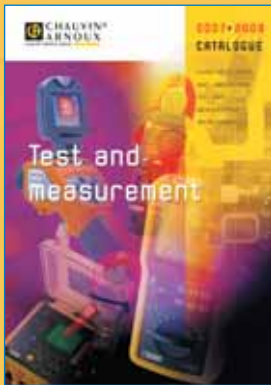
Commissioning, training, ...

Don't hesitate  
to contact **Pyro-Contrôle**

## CHAUVIN ARNOUX - Test & Measurement

Hand held, electric and electronic test  
and measurement instruments  
for field and laboratory

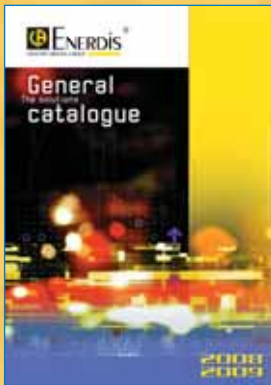
Tel.: +33 1 44 85 44 85 - Fax: +33 1 46 27 73 89



## ENERDIS

Systems and equipment  
for the measurement, control, metering  
and monitoring of electrical networks

Tel.: +33 1 47 46 78 00 - Fax: +33 1 42 53 64 78



## MANUMESURE

Calibration, repair, maintenance,  
qualification and other services  
for industry

Tel.: +33 2 31 64 51 43 - Fax: +33 2 31 64 51 09



## Pyro-Contrôle

*Pyro-Contrôle provides industrial solutions for all the temperature measurement, testing and calibration requirements of the leading process industries in the nuclear, chemicals, metallurgy, glass, plastics, semi-conductors and agri-food sectors.*

• Tel: +33 (0)4 72 14 15 55 • Fax: +33 (0)4 72 14 15 41  
• e-mail: [export@pyro-contrôle.tm.fr](mailto:export@pyro-contrôle.tm.fr) • web: [www.pyro-contrôle.com](http://www.pyro-contrôle.com)

## Chauvin Arnoux Subsidiaries

### Austria

Tel.: +43 1 61 61 9 61  
Fax: +43 1 61 61 9 61 61  
E-mail: [vie-office@chauvin-arnoux.at](mailto:vie-office@chauvin-arnoux.at)

### China

Tel.: +86 21 65 21 51 96  
Fax: +86 21 65 21 61 07  
E-mail: [info@chauvin-arnoux.com.cn](mailto:info@chauvin-arnoux.com.cn)

### Germany

Tel.: +49 07 851 99 260  
Fax: +49 07 851 99 26 60  
E-mail: [info@chauvin-arnoux.de](mailto:info@chauvin-arnoux.de)

### Italy

Tel.: +39 039 245 75 45  
Fax: +39 039 481 561  
E-mail: [info@amra-chauvin-arnoux.it](mailto:info@amra-chauvin-arnoux.it)

### Middle East

Tel.: +961 1 890 425  
Fax: +961 1 890 424  
E-mail: [camie@chauvin-arnoux.com](mailto:camie@chauvin-arnoux.com)

### Scandinavia

Tel.: +46 8 50 52 68 00  
Fax: +46 8 50 52 68 10  
E-mail: [info@camatsystem.com](mailto:info@camatsystem.com)

### Spain

Tel.: +34 93 459 08 11  
Fax: +34 93 459 14 43  
E-mail: [comercial@chauvin-arnoux.es](mailto:comercial@chauvin-arnoux.es)

### Switzerland

Tel.: +41 44 727 75 55  
Fax: +41 44 727 75 56  
E-mail: [info@chauvin-arnoux.ch](mailto:info@chauvin-arnoux.ch)

### United Kingdom

Tel.: +44 1 628 788 888  
Fax: +44 1 628 628 099  
E-mail: [info@chauvin-arnoux.co.uk](mailto:info@chauvin-arnoux.co.uk)

### U.S.A.

Tel.: +1 508 698 2115  
Fax: +1 508 698 2118  
E-mail: [sales@aemc.com](mailto:sales@aemc.com)

## Your local distributor

**FRANCE**  
Pyro-Contrôle  
6 bis, av du Docteur Schweitzer  
69881 MEYZIEU Cedex  
Tel: +33 4 72 14 15 55  
Fax: +33 4 72 14 15 41  
[export@pyro-contrôle.tm.fr](mailto:export@pyro-contrôle.tm.fr)  
[www.pyro-contrôle.com](http://www.pyro-contrôle.com)

**UNITED KINGDOM**  
Chauvin Arnoux Ltd  
Waldeck House - Waldeck Road  
MAIDENHEAD SL6 8BR  
Tel: +44 1628 788 888  
Fax: +44 1628 628 099  
[info@chauvin-arnoux.co.uk](mailto:info@chauvin-arnoux.co.uk)  
[www.chauvin-arnoux.co.uk](http://www.chauvin-arnoux.co.uk)

**MIDDLE EAST**  
Chauvin Arnoux Middle East  
P.O. BOX 60-154  
1241 2020 JAL EL DIB (Beirut) - LEBANON  
Tel: +961 1 890 425  
Fax: +961 1 890 424  
[camie@chauvin-arnoux.com](mailto:camie@chauvin-arnoux.com)  
[www.chauvin-arnoux.com](http://www.chauvin-arnoux.com)

 **CHAUVIN  
ARNOUX**  
GROUP