

Food technology

Measure • Control • Record



JUMO – your partner for food technology



Dipl.-Ing. Christina Hoffmann

Market Segment Manager
Pharma & Food

Phone: +49 661 6003-9384

e-Mail: christina.hoffmann@jumo.net

JUMO, a leading manufacturer of measurement and control systems for more than 60 years, has been a competent partner for the food industry.

Highly-qualified staff and state-of-the-art technology have enabled JUMO and JUMO products to make a name for themselves in global markets.

Maximum innovation is achieved by numerous new developments, as well as improvements to existing products and more economical production methods.

JUMO provides a variety of solutions for the various applications of food technology.

The food and beverage industry is highly complex. Whether you are developing and building systems for the beverage industry, dairies, bakeries, butchers or the confectionery industry, etc., or whether you are actively involved in maintaining or automating one of these branches of industry, we can help you in your work and will have a relevant solution for you.

If your goal is to produce products of consistent quality, you absolutely must have reliable and accurate measurements which can be controlled and monitored from a central point. You must also be able to record, manipulate, and export process data reliably.

Whether you want to use the measurement variables of pressure, temperature, conductivity or the pH-value to monitor the quality of your product, control cleaning or reduce production costs, your partner JUMO will be at your side, helping with all your problems and providing solutions.

This brochure gives you a product overview for the processes of the food industry.

Precise, technical descriptions of our measuring instruments can be found on the Internet under the specified product number, at www.jumo.net.

Christina Hoffmann



Contents

Temperature sensors	4
Humidity sensors	5
PEKA – process connection adapter system	5
Pressure transmitters	6
Liquid analysis	7
Controlling and displaying	8
Visualization and archiving	9
Approvals and directives	10
Communication	10
Materials	10
Calibration	10
Main areas of application	11

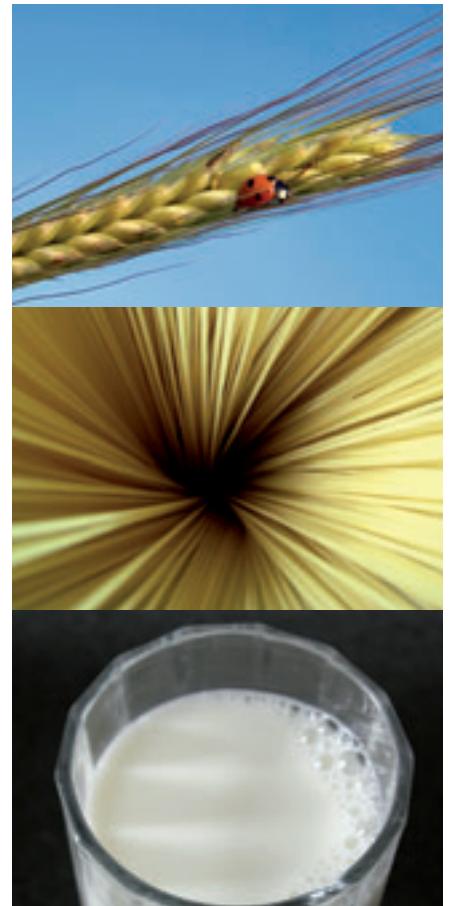
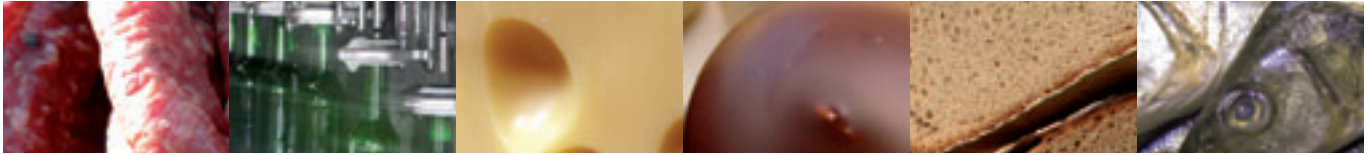


Photo credits:

Fotostudio Merz-Tricot, by kind permission of the brewery,
Brauerei Bischoff, Winnweiler
Alexandra Bucurescu/pixelio (title page, top left)
knipseline/pixelio (title page, top right)
Ute Pelz/pixelio (title page, center left)
M. Hauck/pixelio (title page, center)
Heinz Hirsch/pixelio (title page, bottom left)
Sigrid Rossmann/pixelio (title page, bottom right)
Rainer Sturm/pixelio (p.2 center)
S. Thiedemann/pixelio (p.2 bottom)
Verena N./pixelio (p.3 top)
S. Hofschlaeger/pixelio (p.5 top)
Sassi/pixelio (p.5 bottom)
Heinz Ober/pixelio (p.7 top)
Andreas Morlok/pixelio (p.10 bottom)
Paul-Georg Meister/pixelio (p.11 top)



Reliable and accurate

Temperature sensors


Temperature is measured in many applications in the food and beverage industry, particularly in process technology. Whether you are manufacturing in a high or low temperature range, you can rely on the accuracy of our temperature probes. We also have the right probe for processes that are subject to extreme conditions and vast temperature fluctuations. For enclosed and hygienic processes, we can provide you with the relevant pockets and EHEDG-certified products made from 1.4404/1.4435 (316L) stainless steel. These are electro polished as standard and manufactured with a roughness $R_a \leq 0,8 \mu\text{m}$.

Whether resistance thermometers or thermocouples are involved, we can take note of your needs and customize the temperature probe during production to optimize it to your measurement task.


JUMO Wtrans is the ideal product if you cannot use a cable, for example, in rotating containers, or at great heights. The measurement value, precisely and wirelessly transmitted, is flexible in use. A high-temperature version is now available as a product upgrade, and can be used up to a temperature of 125°C.




Temperature sensors




JUMO resistance thermometer
for the food and pharmaceutical industries
Type 902810







JUMO J-head resistance thermometer
Type 902030



JUMO PROCESStemp
Resistance thermometer for process technology with ATEX approval
Type 902820




JUMO FOODtemp
insertion resistance thermometer
Type 902350




JUMO screw-in resistance thermometer
with connecting cable
Type 902005


JUMO Dtrans T100
Screw-in resistance thermometer with CIP-compliant sealing cone
Type 902815




JUMO DELOS T
Electronic temperature switch with display and analog output
Type 902940



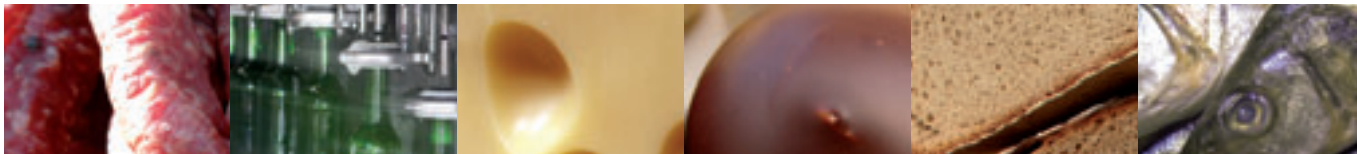
JUMO screw-in and weld-in pockets
Typ 909721



JUMO Wtrans transmitter
resistance thermometer with wireless measurement transmission, with temperature-resistant electronics, can be used up to 125°C
Type 902930



JUMO Wtrans receiver
for resistance thermometers with wireless measurement transmission
Type 902931



Intelligent and clean

Humidity sensors



JUMO industrial transducers
for humidity, temperature
and derived variables
DIN 43 710 and EN 60 584
Type 907023



JUMO capacitive hygrothermal transducers
with intelligent interchangeable probes
Type 907027



Humidity sensors

The measurement of humidity plays an important part in powder production, particularly when hygroscopic substances are involved. The intrinsically safe hygrothermal transducers of the 907023 series are the ideal solution for measuring humidity and temperature under extreme process conditions.

Process connection adapters

Our process connection adapter system is EHEDG-certified. Standard manufacturing materials include 1.4404/1.4435 (316L) stainless steel and FDA-compliant seals.

This adapter system is available for the measurement variables of pressure, temperature and conductivity.

With the orbital welding socket, you can also use this adapter system for pipe installations in hygienic applications.

By using this adapter system, you save warehousing costs and are in a position to quickly and easily replace the sensors, without changing the process connection.

Process connection adapters



JUMO PEKA
Process connection adapter system
Type 409711



Varivent



Triclamp



Aseptik
to DIN 11864-1



Welding socket



Orbital welding socket





Strong and reliable

Pressure transmitters

To stop micro-organisms multiplying, technical requirements relevant to hygiene in food technology are linked to measures such as hygienic design, cleaning and disinfection technology. Two crucial measurement variables here are process pressure and liquid level. JUMO provides a variety of proven and reliable pressure measuring instruments with different front-flush process connections, to meet these requirements.

Remote seals for contaminated, extremely hot, highly-viscous or particularly corrosive media and measuring instruments with CIP and SIP capability (up to 200 °C), complete the product range. There can be direct contact between the hot medium and a stainless steel or ceramic membrane.

Some plant builders even have to install several connection systems, to attend to different end customers. In view of the economic aspect, and for the sake of convenience, a modular, elastomer-sealed process connection adapter system, the JUMO PEKA (page 5) has been designed and certified in compliance with EHEDG guidelines.



Pressure transmitters



JUMO dTRANS p30
pressure transmitter
Type 404366



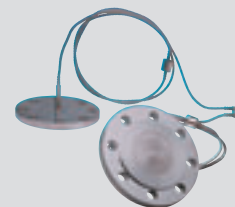
JUMO dTRANS p31
pressure transmitter for
an elevated medium
temperature
Type 402050



JUMO DELOS
electronic pressure switch,
high-precision, programmable,
display, stainless steel housing,
also suitable for high
medium temperatures
Type 405052

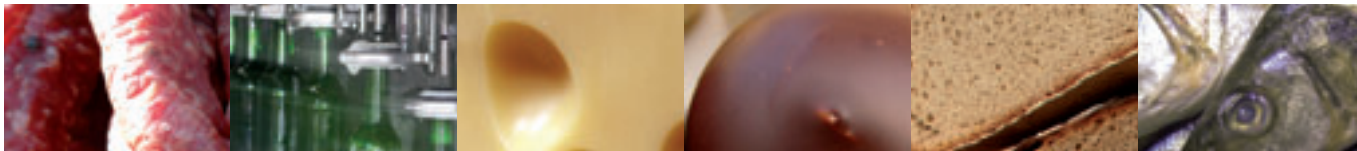


**JUMO front-flush
tank connection**
for pressure transmitters
for measuring the level of
liquid in storage



JUMO dTRANS p02/p20 Delta/p20

Process pressure transmitter with ATEX approval,
high-precision, programmable, HART, display, aluminum or
stainless steel housing, special materials, remote seals
Type 404385/403022/403025



Innovative and in line with the market

Liquid analysis

JUMO CTI-750

Conductivity transmitter
Stainless steel housing
Type 202756



JUMO pneumatic process fittings

with hygienic process connection
Type 202823



ISFET pH electrode

non-glass sensor
Type 201050



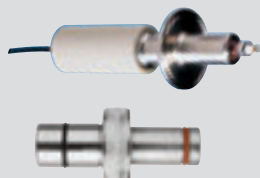
JUMO tecLine pH/JUMO tecLine Rd

pH and redox combination electrodes
Type 201020



JUMO process fittings

Type 202825/Type 202831



JUMO tecLine Lf-4P electrode

4-pin measuring cell
Type 202930



JUMO AQUIS 500

Transmitter/controller series for pH value, redox voltage, ammonia concentration, chlorine, chlorine dioxide, ozone, conductive and inductive conductivity, and temperatures.
Type 202560/202565/202566/202568

JUMO ecoTRANS pH/Lf03

Microprocessor-transmitter/switching device for pH-value/redox voltage, conductivity and temperature
Type 202723/202732



JUMO ecoTRANS Lf 01/02

Microprocessor/transmitter/switching device for conductivity
Type 202731



Liquid analysis

During food production, storage and refinement, JUMO not only covers traditional parameters such as temperature, pressure and humidity, but also provides measuring instruments and sensors for liquid chemical measurements.

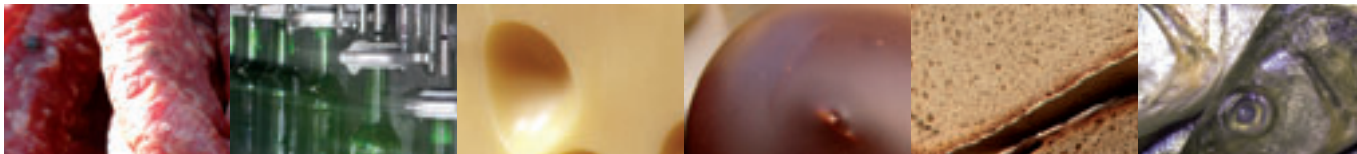
There is a balanced and proven product range available for the most common parameters, such as pH, redox and electrolytic conductivity. As well as quality control, such as using hand-held meters for pH measurement in meat and cheese, online measurement technology for continuous measurement is also provided. When packaging, bottles and systems are disinfected, the measurement technology can monitor this for free chlorine, chlorine dioxide, hydrogen peroxide, peracetic acid and ozone.

In addition to the tried and tested CTI-750 inductive conductivity measuring instruments in plastic or stainless steel housing, the delivery program for CIP/SIP systems now also includes the tecLine Lf-4P conductive 4-pin conductivity probe. Holders and fittings with the usual process connections found in food technology are available for these sensors.

The non-glass ISFET pH electrode allows you to measure the pH value directly in the process, and evaluate it with the AQUIS 500 pH. The electrode bears the 3A Sanitary Standards symbol, indicating that it can be used in food and pharmaceutical applications where hygiene is a sensitive issue.

Constructed from FDA-listed materials and with a vast number of different process connection types manufactured in accordance with EHEDG guidelines, these electrodes are guaranteed to be safe for use in hygienic applications.





High system availability

Controlling and displaying

High-precision controllers are required as soon as several physical variables, such as time, temperature or pressure, have to be precisely monitored in a process.

The cooling or warming can be quickly and precisely regulated with our electronic microstats.

Our compact controller series iTRON, cTRON and dTRON have been developed for more complex control tasks, and can resolve most of them. Fieldbus interfaces provide the connection to process control systems.

For special controls and more complex processes, there is the Imago series. The IMAGO F3000 was specifically designed for cooking and smoking cabinets in the meat processing industry.

The IMAGO 500 with color screen and 50 time planning programs, offers optimum operator control and allows multiple recipes for a variety of different foods. With the option of multiple channels, it is possible to regulate, monitor and control different processes, such as the flow rate, pressure, temperature or liquid level of a system, universally, in a single instrument.

Accurate adjustment is particularly important with food processes in order to avoid overheating, for example, and this can be achieved in the JUMO IMAGO 500 by an integrated cascade controller.



Controlling and displaying



JUMO IMAGO F3000

Process controllers for boiling, smoking and air conditioning systems
Type 700101



JUMO IMAGO 500

Multi-channel process and program controller
Type 703590



JUMO cTRON

Compact controller with timer and ramp function
Type 702070

JUMO dTRON
Compact controller with program function
Type 703041

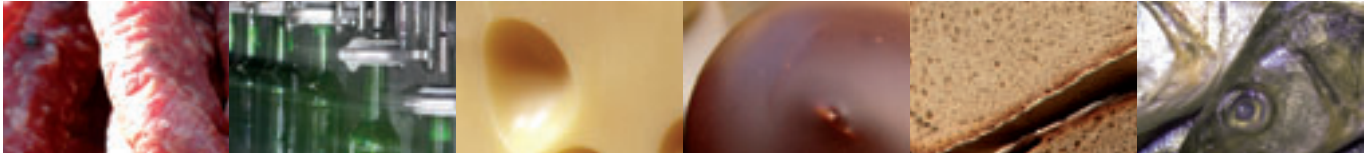


JUMO TDA-300 and JUMO TDA-3000

Handheld thermometer with data logger
Type 702540

JUMO eTRON M 100
Electronic refrigeration controller
Type 701061





High level of system reliability

Visualization and archiving



JUMO LOGOSCREEN nt
Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces and Ethernet with integrated Web server
Type 706581



JUMO LOGOSCREEN es
Paperless recorder for the safe acquisition of FDA-compliant measurement data
Type 706560



JUMO TB/TW
temperature limiter and monitor to EN 14 597
Type 701160/701170

JUMO SVS3000
Prozessvisualisierungssoftware mit chargenbezogener Datenprotokollierung und -auswertung im Netzwerk
Typ 700755



Visualization and archiving

For optimum process reliability, you can record your process data and quickly analyze the results with a high level of certainty, even under difficult application conditions.

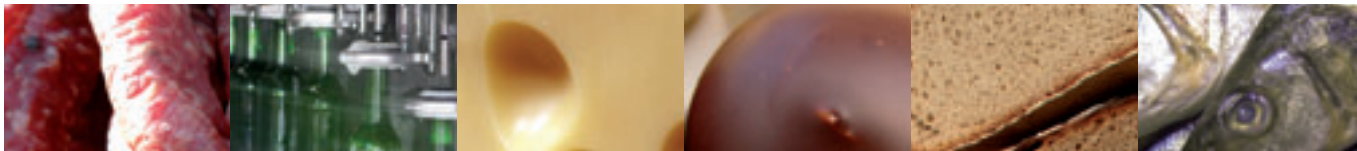
The instruments meet the requirements of the Milk Directive and guidelines laid down by the Heating Committee for Measurement, Control and Safety Equipment for milk heating system. In addition, measurement data can be recorded in compliance with the FDA requirements of 21 CFR Part 11.

The stainless steel design meets the hygiene requirements of the food and pharmaceutical industries and at the same time has shown itself to have a high safety tolerance against aggressive cleaning agents.

With heating processes, such as pasteurization, autoclaving, or even sterilization, it is tremendously important, with regard to food safety, to be able to prove that the food was exposed to a certain temperature for a defined period. The obligation to produce proof, for compliance with the cold chain for frozen food, is another example of when recorders could be used.

The SVS3000 process visualization system allows effective operator control, visualization and documentation. A feature of this is batch documentation, which allows batch-oriented storing of the processes. A user-friendly operator interface with numerous functions is available for this: application explorer, alarm and event lists, recipe function, etc. The software is quick and easy to configure, saving you from high application costs.





Your safety is important to us

Approvals and directives

So that you can rely on your process completely and utterly, we continually strive to adapt our products to the latest safety requirements and directives.

Communication

It is becoming more important nowadays to speak the right language, and the same applies to measurement technology.

We provide you with the communication you need for your system concept.

Materials

In the food and beverage industry, the standard quality of stainless steel in use is 1.4404/1.4435 (316L).

All parts coming into contact with the product are made from this stainless steel and on request, are electropolished ($R_a \leq 0,8 \mu\text{m}$).

For critical processes and special applications, materials can be furnished with a 3.1 inspection certificate under traceability procedures.

Calibration

JUMO has its own DKD laboratory, which is directly subordinate to the Physikalisch-Technischen-Bundesanstalt (PTB, German Federal Physical and Technical Institute).

We will gladly check and calibrate your temperature probes at regular intervals, as stated by the IFS (International Food Standard) in Version 5, for auditing your qualified measuring instruments.



Approvals and directives



DIN EN
14 597

RoHS95

Communication



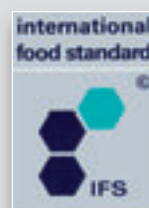
RS 485

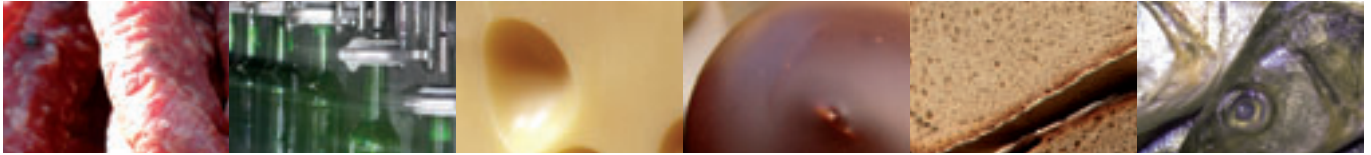


Materials

Stainless Steel
1.4404/1.4435 (316L),
EPDM, VMQ, NBR, FPM
PEEK, PVDF

Calibration





Main areas of application

Meat processing technology



- Smoking
- Boiling
- Maturing



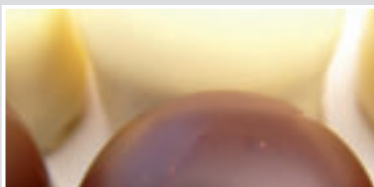
Beverage technology

- Mixing
- Filling
- Pasteurizing

Dairy technology



- Homogenizing
- Standardizing
- Separating



Confectionery technology

- Conching
- Coating
- Glazing

Bakery technology



- Baking
- Fermenting
- Cooling



Cooling technology

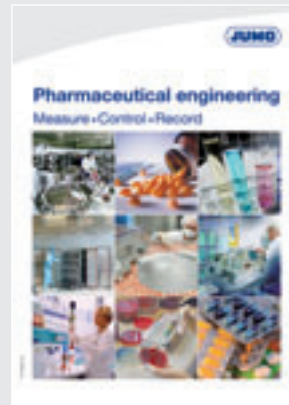
- Defrosting
- Storing
- Freezing

Further industry brochures



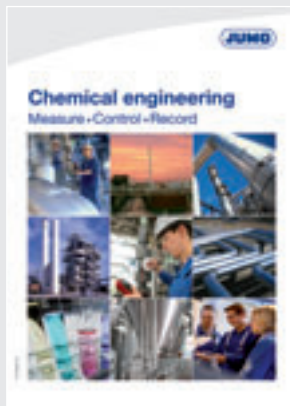
Food technology
Measure • Control • Record

PR 00038 EN



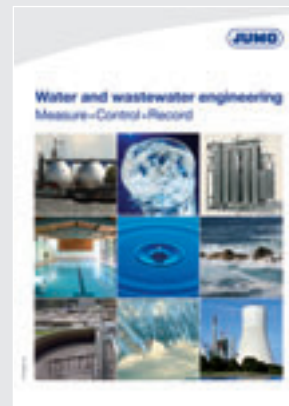
Pharmaceutical engineering
Measure • Control • Record

PR 00058 EN



Chemical engineering
Measure • Control • Record

PR 00056 EN



Water and wastewater engineering
Measure • Control • Record

PR 00059 EN



Brewery technology
Measure • Control • Record

PR 00057 EN



Dairy technology
Measure • Control • Record

PR 00061 EN



Head office Fulda
JUMO GmbH & Co. KG
☎ +49 661 6003-0
mail@jumo.net
www.jumo.net

Darmstadt
☎ +49 6151 3508-0
http://darmstadt.jumo.info

Essen
☎ +49 201 86627-0
http://essen.jumo.info

Hannover
☎ +49 5723 9432-0
http://hannover.jumo.info

Ingolstadt
☎ +49 841 37934-0
http://ingolstadt.jumo.info

Stuttgart
☎ +49 7021 95091-0
http://stuttgart.jumo.info

Austria
JUMO Mess- und Regelgeräte Ges.m.b.H
☎ +43 1 6 10 61 0
info@jumo.at
www.jumo.at

Belgium
JUMO Automation S.P.R.L./P.G.M.B.H./B.V.B.A.
☎ +32 87 59 53 00
info@jumo.be
www.jumo.be

Bulgaria
JUMO Bulgaria EOOD
☎ +359 2 973 39 88
jumobg@centrum-group.com

China
JUMO Automation Dalian Co. Ltd.
☎ +86 411 8718 9010
info@jumo-china.com
www.jumo-china.com

Croatia
JUMO
Mess- u. Regelgeräte Ges.m.b.H
☎ +385 42 30 30 10
info@jumo.hr
www.jumo.hr

Czech Republic
JUMO Mereni a regulace s.r.o.
☎ +420 541 321 113
info@jumo.cz
www.jumo.cz

Denmark
JUMO Måle- og Regulerings teknik A/S
☎ +45 46 19 46 66
info.dk@jumo.net
www.jumo.dk

France
JUMO Régulation SAS
☎ +33 3 87 37 53 00
info.fr@jumo.net
www.jumo.fr

Hungary
JUMO HUNGARIA Kft.
☎ +36 1 467 08 35
jumobudapest@jumo.hu
www.jumo.hu

India
JUMO India Pvt. Ltd.
☎ +91 124 4121 600
info.in@jumo.net
www.jumo.in

Italy
JUMO Italia SRL
☎ +39 02 24 13 55 51
info.it@jumo.net
www.jumo.it

Netherlands
JUMO Meet- en Regeltechniek B.V.
☎ +31 294 49 14 91
info@jumo.nl
www.jumo.nl

Norway
JUMO AS
☎ +47 67 97 37 10
info.no@jumo.net
www.jumo.no

Poland
JUMO Sp.z.o.o.
☎ +48 71 3 39 82 39
biuro@jumo.com.pl
www.jumo.com.pl

Romania
S.C. JUMO Romania S.R.L.
☎ +40 257 20 60 36
info@jumo.ro
www.jumo.ro

Russia
JUMO GmbH
☎ +7 495 961 32 44
jumo@jumo.ru
www.jumo.ru

Serbia / Montenegro
JUMO Mereni i regulacioni uredaj
☎ +381 11 285 2279
milan.sipljanovic@jumo.net

Slovakia
JUMO Slovensko s.r.o.
☎ +421 244 87 16 76
jumo@stonline.sk
www.jumo.sk

Slovenia
JUMO merilni in regulacijski aparati
☎ +386 2 421 51 83
info@jumo.si
www.jumo.si

Spain
JUMO Control S.A.
☎ +34 91 8863 153
gerardo.jentsch@jumo.net
www.jumo.es

Sweden
JUMO Mät- och Regelteknik AB
☎ +46 42 38 62 80
info.se@jumo.net
www.jumo.se

Switzerland
JUMO Mess- und Regeltechnik AG
☎ +41 44 928 24 44
info@jumo.ch
www.jumo.ch

Turkey
JUMO Ölçü Sistemleri ve Otomasyon San. ve Tic. Ltd. Şti.
☎ +90 216 455 86 52
info.tr@jumo.net
www.jumo.com.tr

USA
JUMO Process Control, Inc.
☎ +1 315-697-5866
info@jumo.us
www.jumo.us

United Arab Emirates
JUMO GmbH & Co. KG
☎ +971 4 347 2936
info.ae@jumo.net
www.jumo.ae

United Kingdom
JUMO Instrument Co. Ltd.
☎ +971 4 885 5466
sales@jumo.co.uk
www.jumo.co.uk

For further international locations
please visit www.jumo.net