

testo 6740

Instruction manual

GB





2 Preface/Copyright

Preface/Copyright

Preface

Dear Testo Customer

Congratulations for choosing a Testo product. We hope that you will enjoy many years of using the product and that it will help you in your work.

If problems should occur which you cannot rectify yourself, please consult our service department or your dealer. We will endeavour to provide fast and competent assistance to save you long periods out of operation.

Copyright

This documentation is subject to the copyright of Testo AG. Reproduction and employment contrary to the justified interests of Testo AG are prohibited without the prior, written consent of the company.

We reserve the right to modify technical details from the descriptions, specifications and illustrations contained in this documentation.

testo AG

Postfach 11 40 79849 Lenzkirch

Germany

General information

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General information

This Instruction manual contains important information about the features and use of the product. Please read this document through carefully and familiarise yourself with the operation of the product before putting it to use. Keep the Instruction manual to hand so that you can refer to it when necessary.

Pictograms

This product could be dangerous if operated incorrectly. Information that requires particular attention is identified in this Instruction manual by pictograms:

Warnings are identified by means of a warning triangle. The relevant **signal word!** indicates the degree of risk:



Warning! means: Serious physical injury could occur if you do not take the precautionary measures indicated.

Caution! means: Slight physical injury or material damage could occur if you do not take the precautionary measures indicated.

Signal word!

Pay particular attention to warnings and take the precautionary measures indicated in order to avoid danger.

Notes on special cases and peculiarities in the handling of the product are indicated by an exclamation mark.

Standards/Approvals



According to the conformity certificate, this product fulfills all 89/336/EEC guidelines.



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1. Basic safety information

Avoid electrical hazards:

▶ Never take measurements with the instrument and its probes on or near live components unless the instrument is expressly approved for current and voltage measurements.

Protect the instrument:

▶ Never store the unit together with solvents (e.g. acetone).

Preserving product safety/warranty entitlement:

- ▶ Operate the instrument only within the parameters specified in the Technical data.
- ▶ Handle the instrument appropriately and according to its intended purpose.
- ► Never apply force!
- ▶ Temperature data on sensors/probes refer only to the measurement range of the sensors. Do not subject handles and lines to temperatures greater than 70°C if they are not expressly approved for higher temperatures.
- ▶ Open the instrument for maintenance and repair purposes only if specifically described in the Instruction Manual.
- ▶ Maintenance work should only be carried out if described in the Instruction Manual. Please adhere to the steps described. For safety reasons, please only use spare parts from Testo.

Any additional work should only be carried out by authorised trained personnel. Otherwise Testo does not accept responsibility for the functioning of the instrument following maintenance and for the validity of approvals.

Dispose of carefully:

- ▶ Dispose of defect rechargeable batteries as well as empty batteries responsibly.
- ▶ Once its service life has come to an end, return the instrument to us and we will dispose of it.



6 2. Intended use

2. Intended use

The instrument is intended for use in the following applications:

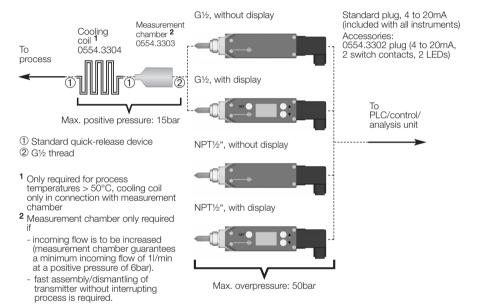
The testo 6740 instrument is a pressure dew point transmitter for measuring trace humidity. It is used in the following areas:

- Monitoring trace humidity in compressed air systems and gas networks (e.g. pipeline and container drying).
- Controlling and monitoring (compressed air) driers.
- Monitoring compressed air humidity in vehicles.
- Monitoring humidity and temperature in medical compressed air or granulate driers.

3. Product description3.1 System components

3. Product description

3.1 System components



3.2 Operating elements

The instruments with the article numbers 0555.6741 and 0555.6742 do not have any additional operating elements.

The instruments with the article numbers 0555.6743 and 0555.6744 have a keypad and a display to input and read off settings (See 5. Menu guide, p. 12).

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3. Product description3.3 Settings

3.3 Settings

The parameters in the instrument are assigned the following values in the factory:

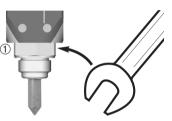
Parameter	Pressure	dew point ¹	Atmosp	heric dew point ¹	Relative humidity	Tempe	rature	Absolute	humidity
Unit	°Ctp	°Ftp	°CtA	°FtA	%rF, %rh, %Hr	°C	°F	ppm _v	mg/m ³ (Abs)
4mA	-60	-75	-60	– 75	0	0	32	0	0
20mA	30	85	30	85	100	50	120	30000 ²	30000 ²
LS	4	40	4	40	30	10	50	8400	7000
US	12	55	12	55	50	30	85	13000	9600

¹ With dew point temperatures <0°Ctp/<0°CtA/<32°Ftp/<32°FtA the frostpoint temperature (dewpoint upon ice) is displayed</p>

4. Initial operation
4.1 Mechanical assembly

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4. Initial operation



4.1 Mechanical assembly

We recommend you wrap the thread of the process connection in sealing tape (e.g. Teflon) or place it in a copper gasket (inner diameter: 21mm).

► Force should only be applied to the Allen screw ①. There are 3 different options for assembly depending on the application:

Assembly	Application
Without measurement chamber and cooling coil	 Process temperatures 0 to 50°C It is possible to attach sensor directly in process No quick assembly/dismantling of testo 6740 required and flow on sensor is sufficient (1l/min)
With measurement chamber	 Process temperatures 0 to 50°C Fast assembly/dismantling of testo 6740 required and/or flow on sensor is insufficient (11/min)
With measurement chamber and cooling coil	- Process temperatures 50 to 200°C

Warning

Without measurement chamber and cooling coil

 \triangle

Compressed air!

Risk of injury!

Depressurise pipe sections (e.g. compressor off or use bypass) and aerate before opening.

1 Screw process connection (G½ or NPT½") into the matching thread.

The housing can be rotated by 350°. Do not use force when aligning.

- 2 Set up housing so that the display can be easily read.
- **3** Complete aeration of pipe section and apply pressure to pipe section.

² Display is shown to the power of ten: 30E3 (corresponds to $30 \times 10^3 = 30 \times 1000 = 30000$)

4. Initial operation

4.1 Mechanical assembly

With measurement chamber (max. 15bar)

- 1 Screw in process connection (G½) of the testo 6741/6743 transmitter in measurement chamber thread.
- 2 Snap quick-release lock of measurement chamber in standard socket of compressed air line.

With measurement chamber and cooling coil (max. 15bar)

- 1 Screw in process connection (G½) of testo 6741/6743 transmitter into thread of measurement chamber.
- 2 Snap quick-release lock of measurement chamber in the quick-release lock of the cooling coil.
- 3 Snap second quick-release lock of the cooling coil into the standard socket of the compressed air line.

4.2 Electric connection

Standard plug

We recommend an 8 wire cable with a tightly braided screen and a core cross-section of 0.2 to 0.5mm².

- 1 Loosen and remove ① screw at the back of the plug and remove plug from transmitter ②.
- 2 Remove plug socket from the plug housing. To do this apply a small screwdriver to the point marked with "lift" and press out carefully ③.
- **3** Screw on the cable positioning device ④ and guide the cables through the plug housing ⑤.
- 4 Connect cable ends to the screw terminals of the plug socket (6):

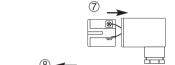
Plug	socket	terminals

1: + (4 to 20mA), power: 12...30VDC

2: - (4 to 20mA)

3: Not assigned

4: Measuring earth (cable screen)



4. Initial operation 4.2 Electric connection

- 5 Insert plug socket into plug housing again until it snaps into place and screw on cable fixing unit.
- 6 Attach plug to transmitter ® and secure with screw ®.

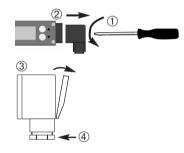
0554.3302 plug (with 2 switch outputs)

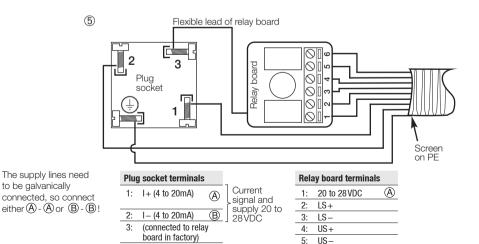
We recommend an 8 wire cable with a tightly braided screen.

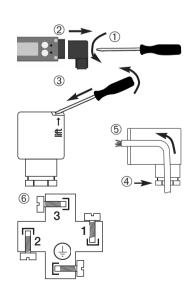
- 1 Loosen and remove screw ① at the back of the plug and remove plug from transmitter ②.
- 2 Tilt the cover of the plug housing at an angle and remove ③.
- **3** Remove plug socket from the front and the relay board from the back out of the plug housing.
- 4 Screw on cable positioning device ① and guide cables through the plug housing.
- 5 Connect cable ends to the screw terminals of the relay board or the plug socket ⑤:

6: 0VDC

B









4. Initial operation
4.2 Electric connection

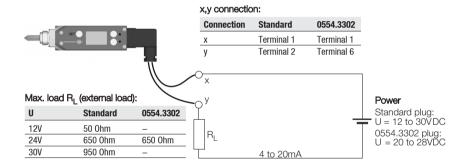
6 -

- 6 Push plug socket and plug board into the plug housing (pay attention to alignment) and close lid.
- 7 Screw on cable positioning device.
- 8 Attach plug to transmitter © and screw into place ⑦.

4.3 Analog output/Limit signal outputs

Standard plug/0554.3302 plug

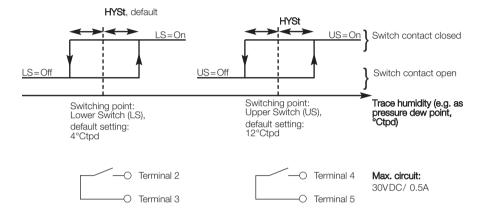
Both plug variations have a 4 to 20mA analog output available in two-wire technology.



4. Initial operation 4.3 Analog output/Limit signal outputs

Limit signal outputs with 0554.3302 plug

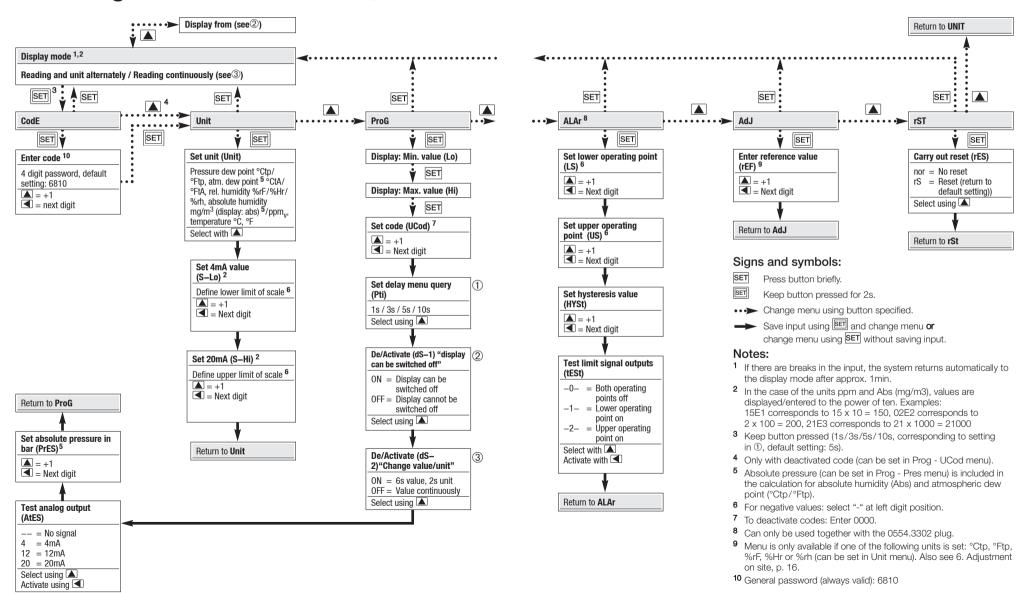
Two floating contacts (NO contact) are available.





14 5. Menu guide

5. Menu guide (0555.6743/0555.6744 only)





16 6. Adjustment on site

6. Adjustment on site

One point adjustment by inputting one reference value

Using one point adjustment, you can enter a reference value for a working point (e.g. -10°Ctpd) specified by you. In this way you will achieve a minimum target/actual deviation from this working point.

As a reference, you will need a dew point mirror or a reference measuring instrument (e.g. testo 400, testo 650) with a pressure dew point probe.

- The Adi menu in which the reference value is entered is only available if one of the following units is set: °Ctp, °Ftp, %rF, %Hr or %rh (See 5. Menu guide, p. 14, Unit menu, Setting unit).
- 1 Expose reference measuring instrument and testo 6740 to identical, constant conditions and await adjustment time.
- 2 Measure reference value and compare with testo 6740 reading.
- 3 If there are deviations in the values, enter reference value in Adj menu.

7. Care and Maintenance 17

7. Care and Maintenance

Filter, measurement chamber, cooling coil

If process conditions are oily or dusty, the stainless steel sintered filter should be cleaned and also the measurement chamber and cooling coil should be cleaned if used.

▶ Unscrew/remove filter, measurement chamber and cooling coil, purge with compressed air or place in an ultrasonic bath.

Sensor cleaning

▶ Unscrew the filter and rinse the sensor carefully with water or ethanole. Let dry well.



18 8. Troubleshooting

8. Troubleshooting

Fault	Possible causes	Remedy
Analog output values too low/too high	 Incorrect scaling or unit 	► Change scaling or unit in Unit menu
No signal	 Connection interrupted 	Check cables
	or Supply voltage too lowPolarity incorrect	► Check power: Standard plug min. 12VDC 0554.3302 plug: min. 20VDC
Signal >21mA	Sensor defect (broken).	Sensor must be replaced. Contact your local distributor or Testo's Customer Service.
Singal <4mA	Sensor corroded	Sensor must be replaced. Contact your local distributor or Testo's Customer Service.
Display "oF"	– No signal from sensor	 Contact your local distributor or Testo's Customer Service.

If the fault cannot be repaired by following the suggestions given in the above table, please contact your local distributor or Testo's Customer service department.

9. Technical data 9.1 Measurement ranges and accuracies

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9. Technical data

9.1 Measurement ranges and accuracies

Type of mreasurement	Measurement range	Accuracy
Pressure dew point temperature (trace humidity)	−60 to +30°Ctpd	±1K at ±0°Ctp ±3K at -20°Ctp ±4K at -40°Ctp (at 25°C)
atm. dew point	-80 to -15°Ctd at 30bar _{rel} -70 to +10°Ctd at 3bar _{rel} -60 to +30°Ctd at 0bar _{rel}	cf. pressure dew point temperature
Temperature	±0 to +50°C	±0.5K

9.2 Additional instrument data

Characteristic	Values
Supply voltage	24VDC (standard plug: 12 to 30VDC allowed, 0554.3302 plug: 20 to 28VDC allowed)
Max. load	Standard plug: 12V: 500hm, 24V: 6500hm, 30V: 9500hm 0554.3302 plug: 12V: not allowed, 24V: 6500hm, 30V: not allowed
Ambient temperature	−20 to +70°C
Storage/transport temperature	−20 to +80 °C
Protection classIP65	(with plug attached and cable connected)
Rotatability (display alignment)	350°
Humidity sensor	Testo humidity sensor with logged trace humidity-adjustment at -40 °Ctp/6bar
Temperature sensor	NTC
Sensor protection	Stainless steel sintered cap
Pressure resistance	–1 bar _{rel} to +50 bar _{abs} Measurement chamber 0554.3303: max. 15bar _{abs}
Dimensions	199.5x37x37 (with standard plug), 203.5x37x37 (with 0554.3302 plug)
Analog output	
Signal	4 to 20mA, two-wire technology
Scaling	Standard: 4 to $20 \text{ mA} = -60 \text{ to } +30 ^{\circ}\text{Ctpd}$, with freely scalable display
Output parameters	°Ctp, °Ftp, °CtA, °FtA, %RH, ppm _v , mg/m ³ , °C, °F
Resolution	12bit
Accuracy	±40µA
Limit value outputs (optional,	only with 0554.3302 plug)
Contacts	2 NO contacts, potential-free, max. circuit 30V/0.5A
Operating points:	Standard: +4°Ctp/12°Ctp, freely programmable with display



20 10. Accessories/Spare parts

10. Accessories/Spare parts

Name	Part no.
Basic instruments (incl. plug for analog signal output)	
with process connection G1/2, without display	0555 6741
with process connection NPT1/2", without display	0555 6742
with process connection G1/2, with display	0555 6743
with process connection NPT1/2", with display	0555 6744
Accessories	
Cable connection plug for power/analog output 4 to 20 mA, with 2 floating switch contacts and 2 LEDs (limit signal output, alarm output)	0554 3302
Measurement chamber for optimum flow on humidity sensor, max. 15bar, for thread G½	0554 3303
Cooling coil for process temperatures above 50 °C (up to 200 °C)	0554 3304
ISO calibration certificate for pressure dew point (-40° to 0° Ctp at 6 bar), free choice of points	0520 0116
ISO calibration certificate for pressure dew point at -10°Ctp and -40°Ctp	0520 0136

Warranty

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Warranty

Testo grants a warranty of 2 years from the date of the initial purchase for this product. The warranty covers all material and manufacturer faults.

Faults occurring during the warranty time will be rectified by Testo AG, its authorised sales subsidiaries or authorised dealers in accordance with the following conditions and without charge for labour and material costs.

Either the defective components will be replaced with new spare parts or the entire product will be replaced according to Testo's estimation.

The following are excluded from the manufacturer's warranty:

Wear parts (e.g. rechargeable batteries/batteries, printing mechanisms) and consumables (e.g. printer paper).

- Damage caused by:
 - use contrary to the intended purpose or failure to observe the instruction manual and/or the safety instructions,
 - lack of care, accidents or normal wear,
 - external influences (e.g. damage during transport, damage caused by vibration, excess heat, water, moisture or acids),
 - use of unsuitable accessories.

This warranty expires if:

- the type or serial number of the product is changed, deleted, removed or made illegible
- repairs or modifications are undertaken by third parties or unauthorised persons.

This warranty covers none of the following items:

- regular maintenance and repairs or the replacement of parts due to normal wear,
- the costs of packaging and transport,
- transport risks incurred directly or indirectly in connection with this warranty,
- the costs of repairs, adjustments or similar measures taken beyond the extent of this warranty.

In the case of a warranty claim, consult your dealer or the sales subsidiary responsible for your country. The addresses can be seen at **www.testo.com**.

Enclose a brief description of the fault and the purchase receipt, indicating the delivery and purchase dates, together with the product. Please also give us your telephone number for any inquiries.

Warranty repairs do not extend the period of warranty.

Further claims of any kind against Testo such as commercial transformation, price reduction or compensation will not be processed.



22 Customer service/Calibration service

Please contact your nearest Testo office or distributor for more information.

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24	Notes	Notes	25
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Testo worldwide

ALGERIA SNC COVAM Beiaia 06000 Tel: 34 20 76 23 Fax 34 20 76 23 covam berri@yahoo.fr

ARGENTINA Testo Argentina S.A. C1440ACR - Buenos Aires

Tel. (11) 46 83 - 50 50 Fax (11) 46 83 - 50 50 info@testo.com.ar

Testo (Asia) Ltd. Shatin, N. T., Hong Kong

Tel. (2) 26 36 38 00 Fax (2) 26 47 23 39 testo@testo.com.hk

AUSTRALIA Testo Pty. Ltd. Wantirna 3152 Tel. (3) 98 00 43 99 Fax (3) 98 00 46 99 info@testo.com.au

ALISTRIA Testo Ges. mbH 1170 Wien Tel. (1) 4 86 26 11- 0 Fax (1) 4 86 26 11 20 info@testo.at

BELGIUM / LUXEMBURG S. A. Testo N. V. 1741 Ternat Tel. (2) 5 82 03 61 Fax (2) 5 82 62 13 info@testo.be

BOLIVIA T.E.C. Cochabamba Tel. (4) 4 40 09 17 Fax (4) 4 28 60 02 tec@supernet.com.bo

Helios SRL Santa Cruz Tel. (3) 49 26 03 Fax (3) 12 57 45 helios@infonet.com.bo

BOSNIA-HERZIGOWINA Tehnounion Sarajevo Sarajevo

Tel. (33) 20 59 44 Fax (33) 44 40 00

BRAZIL Testo do Brazil 13028-015 Campinas - SP Tel. (19) 37 31 - 58 00

Testo s.r.o. 158 00 Praha 5 Tel. (2) 57 29 02 05 Fax (2) 57 29 04 10 info@testo.cz DENMARK Fax (19) 37 31 - 58 19 testo@tésto.com.br

Buhl & Bonsoe A/S 2830 Virum Tel. 45 95 04 10 Fax 45 95 04 12 inf@buhl-bonsoe.dk

BULGARIA Global Test OOD 1408 Sofia Tel. (2) 9 53 07 96 Fax (2) 9 52 51 95 albl tst@sps.ba

CHILE ANWO S.A Santiago Tel. (2) 7 31 00 00 Fax (2) 2 73 04 04 instrumentos@anwo.cl

CHINA Testo Instruments International Trading (Shanghai) Co., Ltd. Shanghai 200031 Tel. (21) 54 56 - 14 48 Fax (21) 54 56 - 14 70 testosales@testo.com.cn

Global Export GmbH 105 023 Moscow Tel. (0 95) 3 60 53 68 Fax (0 95) 3 60 53 68 global export@aport2000.ru

Fax 2 44 30 90

10090 Zagreb

CROATIA

hin@inet hr

CYPRUS

Nicosia

Deksa Ltd.

corelsa@racsa.co.cr

"H.I.P." Zagreb d.o.o.

Tel. (1) 3 73 40 07

Fax (1) 3 73 40 44

Tel. (2) 2 45 55 55

Fax (2) 2 49 70 59

CZECH REPUBLIC

deksa@cytanet.com.cy

GREECE COLOMBIA Sigma Hellas Ltd. 18536 Piraeus Tel. (210) 4 52 27 45 Arotec Colombiana S. A. Bogota D. E. Tel. (1) 2 88 77 99 Fax (210) 4 51 90 20 Fax (1) 2 85 36 04 sales@sigmahellas.gr mantenimiento@arotec.net

Sigma Hellas Ltd. COSTA RICA 54644 Thessaloniki Tel. (23 10) 98 80 40 Representaciones Corelsa S. A. Fax (23 10) 98 92 72 Santo Domingo de Heredia sigmaweb@hol.gr Tel 2 44 25 50

EGVPT

Future Plants Contractors

Heliopolis 11361. Cairo

Tel. (2) 4 18 67 79

Fax (2) 4 18 95 04

EL SALVADOR

San Salvador

FINI AND

FRANCE

testo Sàrl

Humitec Oy

00300 Helsinki

testo@humitec fi

57602 Forbach

info@testo.fr

Tel. 3 87 29 29 00

Fax 3 87 87 40 79

Tel. (9) 5 30 84 00

Fax (9) 53 08 40 99

Tel. 2 60 66 01

Fax 2 60 66 02

future98@intouch.com

Eco Control S.A de C.V.

eco.control@sv.intercomnet.ne

GREAT BRITAIN / IRELAND Testo I td Alton, Hampshire GU34 2QJ Tel. (14 20) 54 44 33 Fax (14 20) 54 44 34 info@testo.co.uk

> HUNGARY Testo Kft 1139 Budapest Tel. 237 17 47 Fax 237 17 48 testo@testo.hu

ICELAND Rafn Jensson, Mechanical Engineers ehf 110 Reykjavik Tel. 5 67 80 30 Fax 5 67 80 15 rj@rj.is

INDIA Siskin Instruments Co. Ltd. Bangalore 560 054 Tel. (80) 3 60 25 60 Fax (80) 3 60 36 79 siskin@éth.net

WAAREE Instruments Ltd. Mumbai 400 093 Tel. (22) 26 87 47 78 Fax (22) 26 87 36 13 waaree@waaree.com

IRAN Mehr Kanaz Sanat Co. Tehran Tel. (21) 2 26 26 89 Fax (21) 2 22 37 77 info@mehr-kanaz.com

ISRAEL Manoraz Ltd. Azur 58001 Tel. (3) 5 59 33 99 Fax (3) 5 58 44 95 david@manoraz.com

ITALY Testo S.p.A. 20019 Settimo Milanese (Mi) Tel. (02) 3 35 19 - 1 Fax (02) 3 35 19 - 200 info@testo.it

JAPAN Testo K.K. Yokohama 222-0033 Tel. (45) 4 76 22 88 Fax (45) 4 76 22 77 info@testo.co.ip

JORDAN Al-Masar Technique Est. Sahah 115-12 Tel. (6) 4 02 95 22 Fax (6) 4 02 35 64 masar@ioinnet.com.io

KOREA (Republic of) Testo (Korea) Ltd. Seoul 150-102 Tel. (2) 26 72 72 00 Fax (2) 26 79 98 53 testo@testo.co.ki

MALTA Technoline Ltd. Gzira GZR 06 Tel. (21) 34 23 66 Fax (21) 34 39 52 admin@technoline-mt.com

MACEDONIA Pharmachem Skopje 1060 Skopje Tel. (2) 33 11 93 Fax (2) 33 14 34 farmahem@mt.net.mk

MEXICO Grupo de Instrumentación y Medición Industrial de México. S.A. de C.V. 08920 Mexico, D.F. Tel. (55) 56 34 04 02 Fax (55) 56 33 04 01 scc@aimin.com

MOROCCO A.F.M.I.L. SARL Belevedere-Casablanca Tel. (22) 24 01 84 Fax (22) 24 01 87 Belha3@caramail.com

NETHERLANDS Testo R V 1314 BH Almere-Stad Tel. (36) 5 48 70 00 Fax (36) 5 48 70 09

NEW ZEALAND Eurotec Instruments Ltd. Auckland Tel. (9) 5 79 19 90 Fax (9) 5 25 33 34 cfarmer@eurotec.co.nz

NICARAGUA Adolfo Gröber & Cía Ltda. Managua Tel. 2 66 51 36 Fax 2 66 51 39 agroeber@cablenet.com.ni

NORWAY Max Sievert A/S 0134 Oslo Tel. (22) 17 30 85 Fax (22) 17 25 11 firmapost@maxsievert.no

PERII JJL Asociados S.A. Lima 17 Tel. (1) 2 61 17 52 Fax (1) 2 61 46 07 jjlasociados@hotmail.com

PHII IPPINES Keystone Industrial Trading Corporation Pasay City 1300, Tel. (2) 8 31 95 71 Fax (2) 8 31 40 13 keystone@globenet.com.ph

POLAND Testo Sp. z.o.o. 02-362 Warszawa Tel. (22) 8 63 74 22 Fax (22) 8 63 74 15 testo@testo.com.pl

PORTUGAL Testo Portugal Lda. 3830-237 Ribas (ILHAVO) Tel. 2 34 08 37 11 Fax 2 34 08 37 08 testo@netvisao.pt

ROMANIA Test Line SRL 72217 Bucharest Tel. (21) 6 87 34 62 Fax (21) 2 42 68 24 testline@customers.digiro.net SERBIA YMC Laboratoriia Bangkok 10210 1100 Belgrade Tel 11 316 2335 Tel. (2) 9 54 54 99 Fax 11 316 2587 Fax (2) 9 54 54 95 info@entech.co.th vmclab@verat.net

SINGAPORE / MALAYSIA / INDONESIA Stareor Futron Electronics PTE LTD Singapore 329 714 Tel. (65) 62 50 24 56 Fax (65) 62 50 65 92 futron@cyberway.com.sq

SLOVAKIA K - Test s.r.o. 042 60 Kosice Tel. (1) 55 625 36 33 Fax (1) 55 625 36 33 ktest@kbc.sk

SLOVENIA **UNITED ARAB EMIRATES** Komplast d.o.o. 1356 Dobrova Tel. (1) 5 44 11 30 Dubai Tel. (14) 2 27 70 20 Fax (1) 5 44 11 31 komplast2@mrak.si Fax (14) 2 23 36 83

SOUTH AFRICA Landsdowne, Cape Town. 7779 Tel. (21) 7 62 89 95 Fax (21) 7 62 89 96 info@unitemp.com

SPAIN Instrumentos Testo S. A. 08348 Cabrils (Barcelona) Tel (93) 753 95 20 Fax (93) 753 95 26 info@testo.es

SWEDEN Nordtec Instrument 40241 Götebora Tel. (31) 7 04 10 70 Fax (31) 12 50 42 nordtec@nordtec.se

SWITZERLAND Testo AG 8604 Volketswil Tel. (1) 9 08 40 50 Fax (1) 9 08 40 51 info@testo.ch

SYRIA Medical Business Center Damascus Tel. (11) 2 32 23 01 Fax (11) 2 32 23 02 bahah@net.sy

TAIWAN, R.O.C. Hot Instruments Co. Ltd. Chungho City, 235 Tel. (2) 89 23 23 18 Fax (2) 89 23 23 17 info@testoag.com.tw

THAILAND Entech Associate Co. Ltd.

TUNISIA 2000 Le Bardo Tel. (71) 50 92 86 Fax (71) 58 49 20 afri.sta@gnet.tn

TURKEY Testo Elektronik ve Test Ölcüm Cihazlari Dis Ticaret Ltd. STi 80290 Gayrettepe-Istanbul Tel. (212) 2 17 01 55 Fax (212) 2 17 02 21

Enviro engineering (W.L.L.) General Trading envireng@emirates.net.ae

Testo Inc. Flanders, NJ. 07836 Tel. (973) 2 52 17 20 Fax (973) 2 52 17 29 info@testo.com

VENEZUELA G & M International Service, San Antonio de los Altos. Edo. Miranda Tel. (2) 3 72 77 70 Fax (245) 5 71 67 74 aminter@cantv.net

Sermatic srl Carabobo Tel. (45) 71 36 35 Fax (45) 71 36 35 nugece@cantv.net

VIETNAM MTC Measuring and Testing Equipment Company Ltd. Hanoi Tel. (4) 7 33 36 36 Fax (4) 7 33 21 03 mtc-hn@hn.vnn.vn

SMICO Scientific Equipment & Measuring and Testing Tel. (4) 8 53 26 92 Fax (4) 5 63 77 36 smico@fpt.vn

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