



MGA^{prime} H2

H2 ANALYZER



MGA *prime* H2

Semi-Continuous Monitoring System MGAprime H2 for hydrogen monitoring

BASIC CONFIGURATION & FUNCTIONS MGAprime H2

- basic analyzer incl. O2-paramagnetic cell compensated for **H2** interference
- **H2** with 2 sensors

0 – 1.000 / 2.000 ^(*) ppm	electrochemical sensor
0 – 10.000 / 20.000 ^(*) ppm	electrochemical sensor

NOTE: with cut-off and purge of H2 low sensor in case $H_2 > 1.000\text{ppm}^*$

Using advanced infrared technology for NDIR measurements with improved accuracy and without offset drifts for:

- **CO** 0–176 ppm up to 3,000 ppm (supplementary range)
- **CO2** 0–20.00 %
- **NO** 0–200 ppm up to 2,000 ppm (supplementary range)
- **NO2** 0–150 ppm up to 500 ppm (supplementary range)
- **N2O** 0–100 ppm up to 250 ppm (supplementary range)
- **SO2** 0–150 ppm up to 1,000 ppm (supplementary range)
- **CH4 (selective)** 0–500 ppm up to 10,000 ppm
- **HC as C3H8** 0–200 ppm up to 5,000 ppm
- **O2** 0–25.00 % using paramagnetic cell

With the HPI gas sampling probe head with integrated heater for the low dust gas filter cartridge,

with gas temperature measurement using K-type (NiCrNi) thermocouple,

the probe head is including the low dust gas filter cartridge and one Ø12 x 300mm exchangeable probe tube

NOTE: mandatory heated gas sampling line and other gas sampling tubes are separate items, please choose from the options below

Integrated, efficient dual heat exchanger gas cooler (Peltier type) with dual automatic condensate draining pumps

Automatic zeroing by means of 3-way solenoid valve, internal sample flow volume measurement

Strong, regulated sample gas pump and easy replaceable, effective PTFE filter

Zero gas (ambient air) inlet port and active VENT outlet of sample gas

Stack gas temperature measurement up to 1.200°C

Combustion air temperature measurement up to 500°C

Differential pressure measurement +/- 100 mbar

With emission calculations like:

- mg/Nm3 for all toxic gases
- user definable O2 referencing for toxic gases emission reports
- g/sec mass emission calculation with optional stack flow rate measurement using Pitot tube
- true NOx = NO + NO2 and NOx as NO2 (mg/Nm3),

Automatic internal test and control of soft- and hardware functions

Large, high-contrast and backlit 7" (840x480) graphical display

Display with easy, intuitive touch panel and all measured data at one sight

LINUX operating system, graphical data visualization, csv or pdf reporting file

Automatic measurement incl. data logging function

Data transfer to PC or notebook over integrated LAN Ethernet (RJ45 socket) or USB-stick, or wireless via included Wi-Fi dongle

With 8 channel analog output 4-20mA and 4 channel analog input 4-20mA and also the digital data transfer dongle for RS485

Including universal analogue input (AUX socket) with 0-10 V or 4-20 mA signal or K-thermocouple or RS485

Universal power supply: mains 90-264 Vac/ 105 W (up to 400W with 3m heated sampling line)

1 hour Li-Ion 96W battery stand-by operation, with power supply for the dual gas cooler, ndir module and heated probe filter

Modern, rugged aluminum enclosure for the analyzer, with rubber molded impact protection and shoulder strap

Analyzer packed in special IP42 soft padded nylon transport bag, all other accessories packed in separate soft transport bag

Probe tube Ø12 x 300mm, up to peak 800°C, stainless steel

Probe tube holder fitting 1/2"-12mm, for firm and tight probe fixation on the stack or gas pipe



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Price list valid till: 12/31/2024

MGA prime H2 analyzer as described above	QTY	Part No.	Unit price	Discount	Total Price
MGA prime H2 with O2-PM paramagnetic cell as described above	1	945144	\$60,088.00	0%	\$60,088.00

• Traceability document for gas calibration cylinders /pressure / temperature calibrators	1	12439	\$513.00	0%	\$513.00
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INDUSTRIAL GAS SAMPLING LINE	QTY	Part No.	Unit price	Discount	Total Price
Temperature controlled and regulation by analyzer,					
Heated sampling line - with 9.84' (3.0 m) length heated Teflon hose and fast coupling to above gas sampling probe head 110VAC	1	11238-03US	\$2,589.00	0%	\$2,589.00
Heated sampling line - with 16.4' (5.0 m) length heated Teflon hose and fast coupling to above gas sampling probe head 110VAC	1	11238-05US	\$3,039.00	0%	\$3,039.00
Heated sampling line - with 9.84' (3.0 m) length heated Teflon hose and fast coupling to above gas sampling probe head 220VAC	1	11238-03	\$1,536.00	0%	\$1,536.00
Heated sampling line - with 16.4' (5.0 m) length heated Teflon hose and fast coupling to above gas sampling probe head 220VAC	1	11238-05	\$1,969.00	0%	\$1,969.00
Heated sampling line - with 32.81' (10.0 m) length heated Teflon hose and fast coupling to above gas sampling probe head 220VAC	1	11238-10	\$3,059.00	0%	\$3,059.00

EXCHANGEABLE PROBE TUBE FOR INDUSTRIAL PROBE	QTY	Part No.	Unit price	Discount	Total Price
Exchangeable probe tube 20" x 0.5" (500 mm x 12 mm) High grade steel ≤ 1472°F (800°C)	1	11640	\$496.00	0%	\$496.00
Exchangeable probe tube 30" x 0.5" (750 mm x 12 mm) High grade steel ≤ 1472°F (800°C)	1	11621	\$711.00	0%	\$711.00
Exchangeable probe tube 40" x 0.5" (1000 mm x 12 mm) High grade steel ≤ 1472°F (800°C)	1	11622	\$727.00	0%	\$727.00
Exchangeable probe tube 60" x 0.5" (1500 mm x 12 mm) High grade steel ≤ 1472°F (800°C)	1	11623	\$813.00	0%	\$813.00

EXCHANGEABLE PROBE TUBE FOR INDUSTRIAL PROBE	QTY	Part No.	Unit price	Discount	Total Price
Exchangeable probe tube 20" x 0.5" (500 mm x 12 mm) Inconel ≤ 2000°F (1100°C)	1	61827	\$1,592.00	0%	\$1,592.00
Exchangeable probe tube 30" x 0.5" (750 mm x 12 mm) Inconel ≤ 2000°F (1100°C)	1	58076	\$1,621.00	0%	\$1,621.00
Exchangeable probe tube 40" x 0.5" (1000 mm x 12 mm) Inconel ≤ 2000°F (1100°C)	1	59552	\$1,562.00	0%	\$1,562.00
Exchangeable probe tube 60" x 0.5" (1500 mm x 12 mm) Inconel ≤ 2000°F (1100°C)	1	59904	\$3,139.00	0%	\$3,139.00

Probe tube holder fitting 1/2"-12mm, for firm and tight probe fixation on the stack or gas pipe	1	65670	\$81.40	0%	\$81.40
Heat deflector shield Ø150mm for Ø12mm tube, usable at stack with high temperature radiation	1	65481-12	\$152.00	0%	\$152.00
Adapter to connect 6mm steel tube of foreign heated sampling line to the analyzer gas inlet port	1	12906	\$304.00	0%	\$304.00
Probe adapter set HPI for 6mm or 8mm probe tube	1	13432-D6D8	\$448.00	0%	\$448.00
Heated hose adapter D6D8	1	12906-D6D8	\$633.00	0%	\$633.00
T-fitting in front of the gas inlet incl. cable extension for the heated sample line	1	13445	\$1,181.00	0%	\$1,181.00

OPTIONS & ACCESSORIES	QTY	Part No.	Unit price	Discount	Total Price
Special calibration and software for "fast mode" gas analysis	1	12919	\$1,803.00	0%	\$1,803.00
Acid dosage APE-box and 2 liter storage vessel for 10% H3PO4 220VAC	1	12359	\$5,297.00	0%	\$5,297.00
NOTE: phosphoric acid shall be procured locally or see consumables / ask MRU					
Acid dosage APE-box and 2 liter storage vessel for 10% H3PO4 same as above with 110VAC	1	12076US	\$5,297.00	0%	\$5,297.00
MRU 600 - Portable Gas Conditioning System	1	13900	\$9,967.00	0%	\$9,967.00
with dual heat exchanger for high humidity and flow volume up to 250l/h					
Combustion air temperature probe Ø0.31" x 12" - for sites with air pre-heater up to 572°F (+300°C)	1	60073	\$294.00	0%	\$294.00

SOFTWARE OPTIONS and DOCUMENTATION / INTERFACES	QTY	Part No.	Unit price	Discount	Total Price
USB to Wi-Fi converter (dongle) for web browsing and wireless distance data transfer	1	10549	\$51.80	0%	\$51.80
USB to Bluetooth converter set, wireless data transfer to PC / notebook with MRU4Win	1	12992	\$998.00	0%	\$998.00
NOTE: set is with 2x pre-paired and configured converters, required for up to 300m long distance wireless data transfer					
WLAN / USB printer with Li-Ion battery, 80mm paper width and separate battery charger	1	10872	\$500.00	0%	\$500.00
MRU4win - "full" version software, for real time data acquisition and handling on PC with Windows10	1	10539	\$287.00	0%	\$287.00
NOTE: "light" version is free of charge available on MRU website www.mru.eu					

STORAGE AND TRANSPORTATION	QTY	Part No.	Unit price	Discount	Total Price
Rugged "Pelican" style transport case, usable also for flight transportation	1	12996	\$700.00	0%	\$700.00
Ni-MH battery, 13,2V / 2A / 25W , for trouble-free air transportation	1	12361	\$83.30	0%	\$83.30
NOTE: replacement of standard Li-Ion battery					

ADDITIONAL MEASUREMENTS	QTY	Part No.	Unit price	Discount	Total Price
Stack gas flow velocity measurement including mass flow calculation	1	10548	\$272.00	0%	\$272.00

PITOT TUBES WITH TEMPERATURE MEASUREMENT	QTY	Part No.	Unit price	Discount	Total Price
See additional price list if needed					
Pitot or Darcy tube connection cable to analyzer AUX port	1	66248	\$155.00	0%	\$155.00

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CONSUMABLES	QTY	Part No.	Unit price	Discount	Total Price
Service & cleaning set	1	60181	\$154.00	0%	\$154.00
PTFE Spare fine filter element (set of 5)	1	56879A	\$405.00	0%	\$405.00
Particulate filter element, for FSM-cartridge filtering (pack of 10 pcs)	1	64872	\$185.00	0%	\$185.00
Printer paper, thermo paper, 80 mm x 20 m (1 pack. = 5 rolls)	1	10879	\$29.80	0%	\$29.80
Phosphoric acid 10% H3PO4, 1 Liter (usable for 40 hours measurement)	1	12245	\$115.00	0%	\$115.00

SALES TERMS & CONDITIONS

A. Acceptance/Agreement

All orders are subject to acceptance by MRU Instruments, Inc. Additional or different terms or any attempt by the Buyer to vary, in any degree, any of the terms of this sales agreement form shall be deemed material and are objected to or rejected, but this sales agreement form shall not operate as a rejection of the Buyer's offer unless it contains variances in the terms of the description, quantity, price or delivery schedule of the goods.

B. Payment Terms

MRU Instruments payment terms are net 30 days unless special written arrangements have been made. MRU Instruments, Inc. may, at any time, suspend performance of any order or require payment in cash, security or other adequate assurance satisfactory to MRU Instruments, Inc. when, in MRU Instruments' opinion, the financial condition of Buyer or other grounds for insecurity warrant such action. MRU Instruments, Inc. reserves the right to assess late charges on accounts due past 30 days at the rate of 18% per annum. All goods are shipped Ex Works and are the property of the Buyer upon shipment.

C. Cancellation/Termination

Upon written notice of cancellation or termination for the Buyer's convenience of standard catalog items, for standard product only, the Buyer is subject to a minimum 15% charge on the remaining balance and a charge reflecting a reversion to the quantity pricing of items actually delivered. In the event that the goods are special, non-standard or custom the Buyer may terminate this order in whole or in part for its convenience upon written notice to MRU Instruments, Inc. in which event MRU Instruments, Inc. shall be entitled to termination charges consisting of a percentage of the order price reflecting the percentage of the work performed prior to termination plus actual direct costs resulting from termination.

D. Remedies in the Event of Cancellation or Default

In the event the Buyer cancels this order, or becomes overdue on its account payable to MRU Instruments, Inc. by failing to pay for this order when due in accordance with the terms hereof, in addition to the charges assessed to the Buyer pursuant to Paragraphs B and C of this Agreement, the buyer shall be required to pay all costs of collection, including, whether suit be brought or not, attorney fees, court costs, collection expenses and other expenses which MRU Instruments, Inc. may incur or pay in the prosecution of defense of its rights hereunder whether in judicial proceedings at law or in equity, including bankruptcy court and appellate proceedings, or whether out of court. In addition, MRU Instruments, Inc. shall retain the right to terminate this Agreement and Buyer's right to use the Software (as term is defined below) upon any material breach of this Agreement by Buyer. Buyer agrees to return to MRU Instruments, Inc. or to destroy all copies of the Software upon termination of this Agreement.

E. Delivery

The promised delivery date is the best estimate possible, based upon current and anticipated manufacturing capabilities, of when the product will be shipped. MRU Instruments, Inc. assumes no liability for loss, damages or consequential damages due to delay.

In any event, MRU Instruments, Inc. shall not be in default for any failure to deliver Products to Buyer by the promised delivery date. In the event that MRU Instruments, Inc. so defaults, Buyer's sole remedy for such default shall be cancellation of the applicable order. MRU Instruments, Inc. shall have no other liability to Buyer as a consequence of any such default.

F. Force Majeure

Fulfillment of this order is contingent upon the availability of materials. MRU Instruments, Inc. shall not be liable for any delay in delivery or for non-delivery in whole or in part caused by the occurrence of any contingency beyond the control of either MRU Instruments, Inc. or suppliers to MRU Instruments, Inc. including but not limited to delay in transportation, labor disruption, earthquake, fire, acts of God, or any other act outside of MRU Instruments, Inc.'s reasonable control.

G. Warranty

MRU Instruments, Inc. expressly warrants that the materials covered by this sale will conform to the specifications, drawings or other descriptions specified by the Buyer or if none are so specified, to MRU Instruments' standard specifications for such material. The materials will be new and unless specified to the contrary on the order acknowledgment or invoice, will be free of all liens and encumbrances.

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H. Claims/Notice of Defects

Failure of the Buyer to object in writing to any merchandise shipped to it by MRU Instruments, Inc. within 30 days after receipt thereof will constitute complete acceptance by Buyer of such merchandise. Rejected material must be returned to MRU Instruments, Inc. within 45 days after receipt and with prior authorization from MRU Instruments, Inc. MRU Instruments, Inc. may (at its option) recondition or replace the rejected material to meet Buyer's specifications within a reasonable time period after receipt. Claims for shipping damage must be made with the carrier.

All products must be returned in the same packing conditions in which it left MRU Instruments, Inc.' manufacturing location(s) (anti-static rails and boxes, adequately protected, etc.). Buyer must pay return shipping.

I. Confidential Information

All drawings, diagrams, specifications and other materials furnished by MRU Instruments, Inc. and identified as confidential, or information which the Buyer knows or has reason to know is confidential, proprietary or trade secret information of MRU Instruments, Inc., relating to the use and service of articles furnished hereunder and the information therein, are proprietary to MRU Instruments, Inc.. Buyer may not reproduce or distribute such materials except to buyer's employees who may use the articles as part of their duties.

Customer agrees that it will take all reasonable measures to maintain the confidentiality of all confidential information in its possession or control, which will in no event be less than the measures it uses to maintain the confidentiality of its own information of equal importance. Accordingly, MRU Instruments, Inc. will be entitled to preliminary and permanent injunctive relief and other equitable relief for any breach of this Section I.

Buyer further acknowledges and agrees that the sale of products to Buyer does not convey any license express or implied, and Buyer shall not, manufacture, modify, reverse engineer, duplicate, otherwise copy or reproduce any of the products or any part thereof. MRU Instruments, Inc. will treat drawings, specifications or data furnished by Buyer as confidential, when identified as such, in connection with this purchase.

J. General Provisions

Any cause of action arising from this agreement, or breach of it, must be commenced within one year after the cause of action occurs. MRU Instruments, Inc. reserves the right to correct any stenographical or clerical errors in any of the writings issued by it. The terms and conditions of sale and any description on the face of MRU Instruments' writings constitute a complete and exclusive statement of the terms and conditions of the sale of the goods by MRU Instruments, Inc. to Buyer unless amended in writing between Buyer and MRU Instruments, Inc. Buyer may not assign any rights to, or delegate any performance owed under the agreement without the written consent of MRU Instruments, Inc.

This Agreement will be governed by and construed in accordance with the laws of the State of Texas. Any suit hereunder will be brought solely in the federal or state courts of Harris County, Texas, and Buyer hereby submits to the personal jurisdiction thereof. This agreement, as amended by any posted notices, constitutes the entire terms and conditions on products offered for sale by MRU Instruments, Inc.

MRU Instruments, Inc. may amend this Agreement at any time by posting the amended terms on its web site. Except as stated below, all amended terms shall automatically be effective after they are posted on the web site. This Agreement may not be otherwise amended except in a writing signed by Buyer and MRU Instruments, Inc.

This agreement was last revised on January 30, 2007.