SARVESH ANALYTICS Pvt. Ltd.

Analysis Simplified

ACCURRA-Hz®

Trace / ppm / Percentage / Purity

O2, CO, CH4, H2

Hazardous Area Analyser

For your Tough Applications

Tamper-proof Calibration

Latest Measurement Technology

Advanced Features

Lowest Cost of Ownership

Applications

Process Monitoring
Safety Monitoring
N2 Blanketing
Spray Dryers
Hydrogenation Process
Gas Storage Tanks
Hydrogen Electrolysers

Salient Features

- Calibration Possible w/o opening covers
- Calibration History with Deviation values
- Alarm and Fault History
- Calibration Check Facility
- Isolated 4-20 mA Output; Dual Range with Range ID relay output
- Output Freeze / Follow during Calibration
- Separate Hardware Diagnostics Menu
- Password Protected Calibration, Setup & Diagnostics Menu
- Modbus RTU over RS 485
- 4-20mA output range is USER configurable over entire measurement range
- Alarm Set Points are USER configurable & can be set as Lo - LoLo / Lo - Hi / Hi - HiHi
- Optional: PC software to remotely Monitor / Control ACCURRA-Hz
- **Enclosure Certification: Gas Group IIC Zone 1 & 2, T6 as per IS/IEC 60079-1:2014**

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Measurement Technologies

ACCURRA-Hz is an On-Line Hazardous Area Gas Analyser. It was introduced in 2010 with a future ready Architecture, Hardware and Features. Since then it has remained as the most preferred Analyser for all critical and demanding processes in the industry.

ACCURRA-Hz has many features such as Failsafe Outputs, Tamper-proof Calibration, Remote Desktop Access, Sensor Diagnostics, separate Password for User and Manager etc. With these unique features and its Proven track records ACCURRA-Hz is ideal and trusted choice for you critical processes.

Measurement Gases	Range of Measurement		Sensor Technology
Oxygen	0 - 100 / 1000	ppm	Electrochemical
	0 - 25	%	Electrochemical
	0 - 100 / 95 - 100	%	Electrochemical / Paramagnetic
Carbon Monoxide	0 - 1000	ppm	Electrochemical Cell
	0 - 10 / 100	%	NDIR
Methane	0 - 100	%	NDIR
Hydrogen	0 - 100	%	Thermal Conductivity Detector

Purity Oxygen Measurement

Oxygen measurement above 90 - 100% is susceptible to Ambient Pressure and Temperature variation. A day and night ambient pressure variation can give rise to 10% error in O2 reading.

To overcome this error ACCURRA-Hz 3090 and 3190 has Ambient Pressure and Temperature compensation. With these compensations the error is minimized to less than 0.5%. This makes it the most accurate analyser in the market for Oxygen measurement in 90 – 100% range.

Alarm Relays

ACCURRA-Hz has two independent Failsafe Alarm Relays. The alarm set points are user configurable. You can configure these relays as **Lo - LoLo or Lo - Hi or Hi - HiHi**, as per the requirement of your process.

Dual Range Current Output

In some processes the startup reading is high. As you control the process the reading stabilizes to a lower value. ACCURRA-Hz allows you to define two ranges to the 4 - 20 mA current output e.g. 0 - 10% and 0 - 25%.

When the reading is below 10% the current output will correspond to 0 - 10%. When the reading crosses 10% the current output will correspond to 0 - 25% and vice versa.

ACCURRA-Hz has a Range ID Relay which when configured can be used as remote signal to your PLC/DCS to know the range on which ACCURRA-Hz is working. This feature is very useful during start up.

Output Freeze or Follow Function

When you use the output signals from ACCURRA-Hz i.e. 4-20mA and Alarm Relay outputs, as input to your PLC/DCS, you can freeze these 4-20mA and Alarm Relays to the last value during Calibration Check and Calibration. This Output Freeze or Follow function is a user configurable feature.

Sample Pump

The ACCURRA-Hz can control an external Sample Pump. When connected this pump will remain off during Calibration Check and Calibration. When Sample Pump option is selected Range ID Relay option is unavailable.

Auto-Calibration

ACCURRA-Hz can include Auto-Calibration with external Solenoid Valves. You can initiate Auto-calibration through keypad or by setting the internal Cyclic Timer or initiate remotely through MODBUS command.
Auto-Calibration is an optional feature.

History

The ACCURRA-Hz stores the Calibration, Alarm and Fault records. This is helpful in analysis of your process behaviors. The last Calibration data in History can be used as a record for your Audit. This data also helps to know the Calibration Drift / Residual Sensor Life. You can accordingly plan the replacement of consumable Gas sensors.

Diagnostics

The ACCURRA-Hz has inbuilt hardware diagnostic mode which enables various hardware check or simulation during failure.

MODBUS and PC connectivity

The ACCURRA-Hz has Modbus output over RS-485 which can be connected to PLC/DCS or with a RS485 to USB converter you can connect ACCURRA-Hz to your PC and collect data for analysis.

Remote Desktop Access- ACCURRA-CONNECT

With ACCURRA-CONNECT installed on your PC you can connect to your ACCURRA-Hz remotely over Modbus and do all the operations as if you are standing in front of your Analyser. This feature is useful where human movement is restricted in hazardous area. This software is an optional supply.

Performance Specifications

TABLE -1	Oxygen			
Model Variant	3015	3030	3130	3190
Measurement Range	0 - 1000 ppm	0 - 25 %	0 - 100 %	95 - 100%
Sensor Technology	Electro Chemical		Paramagnetic	
Sensor Life	> 18 Months	> 2 Years	Not Applicable	
Minimum Range	0 - 100 ppm	0 - 5%	0 - 5%	N. A.
Display Resolution	0.1 ppm	0.01 %	0.01 %	0.01 %
Intrinsic Error (Accuracy)	1% of reading ± 2ppm	± 0.01 % FS	± 0.1 % of FS	± 0.5% of FS
Repeatability	Zero: ± 2ppm Span: 1% of reading	± 0.04 %	± 0.1 % of FS	± 0.5% of FS
Response Time-T90 @ 1 LPM	< 30 Sec	< 20 Sec	< 5 Sec	< 5 Sec

- Oxygen Purity Analyser Model 3090 and 3190 has **in-built Ambient Pressure Compensation**
- All measurements in ACCURRA-S has **in-built Temperature Compensation**

TABLE -2	Carbon Mono-Oxide		Methane	Hydrogen
Model Variant	2015	2030	4030	1030 Note 1
Measurement Range	0 - 2000 ppm	0 - 100 %	0 - 100%	0 - 100 % in N2
Sensor Technology	Electro Chemical	NDIR	NDIR	Thermal Conductivity
Sensor Life	> 2 Years	N. A.	> 5 Years	N. A.
Minimum Range	0 - 100 ppm	0 - 5 %	0 - 5 %	0 - 5%
Display Resolution	0.1 ppm	0.01 %	0.01 %	0.01 %
Intrinsic Error (Accuracy)	1 % of FS	2 % of FS	2 % of FS	< 1% of FS
Repeatability	Zero: ± 2ppm Span: ± 10ppm	2% of Reading	2% of Reading	< 1% of FS
Response Time-T90 @ 1 LPM	< 30 Sec	< 30 Sec	< 45 Sec	< 10 Sec @ 0.6 LPM

Note 1: Contact Sarvesh Analytics for other background Gases, Minimum and Maximum measurement range.

Note 2: The Response Time specifications are at 1 LPM flow rate unless otherwise mentioned.

Sample Condition

The Sample Conditioner between your Process and Gas Analyser is the key to get years of accurate measurement and trouble-free performance. Your sample handling system should ensure that ACCURRA-Hz always gets a Sample which meets the following specifications.

The Sample Gas should be Non-Corrosive, Non-Toxic, Non-condensing dry, free from entrained oil.

Sample Pressure	2 - 10 psig Max; The Sample Pressure has to be regulated externally by the user.
Sample Flow rate	1 LPM (Recommended) It is strongly advised to install a upstream Sample Flowmeter to regulate the sample Flow.
Sample Temperature	5^0 C - 45^0 C Max
Sample Dust / Particulate	< 3 Micron ; It is strongly advised to install a upstream External Filter with suitable Element .
Sample Dew Point	5^0 C less than the lowest Ambient Temperature
Material in Contact with Sample	SS-316, Viton, PTFE, Glass, Aluminium, Acrylic.

In case your Sample does not comply to the above specifications, please contact us for a suitable Sample Conditioning System that is customised to your application needs.

Hardware Specifications

Display	Backlit LCD, 4 Line x 20 Character, Alphanumeric.
Analog Output	1 x 4-20 mA, isolated, Max Load = 500 Ω, Dual Range

Analog Output range is freely selectable by user over entire measurement range.

Output Relays 4 x SPST rated @ 1A 230V AC. All relays are configured as Failsafe

Relay 1 : Alarm 1
Relay 2 : Alarm 2

The Alarm set points are user configurable and can be set as Lo - LoLo / Lo - Hi / Hi - HiHi

Relay 3 : Fault Alarm The Fault is activated during Calibration or Instrument Failure.
Relay 4 : Sample Pump / Range ID

This relay controls a External(or Optionally Internal) Sample Pump OR indicate Output Range Change.

Communication MODBUS protocol over RS 485

READ: Measured Value, Status, Setup Parameters & History
WRITE: Initiate Auto Calibration, Setup Parameters

Optional Hardware

Auto - Calibration

This option includes the Software & Hardware associated with it. The Solenoid Valves are External and are in customer scope.
Auto-Calibration is not available for model 3015.

Sample Pump

This option includes external Sample Pump which is controlled by ACCURRA-Hz. During Calibration Check and Calibration this pump is OFF. When Sample Pump option is selected Range ID Relay is unavailable.
Sample Pump is not available for model 3015, 3130 and 3190.

Other Specifications

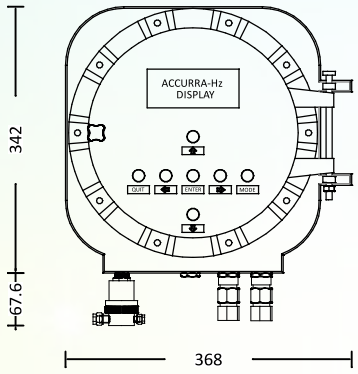
Gas Inlet / Outlet	1/4" OD SS316
Enclosure	Wall mounted
Dimension	410 (H) x 370 (W) x 245 (D) mm
Ingress Protection	IP 66
Net Weight	Approx. 12 Kgs
Gross Weight	Approx. 20 Kgs
Packed Dimension	Approx. 53 x 43 x 35 cm
Power Supply	24V DC, 30W or 100 - 240 V AC 50/60 Hz, 45W

Environmental Conditions

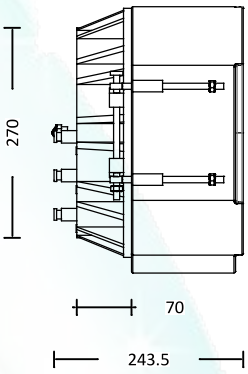
Ambient Temperature:	+5°C to + 40°C
Storage Temperature:	+0°C to + 50°C
Relative Humidity:	< 90% RH non-condensing
Area Classification:	Gas Group IIC Zone 1 & 2, T6 as per IS/IEC 60079-1:2014

Dimensions

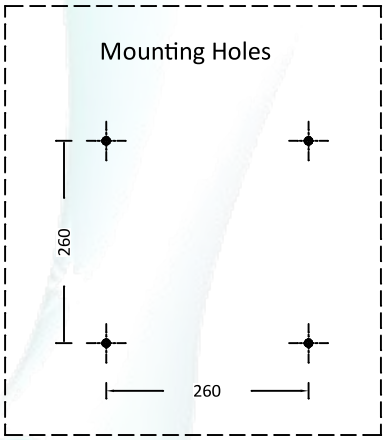
Front View

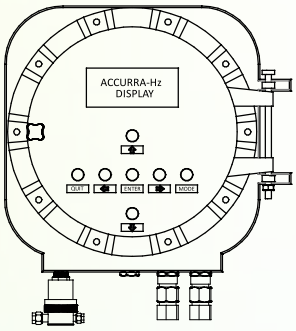


Side View

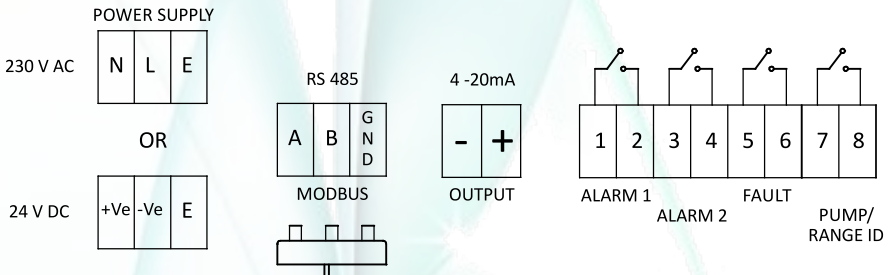


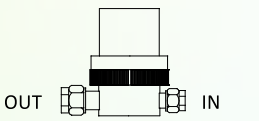
Mounting Holes



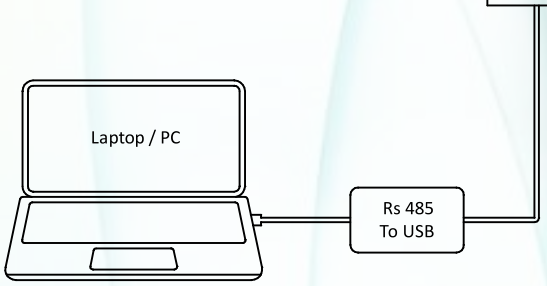


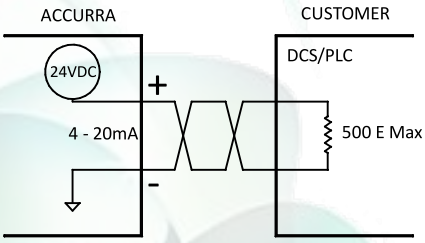
Output Electrical Connections





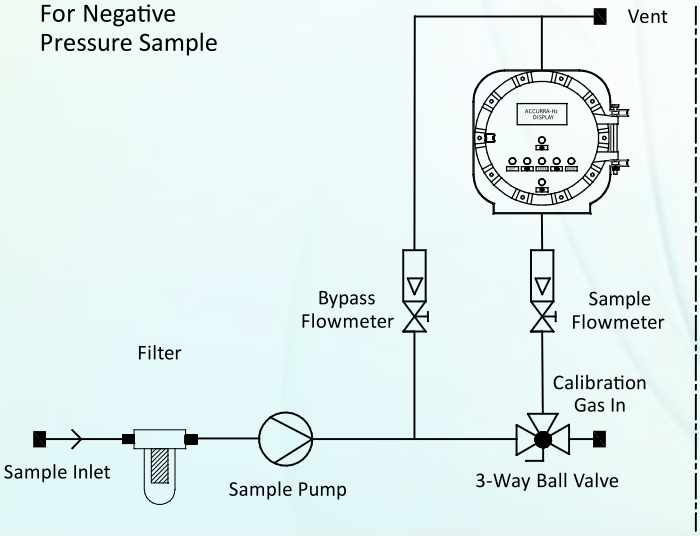
Sensor Block
Pneumatic Connections



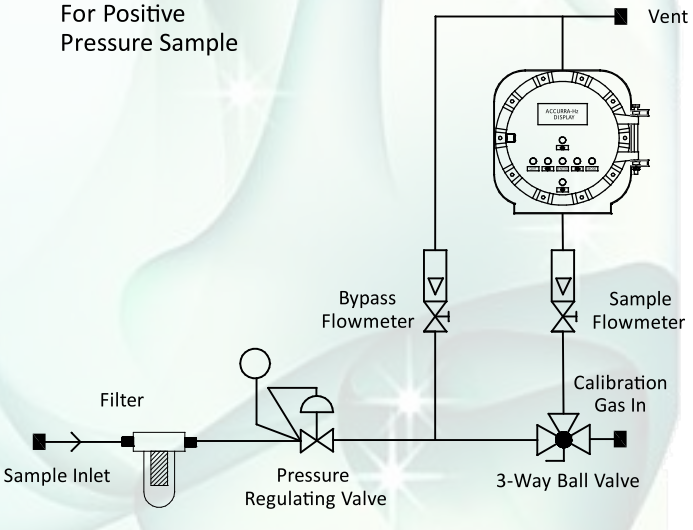


Typical Sample Handling Drawing

For Negative
Pressure Sample



For Positive
Pressure Sample



Ordering Code

	1	2	3	4	5	6	7	8	9	10	11	12
ACCURRA-Hz-					X	X	X	X				

Measured Gas

Hydrogen % (TCD)	1	0	3	0
Carbon Monoxide ppm (Ec)	2	0	1	5
Carbon Monoxide % (NDIR)	2	0	3	0
Oxygen ppm (Ec)	3	0	1	5
Oxygen Percentage (Ec)	3	0	3	0
Oxygen Purity (Ec)	3	0	9	0
Oxygen Percentage (Pm)	3	1	3	0
Oxygen Purity (Pm)	3	1	9	0
Methane % (NDIR)	4	0	3	0

Accurra-Connect software

X	None
C	Yes

Auto Calibration[1]

X	None
E	Yes, Relay Output Only

Range ID / Sample Pump[2]

R	Relay Output - Range ID
P	Relay Output for Ext. Pump

Power Supply

D	DC - 24 V DC
A	AC - 100 to 260 V AC

1. Auto Calibration: Relay Output is provided for Solenoid Valves. Auto Calibration is not available in models 3015.
2. Sample Pump: Relay output is provided for Sample Pump
2. Solenoid Valves and Sample Pump are not in scope of supply
3. Please contact M/s Sarvesh Analytics for available options

"Ec" : Electrochemical Sensor
"Pm" : Paramagnetic Sensor
"NDIR" : Non-Dispersive InfraRed
"CS" : Ceramic Sensor

Notes: - The final responsibility to check whether this product meets the requirement of the Process and / or Analyser remains solely with the customer.
- M/s SARVESH ANALYTICS PVT. LTD. has a policy of continuous improvement of product & services and hence reserves the right to change the specifications and features without prior notice.

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