

ES20 Compact Sampling System

Stainless Steel Sampling System

The ES20 Compact Sampling System is designed to reliably and accurately measure dew point or moisture content in a wide variety of industrial gas applications up to 20 barg. This sampling system is an economical and high quality solution with a short lead time.



Highlights

- Process connection via 6mm or 1/4" tube fittings
- Dew point, moisture content, flow, contamination and pressure control
- Sample inlet pressure up to 20 barg
- Modular design
- Stainless steel tubing and fittings
- Flexible filtration options
- High quality components
- Designed for challenging process environments
- Compatible with various transmitters or hygrometers

Applications

- Compressed air dryers
- Pneumatics
- Plastic moulding
- Instrument air
- Hydrogen coolants
- Breathing air
- Pure feed gases
- Heat treatment gases
- Inert gases



ES20 Compact Sampling System

A Reliable Sampler for Moisture

Michell Instruments designs and manufactures a broad range of sampling systems for a wide spectrum of industries and processes from the economical compressed air market, to the demanding oil and gas process market.

The ES20 sampling system is a standard modular high quality product designed to address the needs for filtration, pressure, and flow control.

High Quality Materials

To ensure continuous and reliable dew-point or moisture measurement, it is important that the dew-point transmitter is exposed to stable conditions of the gas to be monitored.

The ES20 sampling system utilizes high quality materials (gas wetted parts) which provide the optimum response to moisture changes in the process.

Filtration Flexibility

If the gas contains impurities it is crucial to remove the contaminants before they reach the sensing device. The ES20 is supplied with a filter housing into which recyclable particulate or coalescing filter cartridges can be inserted.

Filtration methods:

- Particulate filter (solid contaminants)
- Coalescing filter with adjustable drain (solid and liquid aerosol contaminants)
- HDPE guard (filter) for sensing element (standard)
- Air filter with optional vacuum pump (standard)

Pressure Control and Measurement

Pressure has a direct effect on dew point. The ES20 utilizes a set of configurable components for atmospheric or process system line pressure dew-point measurement.

Pressure control features:

- Pressure gauge (dual scale: bar and psi)
- Metering valves (needle valve type)
- Self-regulating vacuum pump

Flow Control

The flow rate of a gas can affect the transmitter's response time. Every sampling system contains a set of components which help to maintain optimum flow (1 to 5 liters per minute).

Flow control:

- Flowmeter
- Metering valves (needle valve type)
- Flowmeter with needle valve (with vacuum pump only)

Mounting Variants

Depending on the application, the sampling system can be supplied in 3 variations:

- Mounted on base plate
- Mounted on base plate inside a windowed GRP enclosure
- Mounted on base plate inside a windowed SS enclosure (316 stainless steel)

System Designs

Michell Instruments has over 40 years of experience providing dew-point and moisture measurement solutions. Sampling system designs ensure that dew-point and moisture measurements can be performed in the most suitable conditions.

The ES20 compact sampling system can be supplied in various configurations and can be used in conjunction with many Michell's products such as:

- Easidew Transmitter
- Easidew I.S. Transmitter
- Easidew PRO I.S. Transmitter
- Easidew Online Hygrometer
- Cermet II Hygrometer

Documentation Package

Every ES20 is supplied with a CD-ROM containing the following supplementary files for your sampling system:

- ES20 manual
- Datasheet
- Flow diagrams
- Material certification (optional)
- EC declaration of conformity

For add-on products such as transmitters or hygrometers, a printed version of the product's manual is included.

System Customization

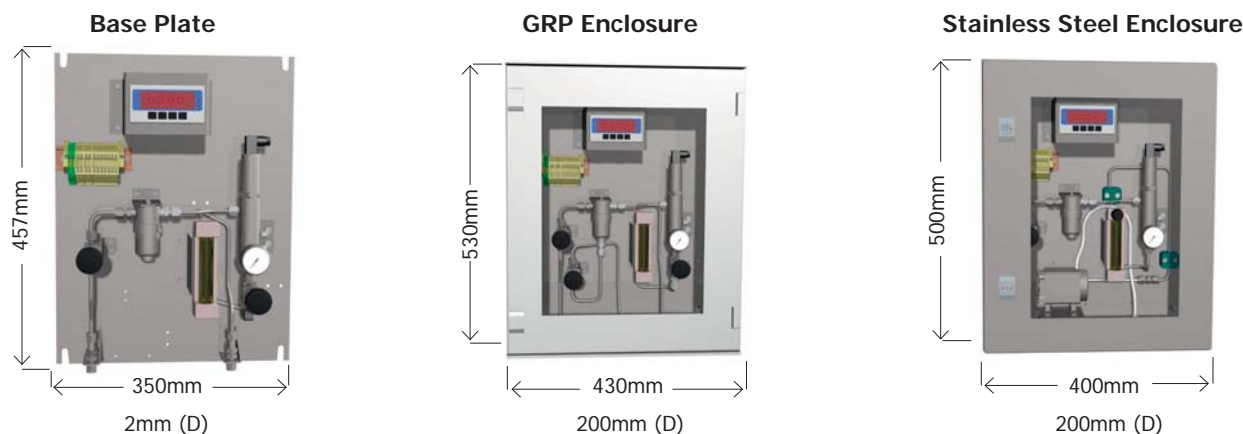
If your application requires a customized solution, we have a specialized design and manufacturing facility to cover your requirements. Please contact us for more information.

Technical Specifications

Electrical Specifications	
Supply voltage (vacuum pump only)	230 V AC
Operating Specifications	
Operating temperature	
ES20 fitted with:	
Particulate or coalescing filter without monitor	-15 to +60°C
Particulate or coalescing filter with monitor	0 to +50°C
Vacuum pump with or without monitor	0 to +40°C
Operating inlet pressure	
ES20 fitted with:	
Particulate filter	0 to 20 barg
Coalescing filter	0 to 20 barg
Vacuum pump	-0.3 bar to 1 barg
Flow rate	1 to 5 NI/min
Mechanical Specifications	
Process connection and material	Inlet/outlet process connections via 6mm or 1/4" tube fittings, 316 stainless steel
Gas wetted parts	Stainless steel tube, filter housing and fittings (316 stainless steel), Filter element (borosilicate glass microfibres), Transmitter sample block (316 stainless steel), Flowmeter (borosilicate glass) with Viton® seals, Pump (Teflon®)
Ingress protection	
No enclosure	No protection (base plate only)
GRP & SS enclosures	IP66, NEMA 4X
Housing material	
Base plate	316 stainless steel
GRP enclosure	Glass fibre reinforced polyester and 4mm safety glass
SS enclosure	316 stainless steel and 4mm safety glass
Dimensions	
Base plate	457mm x 350mm x 2mm (h x w x d)
GRP enclosure	530mm x 430mm x 200mm (h x w x d)
SS enclosure	500mm x 400mm x 200mm (h x w x d)
Pressure and flow control	
Atmospheric or process pressure	Via metering valves, pressure gauge and flowmeter
Vacuum pressure	Metering valve, pressure gauge, flowmeter with valve and self-regulating vacuum pump
Gas filtration	
Particulate filter - Borosilicate glass microfibres (99.5+% removal of 0.1 micron particles)	
Coalescing filter - Borosilicate glass microfibres (99.5+% removal of 0.1 micron particles and aerosols)	
Electrical connections	
Base plate	Via terminal rail
GRP and SS enclosure	Via M20 plastic cable glands
Interchangeability	
Fully interchangeable components	
Sample block process connection	
Compatible with various dew-point transmitters with 5/8" process connection	
Dew-Point Measurement Specifications (Optional)*	
Measurement range (dp)	-100 to +20°C dew point
Accuracy (dp)	
Up to ±1°C dew point	
Up to ±2°C dew point	

*For all other specifications refer to the Easidew Transmitter and Easidew Online datasheets, available from your local Michell Instruments representative or visit www.michell.com/uk

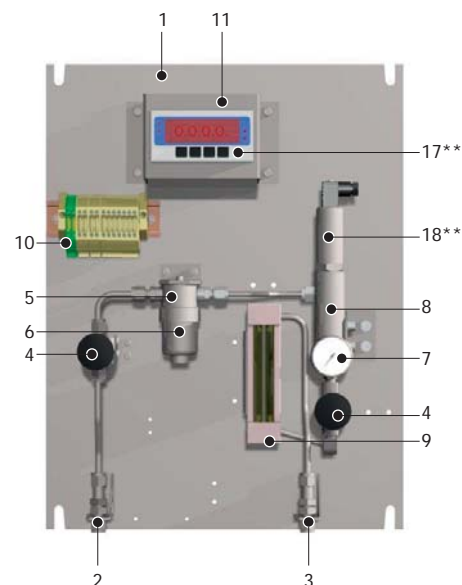
ES20 Enclosure Configurations



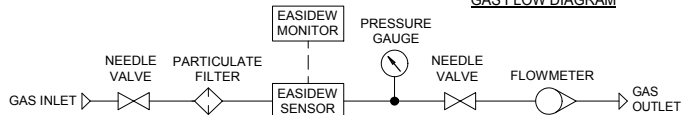
ES20 System Configurations

ES20 Fitted with Particulate Filter

Components used	Specifications
1 Base plate	316 stainless steel
2 Inlet process connection and material	6mm or 1/4" fitting (316 stainless steel)
3 Outlet process connection and material	6mm or 1/4" fitting (316 stainless steel)
4 Metering valve	Needle valve type
5 Filter housing	316 stainless steel (340 barg maximum), gasket (Viton®)
6 Particulate filter (inside filter housing)	Borosilicate glass microfibrils (99.5+% removal of 0.1 micron particles)
7 Pressure gauge	Center back mount (dual scale: Bar and PSI)
8 Sensor sample block	5/8" SS sample block (316 stainless steel)
9 Flowmeter	Borosilicate glass (2 to 12 NI/min), seals (Viton®)
10 Terminal rail	13 terminals (monitor or vacuum pump fitted only)
11 Process indicator mounting bracket (optional)	1/8 DIN cut-out



GAS FLOW DIAGRAM

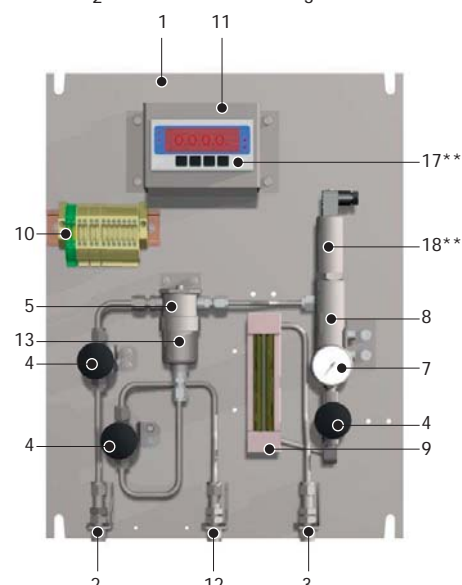
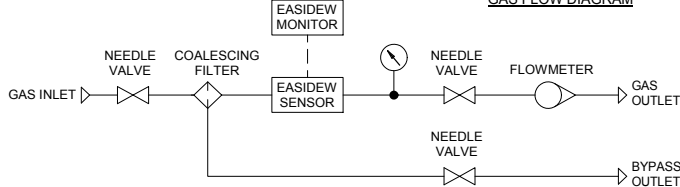


ES20 Fitted with Coalescing Filter*

Components used	Specifications
12 Drainage connection and material	6mm or 1/4" fitting (316 stainless steel)
13 Coalescing filter (inside filter housing)	Borosilicate glass microfibrils (99.5+% removal of 0.1 micron particles and aerosols)

*In addition to particulate filter fitted components

GAS FLOW DIAGRAM

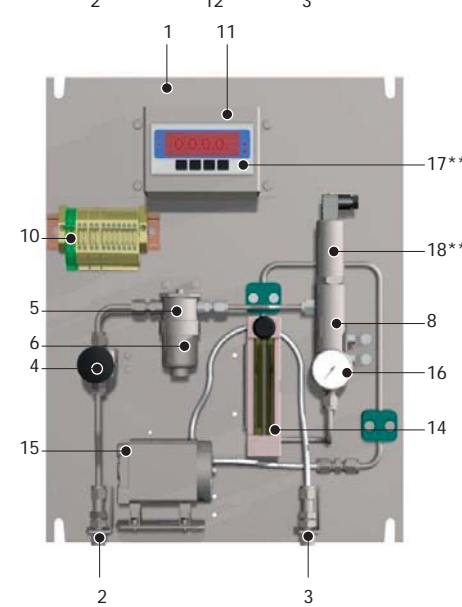
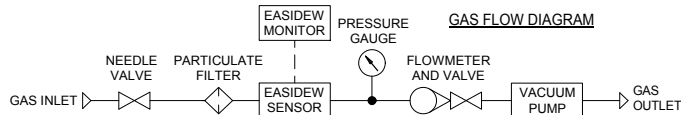


ES20 Fitted with Vacuum Pump*

Components used	Specifications
14 Flowmeter with needle valve	Borosilicate glass (2 to 12 NI/min), seals (Viton®)
15 Vacuum pump	Anti-overpressure mechanism (Teflon®)
16 Pressure gauge	Center back mount (dual scale: Bar and PSI)

*In addition to particulate filter fitted components

GAS FLOW DIAGRAM



Optional Dew-Point Measurement Device

Components used	Specifications
17 Monitor (to be ordered separately)**	Refer to Monitor datasheet
18 Dew-Point Transmitter (to be ordered separately)**	Refer to Transmitter datasheet

Michell Instruments Ltd 48 Lancaster Way Business Park, Ely, Cambridgeshire, CB6 3NW

Tel: +44 (0) 1353 658000, Fax: +44 (0) 1353 658199, Email: uk.info@michell.com, Web: www.michell.com/uk

Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.

Issue no: ES20_97448_V1_UK_0814