



DRA-12

Automatic Precipitation Sampler

Product Information



Korean Wet Sampling Network © KNJ Engineering Inc.

Digitel DRA-12

The DIGITEL DRA-12 is a microprocessor controlled automatic sampler for the sampling of wet depositions (rain, snow) for later assessment and analysis in the laboratory. The device is mounted in an air-conditioned compact field housing. The collection funnel has a surface of 500 cm² (d = 252 mm). The Digitel DRA-12 is easy to transport and energy efficient because of a good insulation paired with a compressor cooler. Superior workmanship in sampler mechanics backed by the latest technical and electronic control guarantee a long lifetime and absolutely reliable operation.

Design and Operation

When it's dry, the collection funnel is closed by a lid. This avoids contamination of the funnel with leaves, dust etc. A rain sensor opens the lid, the precipitation accumulates in the funnel and flows via a short vertical Teflon pipeline directly into the current bottle. Snow and ice rain are defrosted by an integrated heating, which also prevents the freezing of the funnel lid. The turnable bottle plate contains 12 sampling bottles with 1l each or 32 sampling bottles with 250ml each. For bigger sampling volumes a two bottles mechanism with 5l each is available.

The exchange of the bottle takes place automatically, time and/or event controlled. When a bottle is full, it is automatically exchanged by a new one. Full / empty bottles that are not in the sampling line are automatically closed. The air-conditioned bottle chamber ensures the storage of the precipitation samples at a constant temperature.

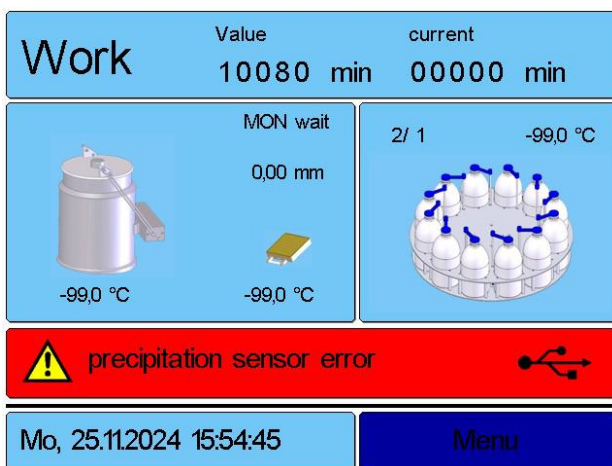
All events (precipitation begin/end, bottle exchange etc.) are logged. The wet-only sampler is completely remote controlled via a RS232C or Ethernet interface.

KEY FEATURES

- 12x1000ml, 32x250ml or 2x5000ml polyethylene bottles
- Automatic bottle change when bottles are full (capacity level sensor), at a preselected time (e.g. daily samples) or after a user selected rain duration
- Electronic protocol of bottle number
- Flexible software to meet any sampling schedule
- Precipitation controlled funnel lid with selectable opening and closing times
- Automatic closing of the empty and full bottles

Easy programming

The touchscreen allows simple and user friendly programming. The current state of the sampling course (e.g. program status, status periods, failure indication messages) is shown on the display. In case of power failure, all settings are stored. The time program is then internally running in the standard presetting and continued once the power is back. Therefore, programmed bottle change times are not postponed in case of meantime power interruptions.



State of the Arts Electronics

The Digitel DRA-12 has a RS-232C interface which is used for data transmission with various protocols (DIGITEL, Bayern-Hessen-Protocol, Akprotocol...) and for remote control. The internal memory has the ability to store data during several months of daily sampling. Additionally, the measuring data can be saved on a USB drive. The USB port can be used for software updates, which allows a simple in field update of the instrument. The DRA-12 also has an Ethernet interface which enables connections to any TCP/IP network. This allows data collection via FTP and remote control of the DRA-12 (integrated HTTP Server) as well as software updates over Ethernet. An optional router allows direct remote access to the precipitation sampler.



Parts overview

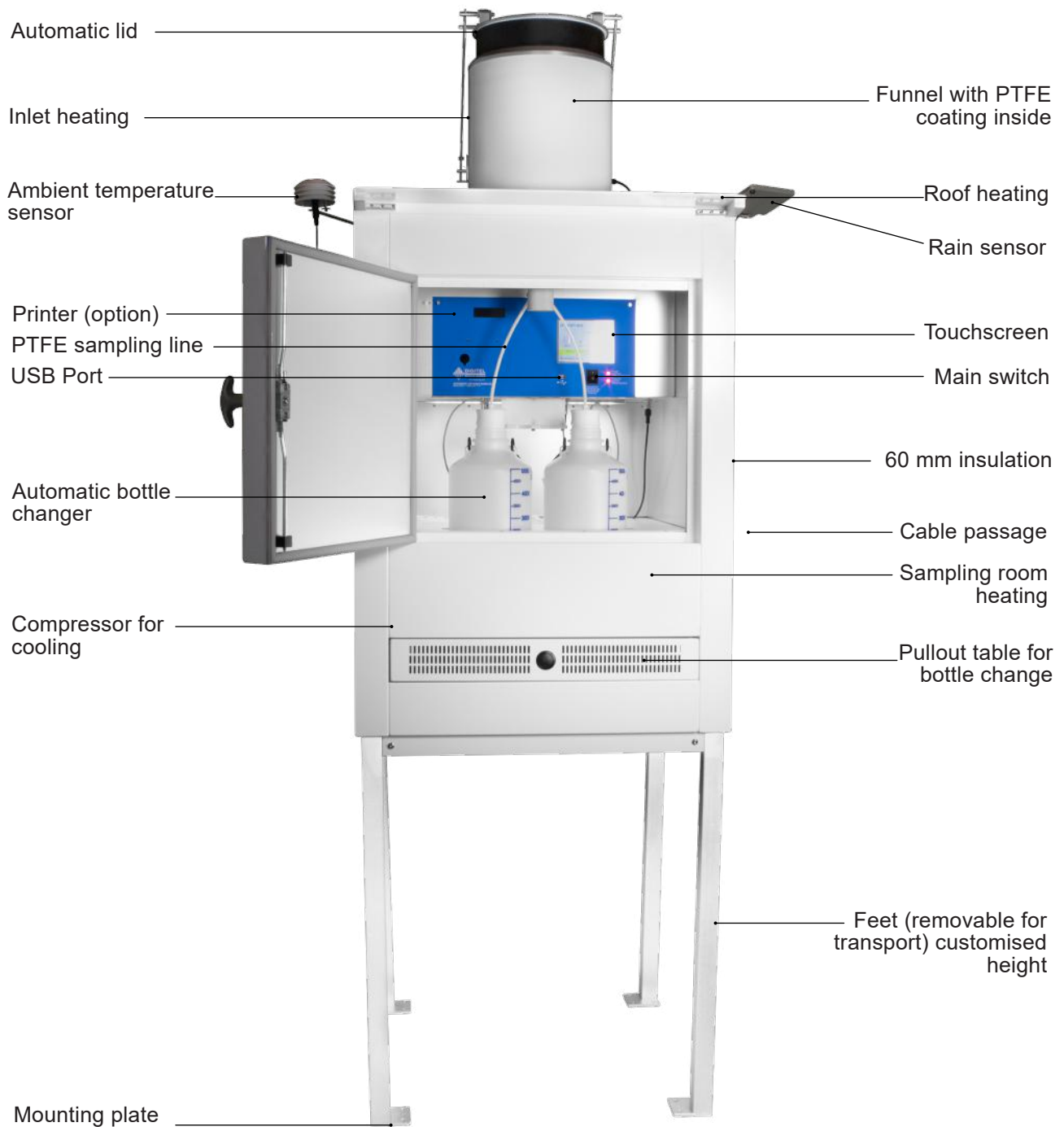


Figure 2: Parts overview DRA-12

Superior coating

The sampling line is made of PTFE or PTFE coated aluminium as a standard, bottles are made of HDPE as a standard. Other materials such as glass funnels and glass bottles or HDPE funnels are available as an option. All mechanical components in gears and drives area of highest quality materials such as stainless steel, anodised aluminium and industry grade POM. The DIGITEL DRA-12 is equipped with a protection class IP54 field housing. It is suitable for direct open air installation. The field housing is double-walled with a 60mm XPS insulation, to lower the energy consumption of the highly effective compressor cooler.

Monitoring module

The monitoring module measures precisely the rain amount and intensity and gives an indication on pH value and conductivity of the sample. This module is fed by a separate sampling line, which is closed with lid during dry periods.

GOOD TO KNOW

- Robust and weather proof
- Low energy consumption, low energy cost
- Low maintenance cost
- Low noise
- Easy programming with touchscreen
- Easy bottle handling

Dimensions

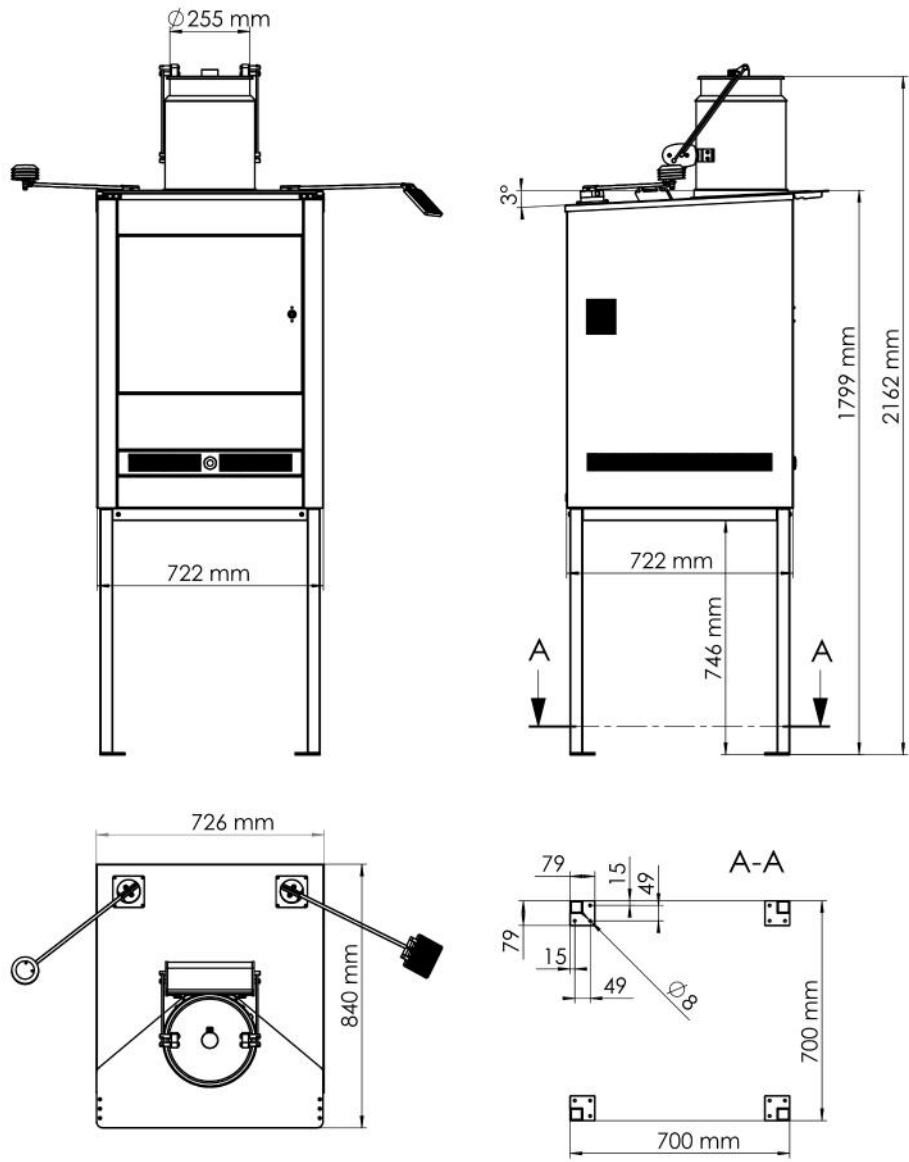
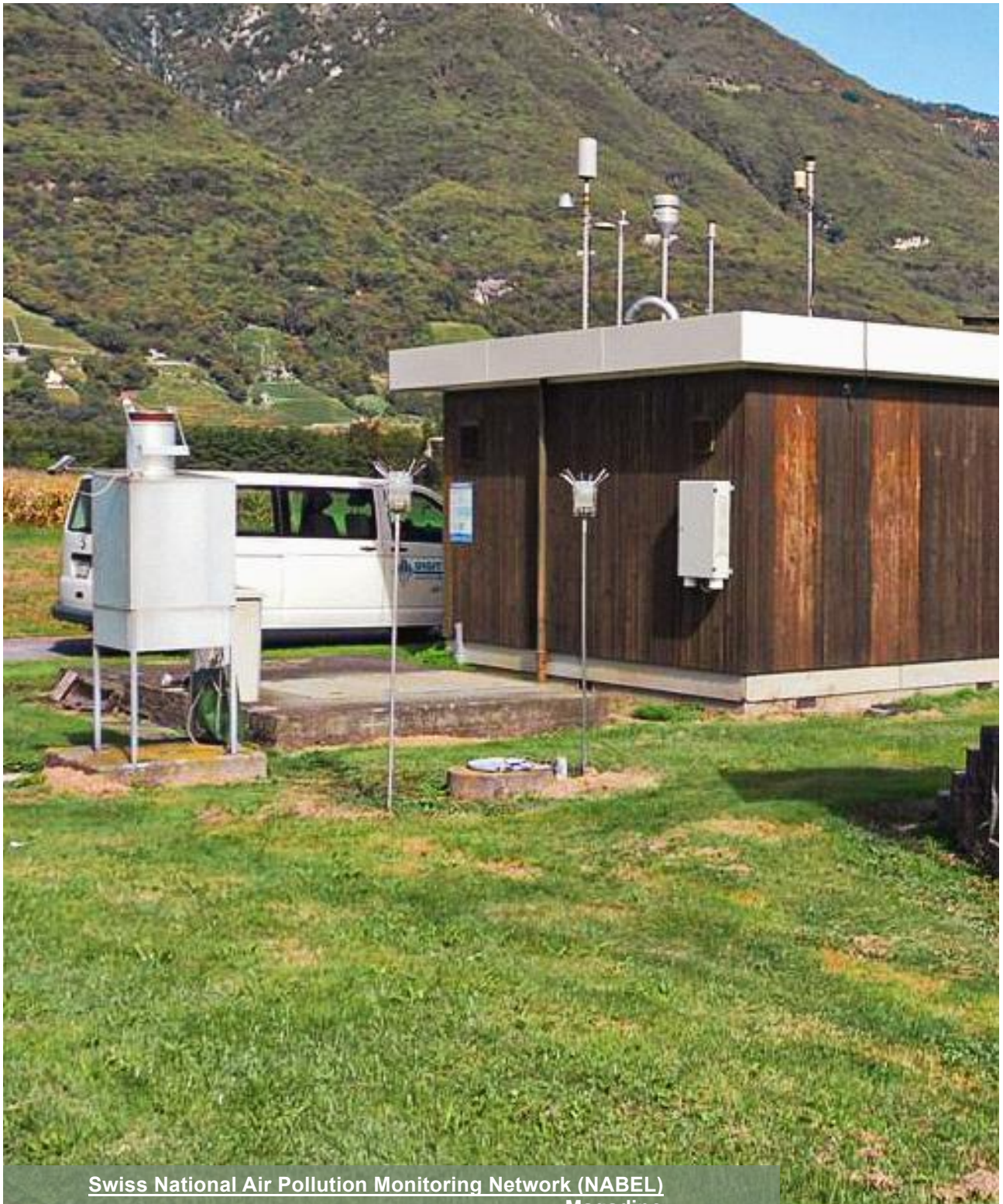


Figure 3: Dimensions DRA-12

Technical Data

Sampling	- Bottle changer configuration: 32x250ml or 12x1000ml, others on request - Capacity level sensor (liquid level sensor) for automatic bottle exchange of full sampling bottles - Integrated cooling compressor to control temperature of collection room, temperature can be set (e.g. 4°C+-2°C) - Adjustable delay time for the opening of the lid, user settable, 1s-60min - Adjustable delay time for the closing of the lid, user settable, 1s-60min - Precipitation sensor heating as a standard - Funnel opening (internal diameter(mm))/sampling area 252mm +-1mm/500cm² - Average precipitation amount for initial monitoring 0.01mm - Application range: -20° to 50°C, 0% to 100% RH, with additional heater for temperatures <0°C
Time programs	- Work, Pause (0 to 99'999 minutes each) - Start time adjustable, using date and time - Different sampling cycles programmable
Protocol files	- Protocols of lid opening and closing times, sampling time, error messages, temperatures - If options are connected: protocol of Option's outputs (pH, conductivity, temperature, amount, intensity)
Operating data	- Power supply: 230V AC / 50-60 Hz; max. 300 VA - Sensors: Ambient pressure, temperature, humidity, bottle storage temperature
Interfaces	- RS232C, USB, Ethernet, RS485 - Interface protocols: DIGITEL, Bayern-Hessen, AK, TCP/IP, HTTP, FTP - Internal memory: 16 MB, ring buffer, filter data of two years of daily sampling
Materials	- Coated aluminium - Material of sampling line: PTFE coated aluminium/ PTFE - Material of bottles: PE, other materials (glass) on request 60mm XPS insulation
Dimensions & Weight	640x 640 x 2200 mm, 80 kg - Height of inlet from ground (m): As a standard 2.16m, available 1.5-2.5m
Noise level	<35dB at 1m
Instrument timing error	<4s/day, synchronising over network possible
Leak protection	Lid is closed when bottle is not in sampling position



Swiss National Air Pollution Monitoring Network (NABEL)
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Features

- Touchscreen interface
- Automatic bottle change
- Changer failure recognition
- Automatic closing of the empty and full bottles
- Programmable time control of bottle exchange
- Response time of lid closing and minimal sampling time can be determined
- Recording of total sampling time per sample, lid opening times etc. on internal memory and USB key
- Cooling compressor outside the sampling chamber
- Manual bottle exchange option
- Ethernet port for remote control and data query
- Weather-proof field housing made of aluminium, protected with an extremely weather and seawater resistant powder coating
- Stainless steel gears
- Tower and bottom easily removable for transport and cleaning
- Easy fixation to the ground
- Sampling chamber lockable
- Drainage for condense water

Options

- Temperature controlled heating of lid, inlet and roof
- Online conductivity and pH measurement (indicative) (separate sampling line, closed with lid during dry periods)
- Precipitation amount and intensity measurement (separate sampling line)
- LTE router for direct remote access
- Text message (SMS) module for status and alert messages
- Printer
- Programmable temperature-controlled lid heating
- Programmable temperature-controlled roof heating

Customised Solutions

- Funnel, sampling line materials and bottles with customised materials
- Customised programming and communication
- Configuration avoiding certain materials (e.g. PTFE)
- Customer specific functions (e.g. wind-controlled sampling)
- Customer specific interface protocols

For more information about options and accessories, please follow the links or check our website digital-ag.com!

Have a question? We'd love to help!

If you have questions about anything, please contact us and we will be glad to assist you.

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