



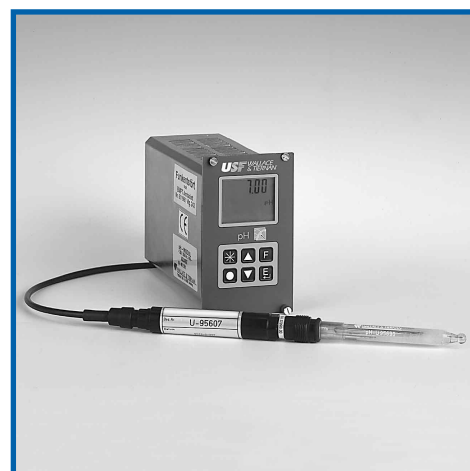
MULTI FUNCTION ANALYSERS

MFA-pH

FOR MEASUREMENT OF PH VALUE

TECHNICAL INFORMATION

The new **MFA** Multi Function Analysers are a modern generation of hardware for measurement and control applications in water treatment processes. This latest development is the result of experience and cooperation within the worldwide **Wallace & Tiernan** Group which has produced a powerful electronic system which ensures precise measurement and stable control. Application areas range from simple measurement through to demanding closed-loop control processes for the treatment of swimming pool, drinking and process water as well as waste water. The totally new development of the **MFA-pH** module is designed for connection to pH electrodes as per DIN 19263.



ADVANTAGES

- Modular construction
- Modern user-friendly microprocessor technology with interactive menu assistance
- Isolated signal inputs and outputs
- User-selectable measuring ranges
- Measurement and calibration in accordance with DIN 19408 Part 5
- Digital input for automatic monitoring of sample water
- Automatic fault detection and monitoring of measuring cell
- Luminescent display with adjustable display contrast
- Plain-text menu assistance in 5 selectable languages
- User-adjustable limit contacts
- RS485 interface
- CE-Mark (89/336/EEC)
- Diagnostics menu to assist maintenance and installation

METHOD OF OPERATION

Sample water is taken from the process water flow and fed to the combined pH measuring and reference electrode through a sample water pipe. This electrode is either housed in a flow-through fitting or directly in the top of the **DEPOLOX® 4** measuring cell.

The combined electrode delivers a voltage signal equivalent to the measured value, to the **MFA** module via a coaxial cable.

The **MFA** module is used to display and process measurement data in order to perform functions such as limit value monitoring and PI control.

Optionally, the **MFA** module can display the temperature compensated pH measurement. This requires the connection of a temperature sensor. Pt100 and NTC or AD592 sensors can be connected as required.

The **MFA** module can be used to implement 2 or 3 point control. This makes it possible to balance controlled systems where there is plant-inherent deviation from the setpoint in both directions. The pH value can be increased or reduced. For safety reasons, inhibits ensure that both pumps cannot operate simultaneously.

The following devices can be driven as required:

- Actuators
- Metering pumps
- Solenoid metering pumps
- Continuous-action actuators

Up to four limit values can be monitored. Limit contact settings and all other operating procedures are straightforward thanks to user-friendly menu prompting.

The **MFA** module has an integral RS485 interface that supports data exchange with programmable-controller systems or control rooms. In addition, the special interface module **MF485** allows direct output to a printer as line graphics.

APPLICATIONS

Almost all water treatment processes involve pH value measurements and control functions. The pH value yields important evidence of the characteristics of the water or allows the characteristics of the water to be exploited for process purposes. For instance, the flocculation of swimming pool water demands a specific pH value range depending on the flocculant used.

In many processes it is possible to determine the direction in which the pH value is drifting. It is then possible to make a controlled correction using CO₂, or alkaline or basic agents.

Using the **MFA** module, there is also the possibility of driving two separate actuators (usually metering pumps) in order to adjust the pH value upwards or downwards as necessary.

The pH value is also very important when water is disinfected with chlorine. At pH values ≥ 7.5 hypochlorous acid (HClO) changes to the far less effective hypochlorite ion (ClO⁻). It is therefore extremely important to control the pH value to achieve effective disinfection.

US WALLACE & TIERNAN

a U.S. Filter Company

Wallace & Tiernan GmbH
Postfach 1563, D-89305 Günzburg, GERMANY
Street address: Auf der Weide 10,
D-89312 Günzburg, GERMANY
Tel.: (49) 8221-9040, Fax: (49) 8221-904203

TECHNICAL INFORMATION



MFA Housing with MFA-Cl₂, MFA-pH, MFA-Redox Analysers and MF485 Interface Module



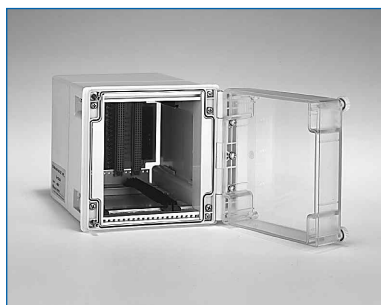
Triple Wall-Mounted Housing

Dimensions (W x H x D): 360 x 266 x 235 mm
 Weight: 2.8 kg
 Type of protection: IP 66



Triple Housing for Panel-Mounting

Dimensions (W x H x D): 288 x 144 x 195 mm
 Weight: 1.7 kg
 Type of protection: IP 41 (IP 65 with cover)



Single Housing for Panel-Mounting

Dimensions (W x H x D): 144 x 144 x 195 mm
 Weight: 1.2 kg
 Type of protection: IP 41 (IP 65 with cover)

MFA module for continuous pH value measurement to be connected to a combined glass electrode with Ag/AgCl/Cl⁻-reference system in 3 mol KCl gel electrolyte, equipped with up to four limit contacts and an input for an enabling signal as standard; also available with PI controller and/or temperature compensation (optionally).

Measuring Range:

User-adjustable, limits: pH 0 to pH 14,
 factory setting: pH 4 to 9
 Display flashes if measuring range is exceeded or undershot.

Measurement Input:

For pH electrodes according to DIN 19263
 Zero adjustment U is pH 7.0, max. ± 100 mV
 Slope adjustment ΔU/pH: 56 mV ± 10 mV/pH
 Isolated, up to 100 V relative to earth

Optional Temperature Input:

For temperature compensated measurement
 Pt100 and NTC or AD592 sensors
 -10 °C to 55 °C
 Isolated, up to 100 V relative to earth

Switching Input:

(e.g. for external enabling)
 Selectable input 24 V, 115 V, 230 V AC or DC
 Isolated, up to 500 V relative to earth

Analogue Output (0/4 to 20 mA):

Output load ≤ 600 Ω, accuracy ± 0.1% FS
 Isolated, up to 500 V relative to earth

Switching Outputs:

For up to four limit contacts or actuator drive circuit (positioner metering pumps)
 max. 1250 VA to 250 V AC
 max. 150 W to 220 V DC

Interface:

RS485, asynchronous, complying with EIA RS485,
 DIN 66259 Pt 4 and ISO 8482, 19200 baud,
 non-isolated

Mains Voltage:

115/230 V ± 10%, 50/60 Hz, 14 VA
 24 V DC according EN 61131-2

Module Dimensions (W x H x D):

76 x 129 x 175 mm (including contact strip)
 Weight (Including Packaging): 1.8 kg

US WALLACE & TIERNAN

a U.S. Filter Company

Wallace & Tiernan GmbH
 Postfach 1563, D-89305 Günzburg, GERMANY
 Street address: Auf der Weide 10,
 D-89312 Günzburg, GERMANY
 Tel.: (49) 8221-9040, Fax: (49) 8221-904203