

MEASURING INSTRUMENTS

CatControl *edi*

Cation exchanger module

Cation exchange by modified electro-deionisation for the measurement of acid and degassed acid conductivity

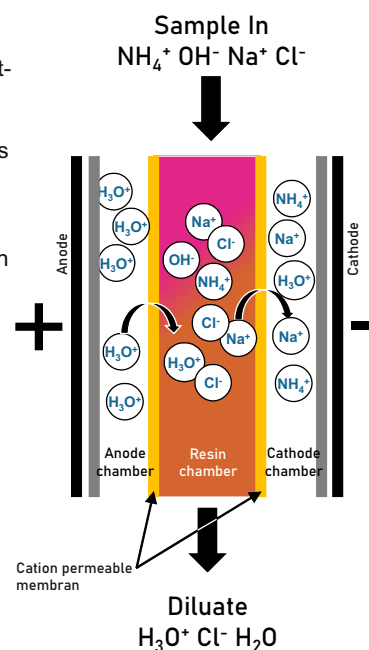
Electro-deionisation has been used as a modern technology for water treatment for several years. In the CatControl *edi*, a modified electrodeionisation is used in which only the cations are removed from a sample stream by using special membranes that are only permeable to cations.

With our CatControl *edi*, our customers have the opportunity to upgrade their existing measurement technology for acid and/or degassed acid conductivity to the latest technical standard. The advantage of the EDI technology is the "in-situ" resin regeneration.

The intelligence built into the CatControl *edi* enables easy integration of the module into existing measuring systems for the determination of acid and/or degassed acid conductivity from other manufacturers.



- The electro-deionisation of cations is triggered by an electric field that is created by an applied voltage between the anode and the cathode.
- H_3O^+ ions are generated at the anode by anodic oxidation, OH^- ions are generated at the cathode.
- The H_3O^+ ions migrate to the resin chamber via the cation-permeable membrane and regenerate the resin by displacing cations.
- Cations in the resin chamber, displaced or existing in the sample, migrate to the cathode passing the cation permeable membrane.
- The migration of anions into or out of the resin chamber is blocked by the cation permeable membranes. Combined by H_3O^+ ions, they are measured in the diluate as acid conductivity.
- The resin also acts as a buffer in case of strong changes in the ion concentration of the sample.



CatControl *edi*

TECHNICAL FEATURES

- Easy integration into existing measuring systems and compatibility with third-party measuring devices
- Inbuilt intelligence with flow monitoring, status indication and flow alarm
- Complete pre-assembled module with mounting bracket for ease of installation
- Replaceable electrolysis module
- Low or high conductivity setting for highest accuracy
- Lower operating costs due to elimination of resin regeneration or replacement



TECHNICAL DATA AND ORDER NUMBERS

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Model	CatControl <i>edi</i> cation exchanger module	
Design	EDI with replaceable electrolysis module	
Sample pressure limits	0.5...2.0 barg, sample outlet to atmosphere	
Sample temperature limits	0...45 °C	
Ambient temperature limits	0...45 °C (Storage 0...50 °C)	
Response time	$t_{90} < 240$ seconds @ sample flow of 6 l/h	
Range settings¹⁾	Low or high conductivity	
Conductivity ranges²⁾	Low conductivity	High conductivity
	NH ₃ up to 30 µS/cm	up to 60 µS/cm
	NaOH up to 200 µS/cm	up to 700 µS/cm
Sample flow³⁾	6...9 l/h	4...6 l/h
Electrolysis current	500 mA	1,000 mA
Digital outputs	1x relay contact, max. 2A @30VDC (Catcontrol <i>edi</i> controller)	
Power Supply	86...253 VAC; ≤30 W, 47...65 Hz, 20...36 VDC, ≤30 W	
Certificates	RFI/EMI EN 61326-1 LVD EN 61010-1 	
Enclosure	IP65, NEMA 4	
Weight	6,9 kg	
Dimensions	Standard mounting plate 850 x 200 x 198 mm (H x W x D)	
Compatible conductivity measuring loops⁴⁾	4-wire analyser Con 6m, sensor LS06 4-wire analyser Liquiline CM442, sensor CLS15D 4-wire analyser 1056, sensor 400 series 4-wire analyser Polymetron 9500, sensor 8310	

Footnotes

¹⁾ The range settings are made via a jumper on the controller board of the CatControl *edi* module.

²⁾ Calculated conductivity ranges at a flow rate of 7 l/h for low conductivity and 5 l/h for high conductivity.

³⁾ The sample flow is measured by means of a digital flowmeter.

⁴⁾ Contact us to find out if your conductivity measurement is compatible with the CatControl *edi*.

ORDER NUMBERS

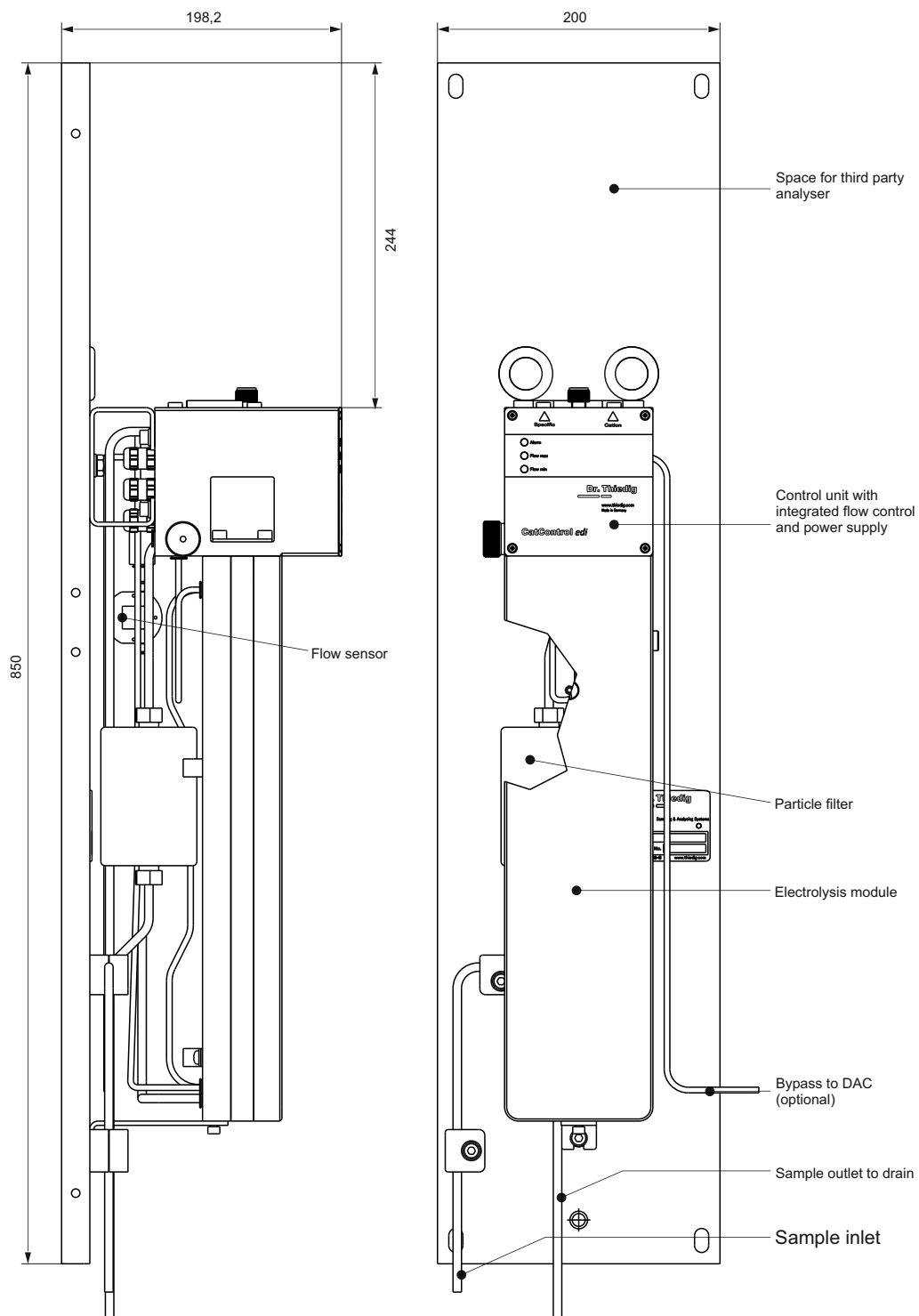
Order no.	Description
10010412	CatControl <i>edi</i> cation exchanger module, 86-253 VAC, 47-65 Hz
10010160	CatControl <i>edi</i> cation exchanger module, 24-36 VDC
10010490	Electrolysis module
10010491	Flowmeter with connection hoses
10010222	Particle filter



DIMENSIONS AND INSTALLATION

MEASURING INSTRUMENTS

CatControl *edi*



CatControl *edi*

Illustration: Dimensions and major components



LEADING TECHNOLOGY OF SAMPLING AND ANALYSING SYSTEMS

ABOUT DR. THIEDIG

Dr. Thiedig GmbH & Co KG (Berlin) is a German mid-sized company with its headquarter in Berlin – Germany's multicultural hotspot. With more than 80 years of experience, Dr. Thiedig is the leading supplier for steam and water analysing systems and analysers. The Thiedig sampling system is the result of many decades of experience. Clients are local and global engineering companies, who specialize in power plants, customers who operate in the oil & gas industry, customers who build and operate desalination plants and many others.

Our full range of products and solutions, the consistent improvement of our products, the outstanding quality, high standards and the engineering service we are offering our customers are the basis of Dr. Thiedig's reputation and success.

Our steam and water analysing systems and analysers have been developed for the monitoring of the specific, acid, and degassed acid conductivity, the pH-value, the oxygen concentration, the Na⁺ and silica concentration in feed water, steam, boiler water, condensate of steam cycles, and many others.

All critical parts of the steam and water analysing system, like analysers and sensors, high pressure inlet and shut off and blow out valves, are manufactured by ourselves in order to guarantee the highest quality and reliable functionality for our customers.

Dr. Thiedig's full range of analysers meet your requirements¹⁾



Digox 602 dac
for specific, acid and
degassed acid
conductivity



Digox optical
for oxygen
up to 2,000 ppb



Digox 6.1 HY-S
for hydrazine
up to 1,000 ppb



Digox 602 silica
for SiO₂-concentration
up to 5,000 ppb



Digox 602 sodium
for Na⁺-concentration
up to 5,000 ppb



Footnote

¹⁾ Selection of analysers from Dr. Thiedig. Contact Dr. Thiedig for more details about sampling systems, sampling components, analysers and solutions.

Dr. Thiedig

Subject to technical alterations.

Sampling & Analysing Systems

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