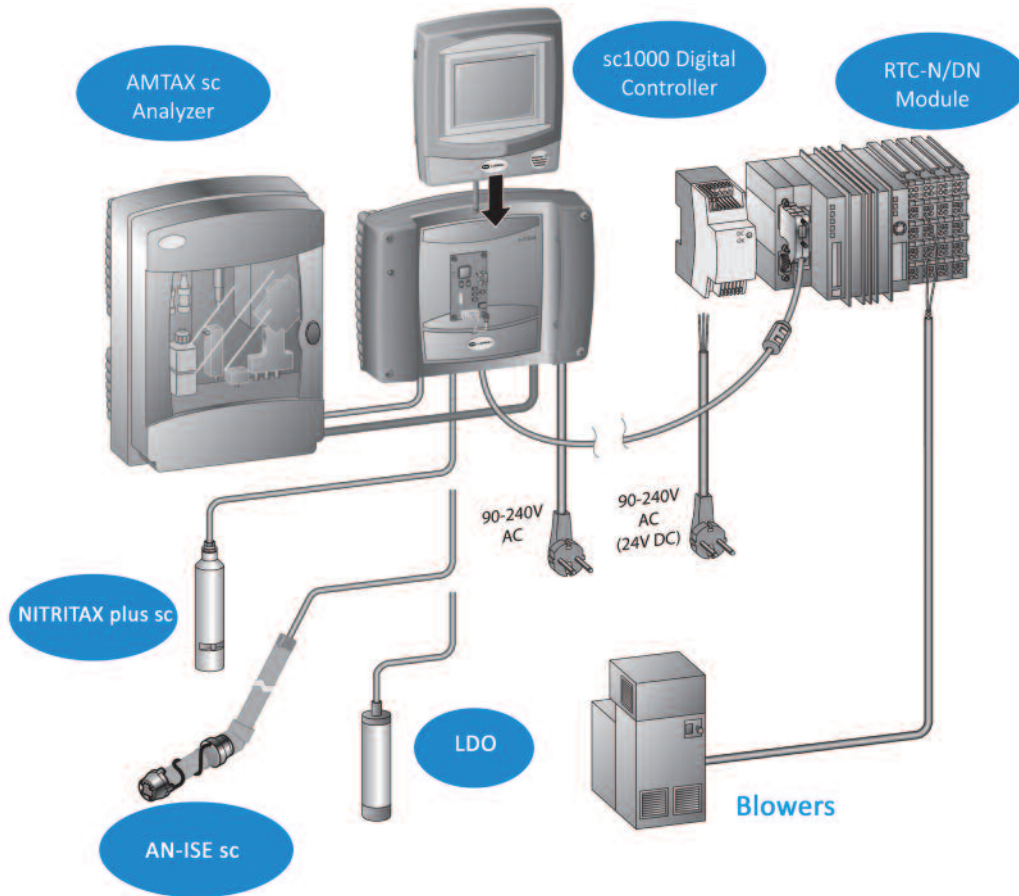


# RTC-N/DN REAL-TIME NITRIFICATION/DENITRIFICATION

- Applications**
- Wastewater
  - Industrial Water



## Nitrification/Denitrification. Under Control.

Hach's off-the-shelf RTC-N/DN System adjusts the processes of nitrification and denitrification in real time, helping you meet ammonia and nitrate control limits while reducing money spent on excessive and unnecessary aeration.

### Stable Nitrogen Discharge Values

Controlling aerobic and anoxic cycles through ammonia and nitrate levels makes your process more consistent. The RTC-N/DN system continually monitors mixed liquor ammonia and nitrate levels and responds automatically to load changes, keeping your facility compliant. Controlling your process has never been so simple.

### Load-dependent Aeration

RTC is a plug-and-play system that is ready to use after a very simple set up. Minimal downtime is needed to install the system and, once installed, Hach will help you program your setpoints so you are fully prepared to monitor and treat your water in real time.

### Reduced Energy Consumption

The RTC-N/DN module is preprogrammed with algorithms that adjust blowers to maintain your desired DO setpoint based on ammonia and nitrate levels. By treating only when needed, you save on energy costs.

### Simple installation

Hach's complete Service package includes routine maintenance visits and warranty repairs. A team of remote technical experts will monitor your system and send you reports so you know your system is working properly. It's like having a Hach Technician at your facility.

## Specifications\*

### AN-ISE sc

<b>Measurement Method</b>	Potentiometric ion-selective electrodes for ammonium, potassium, nitrate and chloride, reference system and temperature sensor
<b>Measuring Ranges</b>	0 to 1,000 mg/L NH <sub>4</sub> -N; 0 to 1,000 mg/L NO <sub>3</sub> -N
<b>Response Time</b>	< 3 min
<b>Sample Temperature</b>	35 to 104 °F
<b>Material Cartridge</b>	Stainless steel (1.4571), PVC, POM, ABS, NBR
<b>Dimensions</b>	(D x L) 3.33 in x 12.6 in
<b>Weight</b>	5.3 lbs

### LDO2

<b>Measuring Range</b>	0 - 20.00 ppm / 0 - 20.0 mg/L/ 0 - 200% saturation
<b>Accuracy</b>	±0.1 ppm Below 5 ppm / ±0.2 ppm Above 5 ppm
<b>Response Time at 20°C</b>	To 95% in less than 60 seconds / To 90% in less than 40 seconds
<b>Resolution</b>	0.01 ppm (mg/L) / 0.1% saturation
<b>Repeatability</b>	±0.1 ppm (mg/L)
<b>Dimensions (D x L)</b>	1.95 in x 10.05 in (49.53 mm x 255.27 mm)
<b>Weight</b>	2.2 lbs. (1 kg)

### sc1000™

<b>Power Requirements</b>	100 to 230 Vac, 50/60 Hz Power: 75 W Optional: 24 Vdc
<b>Relays</b>	Up to four SPDT, user-configurable contacts rated 100 to 230 Vac, 5 Amp resistive maximum, per probe module. Additional relays are available with additional probe modules.
<b>Inputs</b>	Up to 12 analog 0-20 mA, maximum impedance 500 Ohms per probe module.
<b>Outputs</b>	Up to 12 analog 0/4-20 mA, maximum impedance 500 Ohms per probe module.
<b>Control</b>	PID, high/low phasing, setpoint, deadband, overfeed timer, off delay, and on delay
<b>Alarms</b>	Low alarm point, low alarm point deadband, high alarm point, high alarm point deadband, off delay, and on delay
<b>Mounting Configurations</b>	Surface, panel, and pipe (horizontal and vertical)
<b>Dimensions</b>	Probe module with attached display module: 315 x 250 x 142 mm (12.4 x 9.8 x 5.6 in.)
<b>Weight</b>	Approximately 6.5 kg (14.3 lbs.) depending on configuration
<b>Certifications</b>	North American Certifications: cTUVus to UL 61010A-1 and CSA C22.2 No. 1010.1 FCC ID QIPMC56 / IC ID 267W-MC56

### RTC105-N/DN Module

<b>Processor</b>	Pentium®†, MMX compatible, 500 MHz clock rate
<b>Analog Input</b>	4–20 mA
<b>Analog Output</b>	4–20 mA
<b>Dimensions</b>	6.5 in. x 4.72 in. x 3.78 in.
<b>Weight (approximate)</b>	0.9 kg

\*Subject to change without notice.

†Pentium is a registered trademark of the Intel Corporation.

## Principle of Operation

For the RTC105-N/DN Module, nitrification and denitrification times are determined according to the current ammonium-nitrogen ( $\text{NH}_4\text{-N}$ ) and nitrate nitrogen ( $\text{NO}_3\text{-N}$ ) concentration. The controller assesses absolute measured values as well as the increase and reduction speed of the measurement values. The optional oxygen controller enables the aeration output to be adjusted to the respective requirements during the aeration phases.

Operation is guaranteed even if all measurements fail. A time frame with adjustable minimum and maximum nitrification and denitrification times is defined. This time frame has fixed limits for the RTC module; these fixed limits are not fallen below or exceeded. In addition, the time frame has priority above all other settings.

The controllers are designed as proportional-differential controllers (PD controllers). They enable assessment of absolute deviation of the measured values from their selectable target values and the assessment of their change over time.

## Ordering Information

<b>NDNRTCSBR</b>	RTC105-N/DN Real-Time Nitrification and Denitrification Control Module (for SBR)
<b>NDNRTC1C</b>	RTC105-N/DN Real-Time Nitrification and Denitrification Control Module (for Intermittent Control)

## Accessories

<b>LZY694</b>	Cartrical sensor cartridge for AN-ISE sc
<b>6860000</b>	High Output Airblast Cleaning System, 115 V
<b>LZY489</b>	sc1000 bus cable-fix/outdoor (per ft)
<b>9021100</b>	Replacement sensor cap kit for LDO Model 2 Sensor

## Service Plan

<b>FSPNDN-ISE-RTC</b>	Field Service Partnership for N/DN Control System Covers the N/DN Module, AN-ISE sc, LDO2, and sc1000  Includes instrument support that covers all parts, labor and travel for on-site repairs, factory recommended calibrations and maintenance (including required parts). Reagents are not included.
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