**PLEASE NOTE: The following specification contains areas, highlighted with the [ ] symbol. In these areas, the engineer has to make a selection, add specific, project related information and has to delete what is not applicable for the specific project.**

# Universal Multi-Parameter Controller with predictive diagnostics capability

Modular single or dual channel controller that works with analog sensor modules and/or digital sensors to provide connectivity for over 17 water quality monitoring parameters. Digital sensors give plug-and-play connection capability. Controller is available with either AC power (100-240 V AC, 50/60 Hz) or 24 V DC power. User interface menus available in 26 languages. Two (2) powered relays with seven options for programming control. Enclosure is IP66/NEMA 4x rated and can be mounted in a Class 1 Division 2 environment. Option of up to five (5) 0/4-20 mA outputs with programming ability of alarms and seven separate options for programming control. Can be configured with Modbus, Profibus, Profinet, or EtherNet/IP digital communications. Controller is equipped with ability to provide on-screen error and warning messages.

It includes capability to actively monitor all internal components and present diagnostics on the overall health of all connected sensors and time to next required maintenance, reducing user risk. The controller includes capability to provide real-time alerts when sensor issues occur with built-in workflows with step-by-step guidance to perform calibration and maintenance tasks, reducing user risk. It includes connection to laboratory spectrophotometers for adjustment of nitrate and ammonia online sensor values without the need to remove sensor from the system. Includes options for cellular network coverage, WIFI or a LAN connection. Provides capability to view all connected plant measurements, alerts, calibration, and maintenance status in real time on any internet browser capable device. The controller is also able to host a single RTC module where all configuration, menus and outputs are configured through the user interface

# Technical Data

**Description** Microprocessor-controlled and menu-driven controller that operates the sensor and RTC module

**Dimensions** ½ DIN - 144 x 144 x 192 mm (5.7 x 5.7 x 7.6 in.)

**Weight** 1.7 kg (controller only, w/o modules)

**Display** 3.5-inch TFT colour display with capacitive touchpad

# Enclosure waterproof rating

**Operating temperature range**

UL50E type 4X, IEC/EN 60529–IP 66, NEMA 250 type 4X

Metal enclosure with a corrosion-resistant finish

-20 to 60 °C (-4 to 140 °F) (8 W (AC)/9 W (DC) sensor load)

-20 to 45 °C (-4 to 113 °F) (28 W (AC)/20 W (DC) sensor load)

Linear derating between 45 and 60 °C (-1.33 W/°C)

**Storage conditions** -20 to 70 °C, 0 - 95% relative humidity, non-condensing

**Altitude** 2000 m maximum **Installation category** Category II **Pollution degree** 4

**Protection class** I, connected to protective earth

**Power requirements** AC controller: 100-240 VAC ±10%, 50/60 Hz; 1 A (28 W sensor load) DC controller: 24 VDC +15% -20%; 2.5 A (20 W sensor load)

**Measurements** Two device digital SC connectors

**Relays** Two relays (SPDT);

Wire gauge: 0.75 to 1.5 mm² (18 to 16 AWG)

AC controller

Maximum switching voltage: 100 - 240 VAC

Maximum switching current: 5 A Resistive/1 A Pilot Duty Maximum switching power: 1200 VA Resistive/360 VA Pilot Duty

DC controller

Maximum switching voltage: 30 VAC or 42 VDC Maximum switching current: 4 A Resistive/1 A Pilot Duty

Maximum switching power: 125 W Resistive/28 W Pilot Duty

# Communication (optional)

Analog:

Five 0-20 mA or 4-20 mA analog outputs on each analog output module

Up to two analog Input modules (0-20 mA or 4-20 mA). Each input module replaces a digital sensor input.

Digital:

Profibus DPV1 module

Modbus TCP Profinet IO module Ethernet IP module

**Network connectivity** LAN: Two Ethernet connectors (10/100 Mbps) Cellular: External 4G

Wi-Fi - External

**USB Port** Used for data download and software upload. The controller records approximately 20,000 data points for each connected sensor.

# Compliance

**certifications**

# Compatible network technologies

CE. ETL certified to UL and CSA safety standards (with all sensor types), FCC, ISED, KC,

RCM, EAC, UKCA, SABS, C (Morocco)

GSM 3G/4G (e.g. AT&T, T-Mobile, Rogers, Vodafone etc.) CDMA (e.g. Verizon)

# Scope of delivery

[ ] (delete what is not needed) [ ] Analytical instrument

Accessories

[ ] mA Input Module

[ ] mA Output Module (5 Outputs) [ ] Ethernet IP Upgrade Kit

[ ] Modbus TCP/IP Upgrade Kit [ ] Prognosys Upgrade Kit

[ ] Ethernet Cable M12 to M12 / C1D2, 10 m [ ] Memory-Stick (USB)

[ ] UV Protection Screen

[ ] UV Protection Screen with Sunroof [ ] Sunroof Visor

[ ] Mounting Hardware Sunroof with Visor [ ] Sunroof with Visor

Mounting Style [ ] Wall

[ ] Pole

[ ] Panel

Services

[ ] Contractor will include manufacturer’s services to perform commissioning of the system to include device provisioning to communicate via local protocols and initiate initial product configuration. Contractor will include the manufacturer’s services to perform start-up on instrument to include basic operational training and certification of performance of the instrument.

[ ] Manufacturer’s Service Agreement that covers all the manufacturer’s recommended preventative maintenance, regularly scheduled calibration and any necessary repairs beginning from the time of equipment startup through to end user acceptance / plant turnover and the first 12 months of end-user operation post turnover.

**Brand:** Hach

**Product:** SC4500 Universal Multi-Parameter Controller with predictive diagnostics capability