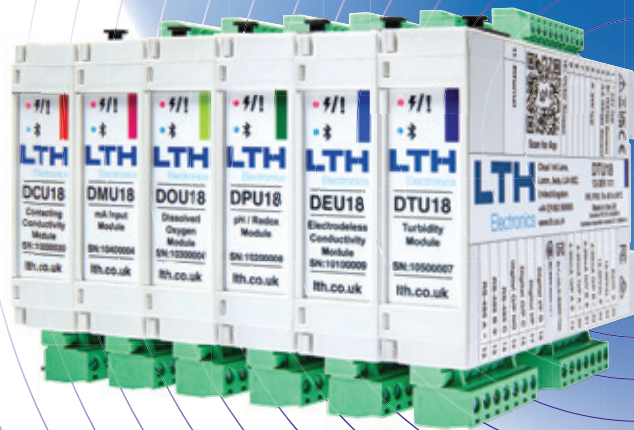


# DXU18 Series

Analytical instrumentation for your measurement applications.



Supported by the LTH Discover app.





# EXCEEDING EXPECTATIONS IN LIQUID ANALYSIS AND PROJECT MANAGEMENT.

We've been delivering intelligent measurement solutions for process applications since 1967. With over 55 years of experience in liquid measurement and control we provide instrumentation and sensors for accurate and reliable process control and measurement.



At LTH Electronics, we offer a range of contacting and electrodeless (inductive) conductivity, pH, redox (ORP), dissolved oxygen, suspended solids, turbidity, level, flow, pressure and temperature instrumentation and sensors for many industrial applications.

Customer support and service are an integral part of our business development and growth with a range of services to assist customers including planning, installation, commissioning, training, troubleshooting, maintenance and calibration to traceable standards all part of the comprehensive package we can offer.

With more than 55 years of experience, innovative thinking and continuous investment in research and development we strive to offer the best service and solutions to meet customers demanding applications and solve their process problems.

We're proud to be an ISO 9001 registered company offering a 3-year warranty on all of our instrumentation.

We market, distribute and support our products globally through a network of trained distributors ensuring our customers have competent experienced specialists serving and supporting them.

**If you've got a liquid process application problem we can help. Contact us today**



Supported by the LTH Discover app.

# WHAT WE MEASURE

# BESTOBELL AQUATRONIX

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LTH Electronics are specialists in liquid measurement and process control whether you want to reduce water consumption, monitor water quality or minimize the effect of waste on the environment.



## Contacting conductivity

Conductivity can be used to measure the quality of water that has undergone a purification process.

We provide contacting conductivity instrumentation and sensors for pure water applications in the pharmaceutical and semiconductor industries, ion exchange and reverse osmosis plants, boiler feed water and waste water applications.

## Electrodeless conductivity (inductive)

We manufacture electrodeless conductivity sensors for harsh process applications in the dairy, brewery, food, chemical and metal finishing industries.

These sensors operate with virtually zero maintenance and provide accurate and reliable measurements over extended time periods in processes where sensors may suffer from electrode coating.

## pH and Redox (ORP)

pH is a frequently used measurement in process control as many chemical reactions rely upon the pH of a process being maintained at the correct value.

Redox measurement is used in cooling tower, swimming pools and industrial applications to control the addition of reagents and treat toxic chemicals.

## Dissolved Oxygen

Dissolved oxygen measurement can be used to indicate the condition of a river or to control an aeration process in a sewage works or wastewater plant.

Dissolved oxygen measurement is also used in fish farming, biotechnology, wine and beer production where the measurement and control of oxygen is required to maintain a quality product.

## Suspended solids/turbidity

Our instrumentation, combined with a Quadbeam™ sensor, provides accurate and reliable measurement of suspended solids and turbidity.

Applications include industrial and municipal water and waste water treatment plants, mining and refining operations, pulp and paper, brewing and dairy factories to detect product loss, reduce waste and prevent pollution.

## Level measurement

We supply level measurement instruments for tank gauging control, level or distance indication and level detection of liquids and aggressive chemicals, sludge and slurries and granular solids and powders.

We also supply ultrasonic, capacitance, vibration, hydrostatic, conductive, guided wave and radar level instrumentation and sensors for industrial process applications.

## Flow measurement

Flow is an important and frequently used measurement of chemicals, water and waste water in industrial plants and processes.

We offer Ultrasonic for open channel flow measurement in flumes or weirs, electromagnetic for conductive liquids in pipes, non-intrusive time transit and paddle wheel flow meters for in pipe measurement.

## Pressure measurement

Flush diaphragm transmitters with a wide range of process connections are available for pressure measurement of fluids in many industries including the beverage, brewing, dairy, food, marine, ship building, paper and pulp, water and waste water industries. The transmitters are also suitable for level measurement of fluids, pastes and sludge's.

## Temperature measurement

Temperature measurement is the most frequent type of instrumentation found in industrial process applications.

We offer a range of fast responding PT100 resistance temperature detectors or RTD sensors for temperature measurement in industrial process applications.

Many different process connections are available, threaded, flanged or sanitary.

## Ancillary products

In addition to our portfolio of standard products we offer a number of ancillary items: custom control panels, chart recorders, data acquisition systems, dosing pumps, chemical tanks, bunds, stirrers, solenoid valves, strainers, water meters, flow switches, brominators, test and calibration solutions and pH and redox electrode cleaning solutions.

Contact our sales department on 905.826.1953 or email [salesdesk@bestobell.com](mailto:salesdesk@bestobell.com)

# INTRODUCING THE DXU18



The DXU18 is a microprocessor-controlled DIN-Rail mounted module range designed to provide a compact individual measurement solution for a wide range of parameters including:

- contacting conductivity
- electrodeless (inductive) conductivity
- pH/redox (ORP)
- dissolved oxygen
- turbidity / suspended solids
- 4-20mA input (slave)



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The LTH Discover app, available on both IOS and Android smart phones provides full interrogation of the modules via Bluetooth. This provides the user with full access to the live measurements, full module configuration, online guides as well as and importantly sensor calibration, without the need to touch or connect your PC.

- Individual DIN-Rail mounted analytical modules
- Compact enclosure design
- 12-30vDC power requirements
- 2 off isolated 4-20mA user configurable outputs
- Individual digital input and output for off-line and error status
- Extensive error system that constantly monitors the module condition
- Optional Modbus RS485 / Ethernet TCP/IP communication
- Save, restore and transfer configuration to other modules
- Bluetooth connectivity
- LTH Discover app offers the user full configuration & calibration capabilities
- Connect – Configure – Measure

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# DXU18 SERIES



The LTH range of DXU18 modules are a 4-wire series of blind DIN-Rail mounting analytical transmitters. Designed to meet the need from system builders and integrators for compact devices that may be incorporated into their own builds.

The space-saving DIN-Rail mounting housing is compatible with 35mm DIN rail (IEC 60715). Front mounted LEDs confirm Bluetooth and operation status.

Each module features two industry standard, isolated, 0/4-20mA current outputs that features adjustable scaling, selectable on-error states and loop fault detection. Either allows the module to transmit the primary reading or observed process temperature to the process control system or a PLC.

Additionally, the module features an optional Modbus interface via either RTU or ASCII over RS-485, or TCP/IP over Ethernet. Using the interface, the modules measurements can be read, status checked, configurations changed, and calibrations performed.

Also present are a single digital input and a single digital output. The digital input features a dry contact input which allows the module to be remotely set to either an offline state that forces the current outputs to a pre-defined state, or to change the whole configuration of the module by switching the setup to a preconfigured state. The digital output consists of a volt free, single pole, single throw normally open relay, which can be used to indicate the module alarm status.

To achieve this all within in a small foot print the module features no display. Instead, a separate mobile LTH Discover app may be downloaded from all major app stores.

This is used to connect to the module via Bluetooth and display the primary reading and temperature, show operational status and to provide an intuitive means to configure and calibrate the module.

If multiple modules are within range the LTH Discover app can display the measurement readings and operation status of all of them within the app's discovery screen.



## DXU18 Series Specification

<b>Digital Input</b>	Dry contact input for remote activation of user defined operations. Can be configured to operate in either normally open or normally closed modes.
<b>Current Outputs</b>	Two current outputs as standard, selectable 0-20mA or 4- 20mA into 750 ohms max, the pair of outputs are fully isolated to 2kV from the rest of the module. Expandable to 100% of any operating range and offset anywhere in that range.
<b>Current Outputs Adjustment</b>	3-point 0/4-20 mA for remote monitor calibration.
<b>Digital Output</b>	Volt free, single pole, single throw, normally open, 24v AC/DC max, 750mA max.
<b>Digital Output Mode</b>	Module alarm status.  Cleaning to operate a jet spray wash or rotary electrode cleaning system on a timed cycle. Adjustable duration, interval and recovery.
<b>Modbus</b>	If optioned, module features Modbus communication over either RS485 or Ethernet. Allowing for remote access to readings, configuration changes and calibration of the module.  Can be specified at time of purchase or activated later using a module specific unlock code.
<b>RS-485 Modbus Interface</b>	RTU and ASCII protocol, 300Bps to 38400Bps baud rate, None-Odd-Even parity bits, 1-2 stop bits.
<b>TCP/IP Over Ethernet Interface</b>	Manual or automatic (via DHCP server support) network configuration. Port link and activity status LEDs.
<b>Bluetooth</b>	Integrated Bluetooth radio. 25 meters max operating range.
<b>Mobile App</b>	Separate LTH Discover app provides an easy to use and intuitive means of commissioning, monitoring and calibrating the module from mobile devices via the Bluetooth interface.  Available to download from major app stores, requires iOS 13.2 and later or Android 6.0 and up.
<b>Radio Equipment Directive</b>	SI 2017 No. 1206 & 2014/53/EU
<b>Power Supply</b>	12-30V DC, 4W max.
<b>Module Housing</b>	PA 6.6-FR (UL 94 V0)
<b>Ingress Protection Rating</b>	IP20.
<b>Ambient Operating Conditions</b>	Temperature -20 to +55°C, Relative Humidity 5 to 95%, non-condensing.
<b>Weight</b>	Maximum 160 grams (module only).
<b>Dimensions</b>	104 x 23 x 111 mm (H, W, D) including connectors.
<b>Mounting</b>	Compatible with 35 x 7.5mm and 35 x 15mm top hat section DIN rail (IEC 60715).

# DCU18 CONTACTING CONDUCTIVITY



## Key features

- Measures conductivity, resistivity, PPM and temperature units
- Transmit both process and temperature values with two 0/4-20mA outputs
- Auto range or fixed single range operation
- Full ultra-pure water (UPW) temperature compensation
- Wide adjustable cell constant
- Customer programmable calibration timer
- LTH Discover app offers the user full configuration and calibration capabilities
- Ideal for water treatment plants, Ultra-pure water and WFI, ion exchange, cooling water and drinking water applications



The DCU18 conductivity input is compatible with LTH contacting conductivity cells, supporting 4 cell constants of  $K = 0.01, 0.1, 1.0,$  and  $10.0$ . It also compatible with conductivity cells from other manufacturers, covering a cell constant range of  $K = 0.005$  to  $15.00$ .

This broad compatibility enables conductivity measurements across a wide spectrum, from ultra-pure water at  $0.055 \mu\text{S}/\text{cm}$  to high solution concentrations of up to  $999.9 \text{ mS}/\text{cm}$ . It includes automatic temperature compensation as a standard feature. With an adjustable linear slope range of  $0-4\%/^{\circ}\text{C}$  accurate temperature compensation can be maintained to accommodate variations from dissolved salts.

Alternatively, temperature compensation can be turned off when unnecessary for specific applications showing the raw conductivity value.

The DCU18 can be configured for either single-range or auto-range measurements.

The user can optimize readings through the LTH Discover app using the sensor solution calibration which enables the user to adjust the sensor reading to match a known standard solution or a titrated solution concentration. An off-line facility allows the module to be adjusted without disturbing external processes.



## DCU18 specification



<b>Measurement Input</b>	Any LTH contacting conductivity cell. Other manufacturer's cells can be accommodated.
<b>Connection Cable</b>	Up to 30 meters LTH 54D.
<b>Ranges of Measurement</b>	0-9.999 $\mu\text{S/cm}$ to 0-999.9 $\text{mS/cm}$ ( $K= 0.01$ to $10.0$ ). 0-99.99 $\text{k}\Omega/\text{cm}$ to 0-99.99 $\text{M}\Omega/\text{cm}$ ( $K= 0.01$ to $1.0$ ). 0-9.999 ppm to 0-99.99 ppt. (parts per thousand).  See the following range / cell constant table for further information.
<b>Cell Constant Adjustment</b>	Fully adjustable from 0.005 to 15.00.
<b>Range Selection</b>	Internal single or auto range.
<b>Accuracy</b>	$\pm 0.5\%$ of range.
<b>Linearity</b>	$\pm 0.1\%$ of range.
<b>Repeatability</b>	$\pm 0.1\%$ of range.
<b>Ambient Temperature Variation</b>	$\pm 0.05\%$ of range / $^{\circ}\text{C}$ (typical)
<b>Operator Adjustment</b>	Anywhere within current measurement range.
<b>Sensor Input Filter</b>	Adjustable filter that averages the sensor input over a user selectable time (10sec – 5mins).
<b>Temperature Sensor</b>	Pt100 / Pt1000 RTD input. Up to 30 meters of cable. Temperature sensor can be mounted in the sensor or separately.
<b>Range of Temperature Measurement</b>	-20 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$ (-4 $^{\circ}\text{F}$ to +302 $^{\circ}\text{F}$ ) for full specification.
<b>Temperature Accuracy</b>	$\pm 0.2^{\circ}\text{C}$ (When using 4 wire PT1000)
<b>Operator Adjustment (Temperature)</b>	Anywhere within range of temperature measurement.
<b>Range of Temperature Compensation</b>	-20 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$ (-4 $^{\circ}\text{F}$ to +302 $^{\circ}\text{F}$ )
<b>Temperature Compensation Type</b>	Automatic or manual, with fixed UPW curve plus variable slope 0-9.99 $\%/^{\circ}\text{C}$
<b>Temperature Compensation Base</b>	-20 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$ (-4 $^{\circ}\text{F}$ to +302 $^{\circ}\text{F}$ )
<b>Off-Line Facility</b>	The current outputs are held at a user defined level.

# RANGE & SENSOR COMPATIBILITY



Conductivity range	Nominal cell constant			
	0.010	0.100	1.000	10.00
0 to 9.999 $\mu\text{S/cm}$	✓	✓	x	x
0 to 99.99 $\mu\text{S/cm}$	✓	✓	✓	x
0 to 999.9 $\mu\text{S/cm}$	x	✓	✓	✓
0 to 9999 $\mu\text{S/cm}$	x	x	Note 1	Note 1
0 to 9.999 $\text{mS/cm}$	x	x	✓	✓
0 to 99.99 $\text{mS/cm}$	x	x	Note 2	✓
0 to 999.9 $\text{mS/cm}$	x	x	x	Note 2

Note 1: 0 to 9999  $\mu\text{S/cm}$  range only available as a fixed range option.

Note 2: Maximum measurement range will be limited by solution temperature. With the temperature compensation slope set to 2%/°C derate linearly from full scale at 25°C to 50% of scale at 100°C.

Total Dissolved Solids in ppm =  $\mu\text{S/cm} \times F$ , where F = TDS Factor (0.50 - 0.90).



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Resistivity range	Nominal cell constant			
	0.010	0.100	1.000	10.00
0 to 99.99 kΩ-cm	x	√	√	x
0 to 999.9 kΩ-cm	√	√	x	x
0 to 9.999 MΩ-cm	√	√	x	x
0 to 99.99 MΩ-cm	√	x	x	x

Total dissolved solids range	Nominal cell constant			
	0.010	0.100	1.000	10.00
0 to 9.999 ppm	√	√	x	x
0 to 99.99 ppm	√	√	√	x
0 to 999.9 ppm	x	√	√	√
0 to 9999 ppm	x	x	√	√
0 to 99.99 ppt	x	x	√	√

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# DEU18 ELECTRODE LESS (INDUCTIVE) CONDUCTIVITY



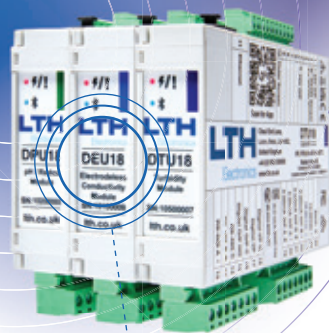
## Key features

- Measures conductivity, % solution concentration, TDS (ppm), and temperature
- Preset curves stored for common chemicals and salinity
- Two user defined concentration curves with up to 9 data points & adjustable temperature slope
- Auto range or fixed single range operation
- Automatic temperature compensation with adjustable linear slope
- LTH Discover app offers the user full configuration and calibration capabilities
- Ideal for clean in place (CIP), rinse water and solution concentration monitoring applications

The DEU18 covers a wide range of conductivity measurements, from water (150  $\mu\text{S}/\text{cm}$ ) to solution concentrations (up to 999.9  $\text{mS}/\text{cm}$ ). It offers flexible measurement options for readings, either in conductivity or % concentration, by programming a custom curve.

The module supports both single-range and auto-range measurement modes and is compatible with any LTH Electrodeless (Inductive) conductivity sensors.

Preset curves are stored in the module for common acids, alkalis or salinity and there is also the facility to program two independent custom curves all using the LTH Discover app. The module can be set for single range, auto range or remote ranging via an external switch, allowing automatic selection between different chemicals.



The digital input can be used to trigger one of the following functions: off-line, range change, switch Set Up, interlock, flow switch input, tank Level switch.

It features two isolated 0/4–20mA current outputs, which include adjustable scaling, on-error state selection, and loop fault detection. These outputs enable remote monitoring of the primary reading and process temperature.

The user can optimize readings through the LTH Discover app using the sensor solution calibration which enables the user to adjust the sensor reading to match a known standard solution or a titrated solution concentration. An off-line facility allows the module to be adjusted without disturbing external processes.



## DEU18 specifications

<b>Measurement input</b>	ECS20 or ECS40 series electrodeless (inductive) conductivity sensor.
<b>Connection cable</b>	Up to 30 metres LTH 54E / 54H cable.
<b>Measurement ranges</b>	0-999.9 $\mu$ S/cm, 0-9.999mS/cm, 0-99.99ms/cm, 999.9mS/cm. 0-999.9 ppm, 0-9999 ppm, 0-99.99 ppt (parts per thousand). 0 to 16.00% NaOH – Sodium Hydroxide 0 to 30.00% NaCl – Sodium Chloride 0 to 15.00% HCl – Hydrochloric Acid 0 to 25.00% H <sub>2</sub> SO <sub>4</sub> – Sulphuric Acid 0 to 25.00% H <sub>3</sub> PO <sub>4</sub> – Phosphoric Acid 0 to 24.00% HNO <sub>3</sub> – Nitric Acid 0 to 41.00 ppt Salinity Two Custom Solution Curves – Defined by a user entered 2 to 9 point curve. User defined scale: 0 to 999.9, 0 to 99.99, 0 to 999.9, and 0 to 9999. User defined units up to 7 characters.
<b>Range Selection</b>	Internal single or auto range.
<b>Accuracy</b>	± 1% of range.
<b>Linearity</b>	± 0.1% of range.
<b>Repeatability</b>	± 0.1% of range.
<b>Ambient Temperature Variation</b>	±0.05% of range / °C (typical)
<b>Operator Adjustment</b>	Anywhere within current measurement range.
<b>Sensor Input Filter</b>	Adjustable filter that averages the sensor input over a user selectable time (10sec – 5mins).
<b>Temperature Sensor</b>	Pt1000 RTD input. Up to 30 meters of cable. Temperature sensor can be mounted in the sensor or separately.
<b>Range of Temperature Measurement</b>	-20 °C to +150 °C (-4 °F to +302 °F) for full specification.
<b>Temperature Accuracy</b>	± 0.2 °C (When using 4 wire PT1000)
<b>Operator Adjustment (Temperature)</b>	Anywhere within range of temperature measurement.
<b>Range of Temperature Compensation</b>	-20 °C to +150 °C (-4 °F to +302 °F)
<b>Temperature Compensation Type</b>	Automatic or manual, with variable slope 0-9.99 %/°C
<b>Temperature Compensation Base</b>	-20 °C to +150 °C (-4 °F to +302 °F)
<b>Off-Line Facility</b>	The current outputs are held at a user defined level.





# DPU18 PH\_ REDOX (ORP)

## Key features

- Accepts either combination pH or Redox (ORP) electrodes
- Differential Input for excellent noise rejection
- Manual, automatic and auto detection calibration routines
- Digital output provides timed cleaning sequence
- LTH Discover app offers the user full configuration and calibration capabilities
- Ideal for Water and wastewater treatment, industrial and chemical processing, food and beverage as well as pharmaceuticals applications

This versatile module accommodates both pH and redox (ORP) inputs, with options for single-ended or differential input configurations, making it suitable for most pH and ORP applications. Its temperature compensation supports Pt100, Pt1000 & 3K Balco sensors, ensuring compatibility with a wide range of pH electrode systems. Alternatively, a manual temperature can be entered, if required.

One or two point electrode calibration may be performed through the LTH Discover app using either the manual or auto calibration feature alternatively auto buffer detection is also available. The DPU18 can analyse the result of the pH electrode offset and slope calibration and indicate to the user the condition the electrode is in. The calibration history page shows a log of the electrode calibration. Including time and date, calibration method and results.



It features two isolated 0/4–20mA current outputs, which include adjustable scaling, on-error state selection, and loop fault detection. These outputs enable remote monitoring of the primary reading and process temperature.

A single contact input will allow remote operation from the PLC or HMI, either setting the module to an offline state forcing any 4-20mA outputs to go to the value stated in their “Offline Mode” menu, or switching its configuration to a pre-set state.

The DPU18 is equipped with a digital output relay, which can be used to activate external electrode cleaning equipment or to indicate the module alarm status.

For the automated electrode cleaning, the module's relay can be programmed as a cleaning initiator, with customizable cleaning duration, recovery time, and interval periods. During these cycles, the module goes offline, holding current outputs and disabling control relays.

The digital output can be configured to operate a jet spray wash or air solenoid electrode cleaning system on a timed cycle. Its purpose is to prevent accumulation of particulate matter on the active surfaces of the electrode. Note when cleaning is active the input will be taken offline, this will prevent any undesired control actions resulting from spraying cleaning solution onto the electrode.



## pH / Redox (ORP) Input specifications

### Measurement input

Single ended or differential with solution ground.

#### pH

Separate glass and reference electrode pair.  
Combination electrode.

#### Redox (ORP)

Separate glass and reference electrode pair.  
Combination electrode.

Other manufacturer's sensors can be accommodated.



### Connection cable

Up to 30 meters (no preamp required).  
LTH type 54E or LN10 cable.

### Measurement ranges

0.00 to 14.00 pH.  
-1999mV to +1999mV.

### Accuracy

± 0.05 pH.  
± 3mV.

### Linearity

± 0.1% of range.

### Repeatability

± 0.1% of range.

### Ambient Temperature Variation

±0.05% of range / °C (typical)

### Operator Adjustment

Anywhere within current measurement range.

### Calibration Methods

Automatic two-point 4pH, 7pH or 9pH buffer calibration with multiple industry standard buffers supported. Alternatively, 13-point custom buffers can be directly entered into module.

Manual Slope and Offset Adjustment.

Both methods feature post-calibration electrode condition indication.

### Calibration Timer

Inbuilt calibration countdown timer which will trigger an alarm when the set calibration interval has expired.

### Sensor Input Filter

Adjustable filter that averages the sensor input over a user selectable time (10sec – 5mins).

### Temperature Sensor

Pt1000, Pt100 or 3K Balco RTD input. Up to 30 meters of cable. Temperature sensor can be mounted in the sensor or separately.

### Range of Temperature Measurement

-20 °C to +150 °C (-4 °F to +302 °F) for full specification.

### Temperature Accuracy

± 0.2 °C (When using 3 wire PT1000).

### Operator Adjustment (Temperature)

Anywhere within range of temperature measurement.

### Range of Temperature Compensation

-20 °C to +150 °C (-4 °F to +302 °F).

### Temperature Compensation Type

Automatic or manual.

### Off-Line Facility

The current outputs are held at a user defined level.

# DOU18 DISSOLVED OXYGEN



## Key Features

- Measurement of % saturation, mg/l, ppm and temperature
- Optical (LTH FMS22) Fluorescence Dissolved Oxygen sensor supported
- Accepts virtually any manufacturers Polarographic dissolved oxygen sensor
- Manual pressure and salinity compensation
- Adjustable membrane compensation along with bias voltage
- Digital output provides timed cleaning sequence
- LTH Discover app offers the user full configuration and calibration capabilities
- Ideal for wastewater treatment, aquaculture, biotechnology and environmental monitoring

The DOU18 is a sophisticated microprocessor-controlled Din-Rail mounted module for measuring dissolved oxygen. It supports the full range of Broadley James SensorTalk Digital dissolved oxygen Sensors as well as traditional amperometric sensors.

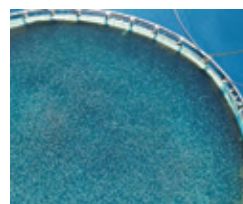
With the added benefit of using the LTH Discover app individual module configurations for the measurement, temperature, and 4-20mA output scaling and general configurations can easily be viewed and changed from the palm of your hand.

Furthermore, the module supports up to two industry standard, isolated 0/4-20mA current outputs with adjustable scaling, selectable on-error states, and loop fault detection. These outputs enable remote monitoring of the primary reading and process temperature.

The DOU18 is equipped with a digital output relay, which can be used to activate external electrode cleaning equipment or to indicate the module alarm status.

The digital output can be configured to operate a jet spray wash or air solenoid sensor cleaning system on a timed cycle. Its purpose is to prevent accumulation of particulate matter on the active surfaces of the electrode. Note when cleaning is active the input will be taken offline, this will prevent any undesired control actions resulting from spraying cleaning solution onto the electrode.

Simple intuitive user calibration is supported through the LTH Discover app providing real time feedback during calibration of the sensor and post calibration history.



## DOU18 specifications



<b>Measurement Input</b>	Amperometric (Polarographic / Clark) – 0 to 500.0nA FMS22 (Optical)
<b>Sensor Bias Voltage</b>	User defined -1.000V to +1.000V, $\pm 1\text{mV}$ Resolution, $\pm 3\text{mV}$ Output Accuracy.
<b>Connection Cable</b>	Up to 30 meters
<b>Ranges of Measurement</b>	0 – 199.9 % Saturation 0 – 30.00 ppm Concentration 0 – 9999 mBar pO <sub>2</sub> (Partial Pressure of Oxygen) (Calibration specific) 0 – 999.9 mmHg (Millimetres of Mercury) (Calibration specific) 0 - 30.00 mg/l Milligrams per Litre Sensor Current (nA) (Amperometric only)
<b>Accuracy</b>	$\pm 1.0\text{nA}$ (Polarographic Mode) $\pm 0.1\%$ of Range (Optical Mode)
<b>Linearity</b>	$\pm 0.1\%$ of range.
<b>Repeatability</b>	$\pm 0.1\%$ of range.
<b>Ambient Temperature Variation</b>	$\pm 0.01\%$ of range / °C (typical)
<b>Calibration Methods</b>	Automatic Zero (offset) and Span (slope) calibration with user entered span calibration.  Automatic loading of stored calibration data from pre-calibrated digital probes.  All methods feature post-calibration sensor condition indication.
<b>Calibration Timer</b>	Inbuilt calibration countdown timer which will trigger an alarm when the set calibration interval has expired.
<b>Sensor Filter – Digital Probes</b>	Three element bubble and signal-noise filter system for creating advanced transient noise mitigation strategies.
<b>Sensor Input Filter – Amperometric Probes</b>	Adjustable filter that averages the sensor input over a user selectable time (10sec – 5mins).
<b>Temperature Sensor</b>	Pt1000 or BJ 22K RTD input. Up to 30 meters of cable. Temperature sensor can be mounted in the sensor or separately.
<b>Range of Temperature Measurement</b>	-20 °C to +150 °C (-4 °F to +302 °F) for full specification.
<b>Temperature Accuracy</b>	$\pm 0.2$ °C (When using 4 wire PT1000)
<b>Operator Adjustment (Temperature)</b>	Anywhere within range of temperature measurement.
<b>Temperature Compensation Type</b>	Either via temperature sensor input or manual entered.
<b>Pressure Compensation</b>	Manually via user entered value.
<b>Salinity Compensation</b>	User Programmable from 0 – 40.0 ppt.
<b>Off-Line Facility</b>	The current outputs are held at a user defined level.

# DTU18 TURBIDITY & SUSPENDED SOLIDS



## Key Features

- Single module for both Turbidity & Suspended Solids measurement sensors
- Compatible with Turbidity TU8325, TU8525 & SS TU8355, TU8555 sensors
- Measurement of NTU, FTU, PPM, g/l, mg/l, µg/l, and %
- Two custom curve locations for user 11- point linearisation with up to 11 data points
- Digital output provides timed cleaning sequence
- LTH Discover app offers the user full configuration and calibration capabilities
- Ideal for wastewater treatment, filtration optimisation, final effluent monitoring

The DTU18 is a digital DIN-Rail module designed for measuring turbidity and suspended solids. Compatible with the two digital turbidity sensors: TU8325 and TU8525, and the two digital suspended solids sensors: TU8355 and TU8555.

It features two isolated 0/4–20mA current outputs, which include adjustable scaling, on-error state selection, and loop fault detection. These outputs enable remote monitoring of the primary reading and process temperature.

The DTU18 is equipped with a digital output relay, which can be used to activate external electrode cleaning equipment or to indicate the module alarm status.

The digital output can be configured to operate a jet spray wash or air solenoid sensor cleaning system on a timed cycle. Its purpose is to prevent accumulation of particulate matter on the active surfaces of the sensor. Note when cleaning is active the input will be taken offline, this will prevent any undesired control actions resulting from spraying cleaning solution onto the sensor.

The sensors have been designed to measure turbidity values according to the nephelometric Method (EN 27027) for use with drinking water, civil and industrial treatment, and water quality monitoring.

The sensors feature a measuring system comprising of an infrared light source, a 90-degree, scattered light detector, a clean lens status detector, and a temperature sensor.

The TU8325 & TU8525 are designed for submersible applications and are provided with an auto clean nozzle for external pressured air ensuring the sensing lenses are clean of any contamination.





## DTU18 specifications

<b>Measurement Input</b>	TU8325 and TU8525, Digital Turbidity Sensors.
	TU8355 and TU8555, Digital Suspended Solids Sensors.
<b>Connection Cable</b>	Up to 30 meters.
<b>Ranges of Measurement</b>	TU8325 and TU8525 0-4.000 NTU 0-40.00 NTU 0-400.0 NTU
	TU8355 and TU8555 0-99.9 FTU 0-999 FTU 0-9999 FTU
<b>Accuracy</b>	<1% of the full scale selected
<b>Operator Adjustment</b>	Zero      TU8325 and TU8525.  ± 0.400 NTU on all scales.
	TU8355 and TU8555.  ±10 FTU on all scales.
	Span 70 – 130 %.
<b>Calibration Methods</b>	Automatic Zero and Span calibration using user entered solution values.
<b>Measurement Faults</b>	The sensor can indicate problems that affect the measurement, such as dirt on the optical windows, lack of contact with liquid and external light too high.
<b>Sensor Input Filter</b>	The sensor has a filter with two selectable response time.  The user can separately set the response time relative to signals of small or large variation to obtain good reading stability and fast response to the variations of the measurement in the process.
<b>Conversion (TU8355 and TU8555 only)</b>	Conversion between the raw suspended solids reading and scaled value. Uses either the sensors built in Total Suspended Solids (TSS) system, which uses a TSS/FTU factor to produce an equivalent reading, or the module's user set 11 point solution curve.
<b>TSS Factor</b>	User adjustable range 0-9.999.
<b>Units</b>	User selectable User selectable %, ppt, ppm, ppb, g/l, mg/l, µg/l.
<b>Temperature Sensor</b>	RTD Pt100 (built-in to sensor)
<b>Range of Temperature Measurement</b>	0-50.0 °C
<b>Temperature Compensation Coefficient</b>	Internal table applied to the measurement by the sensor.
<b>Off-Line Facility</b>	The current outputs are held at a user defined level.



# DMU18 mA/ \_INPUT SLAVE



## Key Features

- Accepts a 0/4-20mA Industry standard signal
- Can be connected to loop powered or self-powered transmitters
- User scalable over four different measurement ranges
- Custom units up to a maximum of five alpha numeric characters can be selected
- LTH Discover app offers the user full configuration and calibration capabilities

The DMU18 is a versatile, microprocessor-controlled DIN-Rail mounted 0/4-20mA input measurement module designed for compatibility with both loop-powered and self-powered 0/4-20mA output transmitters / sensors, allowing the user to connect any device with a 0/4-20mA current output to it.

The input can be configured so that the incoming current is scaled across a 4-20mA, 0-20mA or linearized across desired points entered into one of the two available custom curves. The Auxiliary mA input provides the user with the facility to enter a custom relationship between the incoming mA measurement and the displayed value.

The module features two industry standard, isolated, 0/4-20mA current outputs that features adjustable scaling, selectable on-error states and loop fault detection. Either allows the module to transmit the primary reading or observed process temperature for remote monitoring purposes.

Also present are a single digital input and a single digital output. The digital input features a dry contact input which allows the module to be remotely set to either an offline state that forces the current outputs to a pre-defined state, or to change the whole configuration of the module by switching the setup to a preconfigured state.

The digital output consists of a volt free, single pole, single throw normally open relay, which can be configured to clean the sensor by activating a separate jet spray wash or air solenoid sensor cleaning system on a timed cycle with adjustable duration, interval and recovery. Alternatively, the output can be used to indicate the module alarm status.

Solution Calibration – Selected by entering the “Solution Offset Cal” menu item in the calibration menu, this allows the user to adjust the scaled reading to match a known input. The amount of offset applied is shown in the “Solution Offset” menu item and is effective across the full scale of the current input.



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## DMU18 specifications

<b>Measurement input</b>	0 to 24mA input, fully isolated from instrument supply.
<b>Loop Modes</b>	<p>mA Input – Standard mA input from transmitter, 100Ω input impedance, max loop voltage 35V.</p> <p>Loop Powered – The input card will supply 24V to power the current loop.</p> <p>3 Wire – The input card can supply an alternative 24V 30mA Max output via the “24V” pin to power a 3 wire transmitter.</p>
<b>Input Mode</b>	<p>0 – 20 mA (Linear)</p> <p>4 – 20 mA (Linear)</p> <p>2 Custom Curves (Non-Linear)</p>
<b>Display Ranges</b>	<p>± X.XXX</p> <p>± XX.XX</p> <p>± XXX.X</p> <p>± XXXX</p>
<b>Custom Units</b>	Maximum of 7 Alphanumeric Characters.
<b>Error States</b>	<p>Input under 4mA (when using 4-20mA Input)</p> <p>Input over 20mA</p> <p>±0.1% of reading.</p>
<b>Accuracy</b>	± 0.1% of range.
<b>Linearity</b>	± 0.1% of range.
<b>Repeatability</b>	±0.01% of range / °C (typical)
<b>Calibration Methods</b>	<p>Reading Offset Calibration.</p> <p>Automatic 2 Point 0/4mA and 20mA Calibration.</p>
<b>Calibration Timer</b>	Inbuilt calibration countdown timer which will trigger an alarm when the set calibration interval has expired.
<b>Sensor Input filter</b>	Adjustable filter that averages the sensor input over a user selectable time (10sec – 5mins).
<b>Off-Line Facility</b>	The current outputs are held at a user defined level.

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# ORDER \_CODES

TYPE	STOCK No.	DESCRIPTION
<b>DCU18</b>	1810	DIN Rail Mounting Contacting Conductivity module, 4-20mA current output, configurable via the LTH Discover app (IOS or Android)
<b>DEU18</b>	1812	DIN Rail Mounting Electrodeless (Inductive) Conductivity module, 4-20mA current output, configurable via the LTH Discover app (IOS & An-droid)
<b>DMU18</b>	1850	DIN Rail Mounting mA module, 4-20mA current output, configurable via the LTH Discover app (IOS & Android)
<b>DOU18</b>	1840	DIN Rail Mounting Dissolved Oxygen module, 4-20mA current output, configurable via the LTH Discover app (IOS & Android)
<b>DPU18</b>	1820	DIN Rail Mounting pH / Redox(ORP) module, 4-20mA current output, configurable via the LTH Discover app (IOS & Android)
<b>DTU18</b>	1860	DIN Rail Mounting Turbidity and Suspended solids module, 4-20mA current output, configurable via the LTH Discover app (IOS & Android)
<b>Modbus</b>	1802	DXU18 Modbus over RS485 & Ethernet unlock code



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## DISCOVER A SMARTER WAY TO CONFIGURE, CALIBRATE AND CONTROL

**LTH Discover** is the intuitive mobile app designed to unlock the full capability of the DXU18 series — putting configuration, calibration and live measurement data directly into the palm of your hand.

Built specifically for system integrators, engineers and maintenance teams, LTH Discover connects wirelessly to DXU18 modules via Bluetooth, removing the need for local displays, laptops or specialist software. Once connected, users can view live process values and temperature, check operational status, and fully configure module parameters quickly and confidently.

Commissioning is faster and simpler. Sensor calibration routines, output scaling, alarm settings and application-specific configurations can all be completed directly from a smartphone or tablet, without the need to access the control panel. Clear on-screen guidance and structured menus help reduce setup time, minimise errors and ensure consistent results across installations.

For ongoing operation, LTH Discover provides real-time visibility of multiple modules simultaneously, allowing engineers to monitor performance, diagnose issues and verify system health at a glance. Configuration settings can be saved, restored or transferred between modules, supporting deployment and standardisation across sites.

Available for both iOS and Android, LTH Discover is an integral part of the DXU18 platform — enabling smarter installation, simpler maintenance and greater confidence in every measurement.

### **Connect. Configure. Measure.**

With LTH Discover, control has never been more accessible.

The “LTH Discover” App is available now.



Contact our sales department on 905.826.1953 or email [salesdesk@bestobell.com](mailto:salesdesk@bestobell.com)

**FOR MORE INFORMATION ON THE  
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The "LTH Discover" App is available now.



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