

AWT420

Universal 4-wire, dual-input transmitter

ENGINEERED
TO OUTFIT



MEASUREMENT MADE EASY

The most versatile general process transmitter for water analysis

Universal modular design

- Mix and match a wide range of analog and advanced digital EZLink™ sensors
- Factory-calibrated sensor and communication modules minimize stock holding, and maximize operation uptime
- Wall, panel, or pipe-mountable

Easy to use

- Intuitive software with full-color graphical display
- Plug-and-play digital sensor connection using EZLink technology
- 'Easy Setup' menus provide step-by-step guidance

High functionality at minimum cost

- Dual-channel PID control
- Full audit trail capability for improved regulatory compliance
- Data archiving to SD™ card

Integrated Bluetooth® for direct connection to your smart device

- View device data in real time, or analyze later in offline mode
- Access the latest software updates and essential sensor information

Robust and reliable

- SIL approved*

Flexible communications

- HART®, Ethernet, PROFIBUS® DP or Modbus® digital communications
- Advanced self-diagnostics conforming to NAMUR NE 107 provide harmonized indication of device status

* Conforms to IEC61508. Refer to SI/AWT420

The AWT420 dual-input transmitter

The AWT420 dual-channel transmitter provides true flexibility for measuring a wide variety of parameters in a single device. Packed with a host of features including Bluetooth® connectivity, dual PID control and EZLink sensor connection, water analysis has never been easier.

Operation simplicity is a key feature of the AWT420 with its powerful, yet intuitive software, advanced self-diagnostics, and its unique modular design that enables users to achieve increased efficiency through greater user flexibility, reduced process downtime, and simplified maintenance.

The robust IP66/NEMA 4X enclosure can be easily wall, pipe, or panel mounted. The hinged door with tamper indicator provides unrestricted access to the communication and sensor modules for simplified commissioning and maintenance.

The AWT420 transmitter can be used with either analog or digital EZLink sensors for a wide range of applications including drinking water, wastewater, industrial water and power.

Versatile modular design

The unique modular design of the AWT420 enables the same unit to be used with a selection of sensors and communication modules, minimizing stock holding and maximizing operational uptime.

Each module is factory calibrated and can be quickly and securely installed by hand in seconds, providing the ultimate in transmitter adaptability.



Sensor compatibility

Analog pH and redox (ORP) measurement

The AWT420 pH/ORP module is compatible with ABB's full range of analog pH, redox (ORP) sensors in addition to most competitors' sensors.

For measuring process liquids that change pH value based on temperature, a pH solution coefficient can be entered that compensates the Nernstian value for pH measurements, and the raw voltage value for ORP measurements, by a fixed value per each 10 °C (18 °F).

Analog conductivity measurement

The AWT420 fully supports ABB's range of 2-electrode and 4-electrode sensors for conductivity, resistivity, concentration and inferred pH measurement making the AWT420 suitable for installations ranging from ultra-pure water to harsh chemical applications.

For users that use conductivity to infer liquid concentration a concentration curve can be entered using the 6-point linearizer table.

Universal Input Module

The AWT420 supports the Universal Input Module (UIM). This flexible module provides support for a wide range of bespoke or nonstandard sensors. The UIM can support the ACL410 chlorine sensor, or measure:

- current
- voltage
- frequency
- resistance
- temperature

Analog turbidity measurement

The AWT420 fully supports ABB's 4690 range of turbidity systems for use throughout the potable water treatment process.

With the product verification process the user is notified when a primary calibration is required, this promotes minimal product maintenance while maintaining product accuracy

Digital EZLink sensors

The AWT420 EZLink module is compatible with a selection of ABB's EZLink digital sensors providing plug-and-play sensor connectivity, automatic sensor recognition/set-up and advanced predictive diagnostics.

...Sensor compatibility

AWT420 SENSOR COMPATIBILITY WITH DIGITAL EZLINK MODULES

		Measurement type				
	pH	Conductivity	Turbidity	Chlorine	Dissolved oxygen	
Digital EZLink (single)	APS122					
	APS132					
	APS522	—	ATS430	ACL420	ADS420	
	APS552					
	APS732					
Digital EZLink (Hazloc)	APS522	—	—	ACL420	—	

AWT420 SENSOR COMPATIBILITY WITH ANALOG MODULES

		Measurement type				
	pH	Conductivity	Turbidity	Chlorine	Dissolved oxygen	
pH/ORP (Redox)	AP300					
	TB5					
	7600					
	APS110					
	APS121					
	APS131	—	—	—	—	—
	APS521					
	APS551					
	APS731					
	APS751					
Conductivity 2-electrode	—	AC2				
		2085	—	—	—	—
		TB2				
Conductivity 4-electrode	—	TB4	—	—	—	—
4690 Turbidity	—	—	ATS410	—	—	—
Universal Input Module	—	—	—	ACL410	—	—

Flexible communications

The AWT420 transmitter is available with a wide choice of user-selectable communication modules including HART, Ethernet, PROFIBUS DP V1.0 or Modbus RS485; enabling simple device integration.

The Ethernet module contains an embedded web server that enables the unit to be viewed remotely and fully controlled securely via a web browser. Configuration data and process data can be downloaded via secure FTP connection.

Communication modules can be configured when purchased or easily retrofitted in the field.

Direct connection to your smart device

Connect to any iOS™ or Android™ device via Bluetooth using the EZLink Connect app to access essential sensor information wherever and whenever you need it to ensure your process is continually operating at maximum efficiency.

From checking your audit logs to downloading the latest software through your smartphone, we are confident that EZLink Connect will make your life that little bit easier by providing you with a wealth of information and services to support you wherever and whenever you need it.

- Easily and securely connect to your device to view all measurement, diagnostic and audit data in real time or analyze later in offline mode.
- Access the latest software updates and essential sensor information direct through your smartphone.

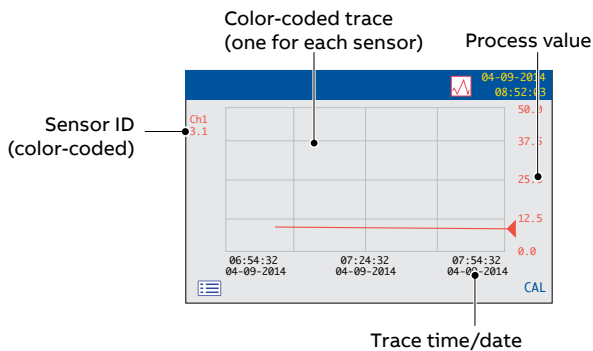


Easy to use

ABB's intuitive HMI is both powerful, yet user-friendly with simple navigation and clear menus presented on the large, easy-to-read, full-color graphical display. Easy Setup sensor configuration menus provide step-by-step guidance for commissioning new sensors, and the advanced self-diagnostics conforming to NAMUR NE 107 provide harmonized indication of device status.

Graphical trending

Measurement trends of each sensor can be viewed locally easily and clearly on the graphical color display.



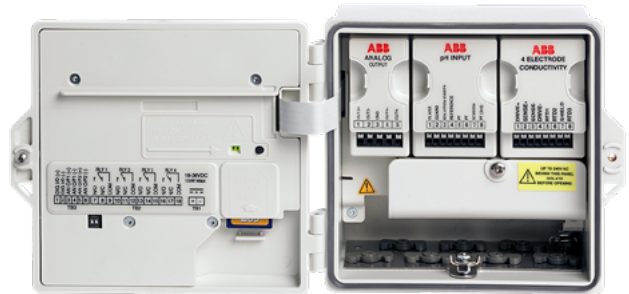
Full audit trail capability

The AWT420 transmitter records all data to its internal memory continuously. This includes both event log/ configuration data in addition to measurement data. The transmitter's event log files contain audit log, alarm log, diagnostic log and calibration log data that is time and date-stamped, providing the operator with full audit trail capability.

04-09-2014 10:03:25			
01	Power Failure	03:09:14	22:03:24
02	Power Recovery	23:06:14	14:17:03
03	Power Failure	15:05:14	02:21:54
04	Power Recovery	08:04:14	11:08:31
CAL			

Data archiving to SD card

Process data and historical logs can be archived to an SD card for record keeping or analysis using ABB's DataManager Pro data analysis software.



Simplified calibration

With the AWT420 One-Button Calibration feature, sensor calibration can be initiated directly without the need to access the device menu, reducing overall time spent calibrating sensors.

Secure process control

Multi-level security access prevents unauthorized modification of process control data by enabling separate read-only, calibrate and advanced security access levels to users.

Advanced process control functionality as standard

Dual-channel PID control

The AWT420 transmitter incorporates three-term PID control, offering three modes of sophisticated control:

- Analog
- Pulse length (time proportional)
- Pulse frequency.

Control functionality is available for both channels of the AWT420 transmitter, and are configurable for reverse or direct-acting control. pH channels are configurable for reverse-acting, direct-acting, or dual (acid/base) control.

Dual measurement verification

When required, the AWT420 transmitter can perform dual-sensor input verification to better understand trends in the process. When using this function, customers can derive calculations based on average, difference, and maximum/minimum between two sensor inputs.

Cation conductivity and inferred pH measurement

In low conductivity, ammoniated boiler waters, the AWT420 transmitter can calculate an inferred pH measurement from the conductivity and a preset ammonia concentration.

For inferred pH measurement calculations, the AWT420 uses the inputs from two conductivity sensors, i.e., before and after cation exchange column. The AWT420 software contains a number of inferred pH calculations to allow for different chemical conditions, i.e., whether or not the system is an NH_3 , NH_3+NaCl or NaOH dosed system.

Self-monitoring of the validity of the pH measurement is achieved by checking that an after-cation conductivity value is sufficiently low. This measurement is provided by the second input of the AWT420 transmitter. Alarm contacts can be configured for cation conductivity, invalid pH, and exhausted resin.

Advanced dual-conductivity calculations

In addition to inferred pH measurement, the AWT420 provides advanced dual-conductivity calculations used across a range of industrial processes including demineralization and reverse osmosis control.

The AWT420 is able to calculate, display and transmit the difference, ratio, % passage or % rejection between two conductivity sensors.

Automated sensor cleaning

The AWT420 transmitter can automate sensor cleaning regimes to reduce operational expenditure and ensure effective sensor measurement. Pulsed or continuous cleaning routines can be assigned to any of the relays or digital output. The frequency and duration of the cleaning can be tuned to meet the specific requirements of the application.

Instant product identification and system diagnostics data

As standard, the AWT420 fully supports ABB's Dynamic QR code system. Able to instantly summarize both product identification and system diagnostics data, Dynamic QR Code is an invaluable time-saving tool. On-screen QR codes are scanned using ABB's My Measurement Assistant website and a detailed report is instantly generated.

Dynamic QR code is ideal for:

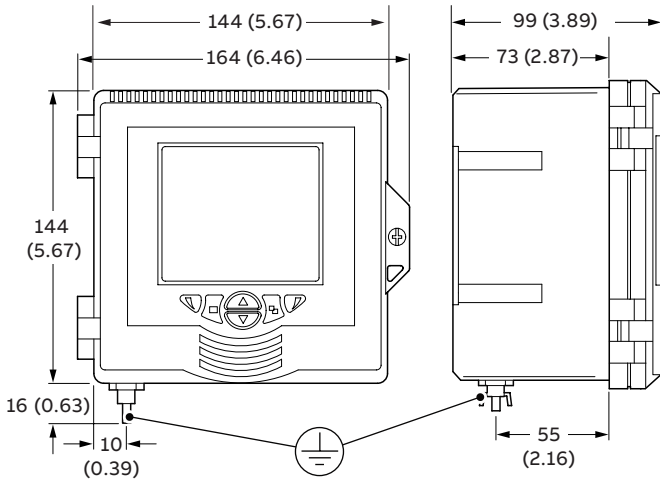
- Troubleshooting – all current alarm and diagnostic status are detailed in the report giving you the information you need to rectify a problem, or to share with ABB support.
- Instrument audit trail – regularly capturing Dynamic QR Code reports, for example after each routine calibration, enables a record of a product's history to be recorded over time.
- Recording of installed base – details of a product's hardware, software, and connected sensor specification is included in Dynamic QR Code, making it a useful tool for cataloging an installed base of transmitters.



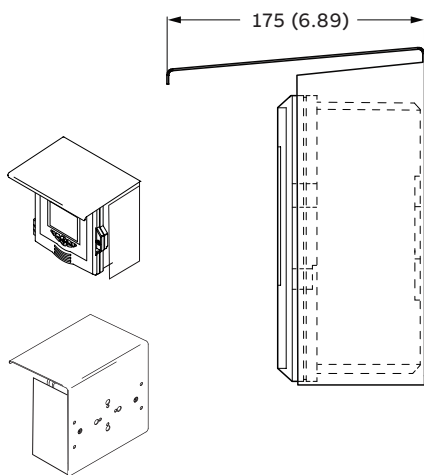
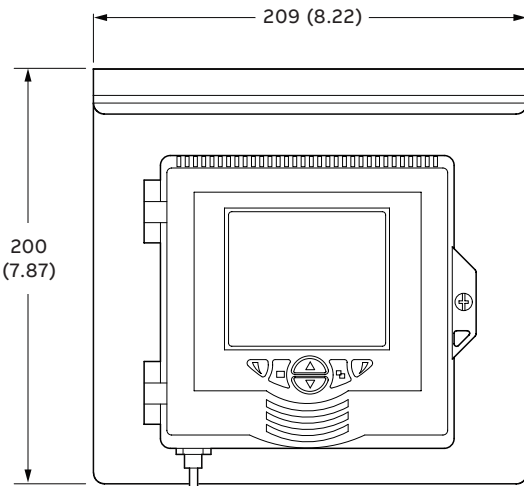
Dimensions

Dimensions in mm (in)

Transmitter



Optional weathershield

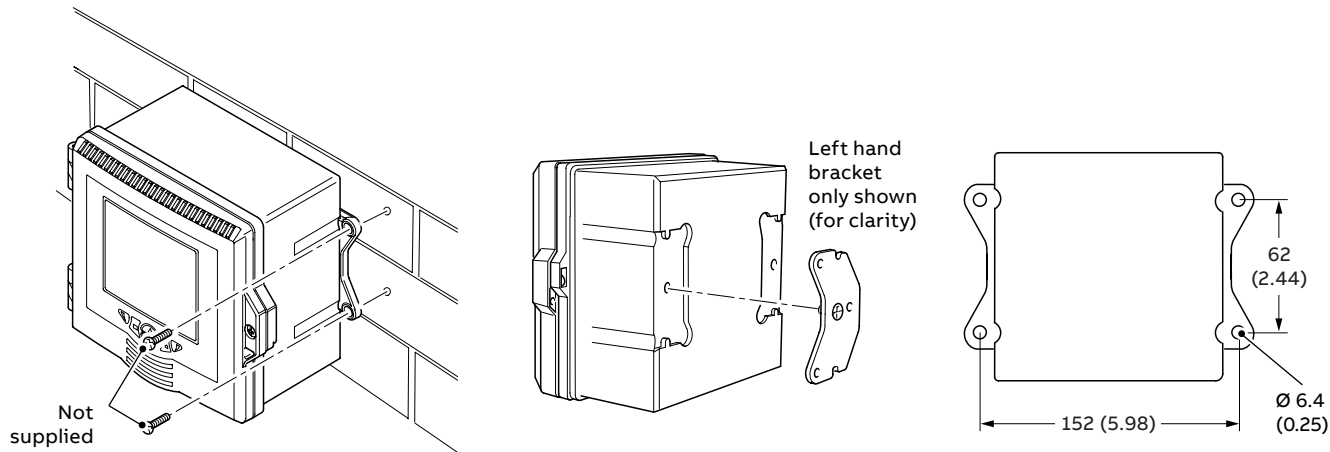


Optional weathershield fitted

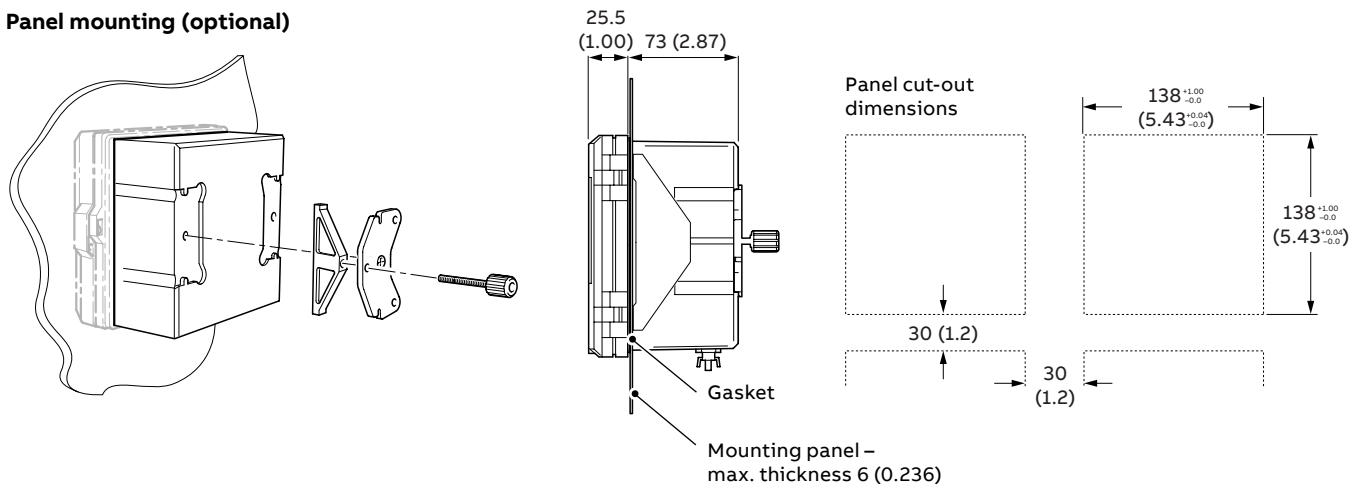
Mounting options

Dimensions in mm (in)

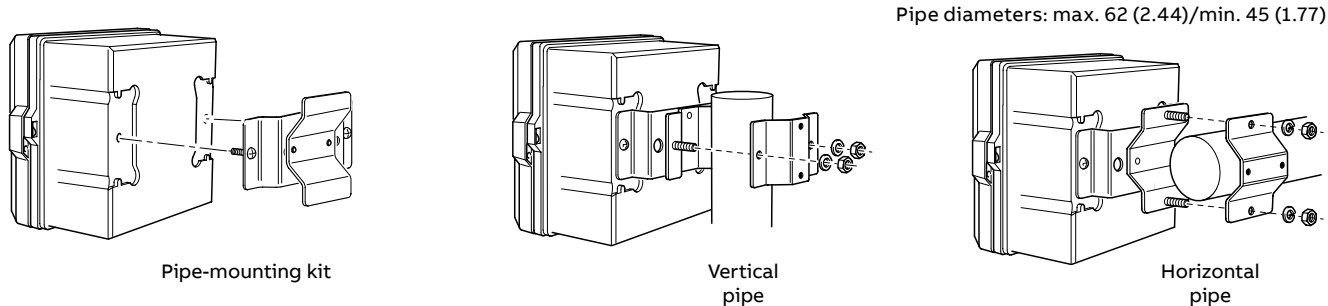
Wall mounting (standard)



Panel mounting (optional)



Pipe mounting (optional)



Specifications

Operation

Display

89 mm (3.5 in) color ¼ VGA TFT, liquid crystal display (LCD) with built-in backlight and brightness/contrast adjustment

Languages

English, German, French, Italian, Spanish, Portuguese, Russian, Turkish, Chinese, Polish

Keypad

6 tactile membrane keys:

- Group select/Left cursor
- View select/Right cursor
- Menu key
- Up
- Down
- Enter key

Number of inputs

Up to 2 analog or digital sensors

Mechanical data

Protection

IP66/NEMA 4X

Dimensions

- Height: 144 mm (5.67 in) minimum (excluding glands)
- Width: 144 mm (5.67 in) door closed – min.
- Depth: 99 mm (3.89 in) door closed – min. (excluding fixing brackets)
- Weight: aluminum enclosure
1.36 kg (3 lb) approx. (unpacked)
- Weight: polycarbonate enclosure
1 kg (2.2 lb) approx. (unpacked)

Panel dimensions

- Cut-out height: 138 +1 –0 mm (5.43 +0.04 –0 in)
- Cut-out width: 138 +1 –0 mm (5.43 +0.04 –0 in)
- Thickness: 6.35 mm (0.25 in) max.
- Depth behind panel: 100 mm (4 in) min. (after fixing with brackets to panel)
- Distance between cut-outs: 40 mm (1.57 in) min.

Materials of construction

- Aluminum enclosure – LM20 aluminum
- Polycarbonate enclosure – LEXAN™ 505RU
10 % glass-filled polycarbonate

Cable entries

- Five holes to accept M20 or ½ in cable glands or conduit hubs
- Two holes to accept M16 cable glands or conduit hubs or EZLink connectors

Security

Password protection

Access to configuration levels is enabled only after the user has entered a password:

- Calibrate level: user-assigned password
- Advanced level: user-assigned password
- Service level: service level user-assigned password

Electrical

Supply voltage

100 to 240 V AC ±10 %, 50/60 Hz
24 V DC (18 min. to 36 V DC max.)

Power consumption

<15 W

Terminal connections rating

Solid/Flexible wire: AWG 24 to 16 (0.2 to 1.5 mm²)
Ferrule with plastic sleeve 0.2 to 0.75 mm²
Ferrule without plastic sleeve 0.2 to 1.5 mm²

Cable specification

Cable glands:

- M20: 5 to 9 mm (0.20 to 0.35 in)
- M16: 5 to 10 mm (0.20 to 0.39 in)
- ½ in NPT: 6 to 12 mm (0.24 to 0.47 in)
- Ethernet: 4.7 to 6.35 mm (0.187 to 0.25 in)

Analog outputs

Number

- Two supplied as standard
- Four with module board fitted

Output ranges

Analog output programmable to any value between 0 and 22 mA to indicate system failure

Accuracy

±0.25 % of reading or 10 µA (whichever is the greater)

Maximum load resistance

500 Ω at 20 mA

Configuration

Can be assigned to either primary variable or secondary variable

Isolation

- Revision A:
500 V DC from any other circuitry but not from each other
- Revision B:
500 V DC from any other circuitry

Relay outputs

- 4 standard single-pole changeover
- Fully-programmable
 - Contacts rating: 5 A @ 110/240 V AC (Non-inductive) 5 A @ 30 V DC

Digital input/output

- 1 standard, user-programmable as input or output
- Minimum input pulse duration: 125 ms
- Input – volt-free
- Output – open-collector, 12 to 24 V, 250 mA max.

...Specifications

Connectivity/communications (optional)

Ethernet

HTTP, HTTPS, FTP, Secure FTP

PROFIBUS DP

DPV0, DPV1

Modbus

RTU RS485

HART

- FieldComm-certified version – HART 7
- Configured range
 - 4 to 20 mA, user-programmable across measurement range
- Dynamic range
 - 3.8 to 20.5 mA with 3.6 mA low alarm level, 21 mA high alarm level
- Accuracy
 - ± 0.25 % of reading
- Maximum load resistance
 - 500 Ω at 20 mA
- Configuration
 - Can be assigned to either measured variable
- Isolation
 - 500 V DC from any other circuitry

Data logging

Storage

- Measurement value storage (programmable sample rate)
- Audit log^{*}, Alarm log¹, Calibration log, Diagnostics log

Storage media

SD™ card, SDHC, up to 32 GB capacity

Chart view

On local display

Historical review

Of data

Data transfer

SD card interface – Windows-compatible FAT file system, data and log files in Excel® and DataManager Pro compatible formats

Environmental data

Ambient operating temperature:

-10 to 55 °C (14 to 131 °F)

Hazardous area ambient temperature range

-10 to 45 °C (14 to 113 °F)

Refer to [INF/ANAINST/012](#) for full hazardous area specifications

Ambient operating humidity:

Up to 95 % RH non-condensing

Storage temperature:

-20 to 70 °C (-4 to 158 °F)

Altitude:

2,000 m (6,562 ft) max. above sea level

* Audit log and Alarm log data are stored in the same log file.

2-electrode conductivity module

Conductivity input

Measurement range and resolution

Cell constant	Conductivity range	Display resolution	Accuracy repeatability
0.01	0 to 200 $\mu\text{S/cm}$	0.001 $\mu\text{S/cm}$	± 1.0 % of measurement range per decade
0.05	0 to 1,000 $\mu\text{S/cm}$	0.001 $\mu\text{S/cm}$	
0.1	0 to 2,000 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$	
1	0 to 20,000 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	

Dynamic response

<3 s for 90 % step change when damping is off

Damping

Configurable: off, low, medium and high

Temperature input

Temperature element types

- Automatic temperature sensor recognition for Pt100, Pt1000 and 3k Balco RTDs in either 2-lead or 3-lead configurations
- Temperature element can be used for automatic temperature compensation of the conductivity solution

Measurement range and resolution

Sensor group	Temperature range	Display resolution	Accuracy repeatability
Pt100	-20 to 200 °C	0.1 °C (0.1 °F)	0.1 °C (0.18 °F)
Pt1000	(-4 to 392 °F)		—
3K Balco	User-programmable -20 to 300 °C (-4 to 572 °F)	0.1 °C (0.1 °F)	—
None		—	—

Temperature compensation modes

Linear, UPW, NaCl, HCl and NH₃

Reference temperature

25 °C (77 °F)

Configured output range

Cell constant	Min. span	Max. span
0.01	1 $\mu\text{S/cm}$	200 $\mu\text{S/cm}$
0.05	5 $\mu\text{S/cm}$	1,000 $\mu\text{S/cm}$
0.1	10 $\mu\text{S/cm}$	2,000 $\mu\text{S/cm}$
1	100 $\mu\text{S/cm}$	20,000 $\mu\text{S/cm}$

4-electrode conductivity module

Conductivity input

Measurement range and resolution

Sensor group	Conductivity range	Display resolution	Accuracy repeatability
A	0 to 2,000 mS/cm	0.1 μ S/cm	± 0.5 % of measurement
B	0 to 2,000 μ S/cm	0.01 μ S/cm	range per decade

Dynamic response

<3 s for 90 % step change when damping is off

Damping

Configurable: off, low, medium, and high

Temperature input

Temperature element types

- Automatic temperature sensor recognition for Pt100, Pt1000 and 3k Balco RTDs in either 2-lead or 3-lead configurations
- Temperature element can be used for automatic temperature compensation of the conductivity solution

Measurement range and resolution

Sensor group	Temperature range	Display resolution	Accuracy repeatability
Pt100	-20 to 200 °C	0.1 °C (0.1 °F)	0.1 °C (0.18 °F)
Pt1000	(-4 to 392 °F)		
3K Balco			
None	User-programmable -20 to 300 °C (-4 to 572 °F)		—

Temperature compensation modes

- 0 to 15 % NaOH
- 0 to 18 % HCl
- 0 to 20 % H₂SO₄
- 0 to 40 % H₃PO₄
- 0 to 20 % NaCl
- 0 to 50 % KOH
- User-defined table

Reference temperature

25 °C (77 °F)

Configured output range

Sensor group	Min. span	Max. span
A	100 μ S/cm	2,000 mS/cm
B	10 μ S/cm	2,000 μ S/cm

pH/ORP (Redox) input module

Sensor types

pH: Glass, antimony (Sb)

ORP (Redox): Platinum (Pt), gold (Au)

Input impedance

$>1 \times 10^{13} \Omega$

Measurement range and resolution

Type	Range	Display resolution	Accuracy repeatability
pH	0 to 14 pH	0.01 pH	± 0.01 pH
ORP	$\pm 2,000$ mV	1 mV	$\pm 1,800$ mV: ± 1 mV $\pm 2,000$ mV: ± 3 mV

Dynamic response

<3 s for 90 % step change when damping is off

Damping

Configurable: off, low, medium and high

pH/ORP (Redox) temperature input

Temperature element types

- Automatic temperature sensor recognition for Pt100, Pt1000 and 3k Balco RTDs in either 2-lead or 3-lead configurations
- Temperature element can be used for automatic temperature compensation of the conductivity solution

Measurement range and resolution

Sensor group	Temperature range	Display resolution	Accuracy repeatability
Pt100	-20 to 200 °C	0.1 °C (0.1 °F)	0.1 °C (0.18 °F)
Pt1000	(-4 to 392 °F)		
3K Balco			
None	User-programmable -20 to 300 °C (-4 to 572 °F)		—

Temperature compensation modes

- pH: Manual, Automatic Nernstian, Nernstian with solution coefficient
- ORP: Manual, solution compensation coefficient

Reference temperature

25 °C (77 °F)

pH/ORP (Redox) configured output range

Type	Min. span	Max. span
pH	1 pH	14 pH
ORP	100 mV	4,000 mV

...Specifications

Turbidity module

Measurement range and resolution

Sensor No.	Type of sensor	Display resolution (NTU)	Range (NTU)
ATS410/A.1.P1	Low range (without wiper unit)	0.001 (< 5) 0.01 (> 5)	0 to 40
ATS410/A.1.P2	Low range (with wiper unit)	0.001 (< 5) 0.01 (> 5)	0 to 40
ATS410/A.1.P3	High range (with wiper unit)	0.1	0 to 400

Integral wiper cleaning system

Programmable operational frequency every 15, 30, 45 minutes or multiples of 1 hour up to 24 hours

Damping

Configurable: Off, Low, Medium and High

Bubble filter

Configurable: Off, Low, Medium and High

Universal Input Module

Analog inputs

Input 1

Type:

- Voltage
- Current
- Frequency

Input 2

Type:

- Resistance
- 2/3 wire RTD (supports PT100, PT1000, Balco 3K)

Digital filter

Programmable 0 to 900s

Display range

-9999 to 9999

Update rate

1 s

Input impedance

>10 M Ω (voltage/frequency inputs)

20 Ω (50 mA range)

1 k Ω (1 mA range)

10 k Ω (100 μ A range)

100 k Ω (10 μ A range)

Inputs

RTD	Maximum range °C (°F)	Accuracy/repeatability
PT100	-40 to 200	0.1 °C
PT1000	-40 to 200	0.1 °C
Balco 3K	-40 to 200	0.1 °C

Linear inputs	Standard analog input	Accuracy (% of reading)
Millivolt	0 to 2,000 mV	2 %
Current	0 to 50 mA (autoscaling range for μ A inputs)	2 %
Frequency	0.5 to 1000 Hz	2 %
Resistance	50 to 10 k Ω	2 %
Sample interval		1 s per sample

Power outputs

Voltage	Power
24 V	1 W
12 V	0.5 W
5 V	1 W
Millivolts (0 to 1,000 mV)	1 mA (for biasing electrochemical sensors)

EZLink

Power consumption (maximum)

150 mA @ 24 V DC (3.75 W max)

Fixed length cable

1 or 10 m (3.28 or 32.8 ft)

Digital sensor connector IP rating

IP67 (when connected)

Extension cable (options)

1, 5, 10, 15, 25, 50 m (3.2, 16.4, 32, 49.2, 82, 164 ft)

Maximum length (including optional extension cable)

Up to 210 m (689 ft)

EZLink HazLoc

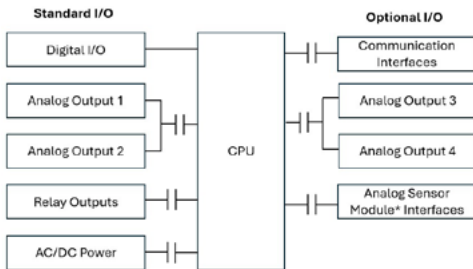
Refer to [INF/ANAINST/012](#)

EMC

Emissions & immunity

Meets requirements of IEC61326 for an industrial environment

I/O isolation



Key

—||— = Isolation * opt. 35, 45, Turbidity (999), LIFT module

Approvals, certification and safety

Safety approval

cULus

CE mark/UKCA

Covers EMC & LV Directives
(including latest version IEC 61010)

MCERTS

Certificate No: Sira MC220375/00

General safety

- IEC 61010-1
- Pollution degree 2
- Insulation class 1

IECEx/ATEX

Non-incendive

For models with EZLink channels:

- II 3(3) G Ex ic ec nC [ic Gc] IIC T4 Gc

For models without EZLink channels:

- II 3 G Ex ic ec nC IIC T4 Gc

cULus

Non-incendive

For models with EZLink channels:

- Class I Division 2 Groups A, B, C, D T4 (providing non-incendive field wiring outputs for Class I Division 2 Groups A, B, C, D hazardous locations)

For models without EZLink channels:

- Class I Division 2 Groups A, B, C, D T4

Marine Approval

Lloyd's Register approved for marine applications
(category ENV2).

Tested according to IACS UR E10, Rev. 7, Oct. 2018.

SIL

Conforms to IEC61508. Refer to [SI/AWT420](#)

NOTICE

Universal Input Module and aluminum case options are not covered as part of SIL approval.

Bluetooth

The Bluetooth Low Energy Module within the AWT420 transmitter has received the regulatory approval for the following countries:

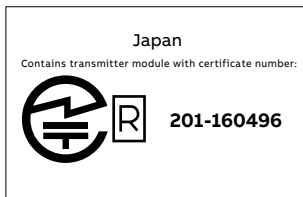
...Specifications

...Approvals, certification, and safety

- Europe/CE



- Japan/MIC: 005-101150



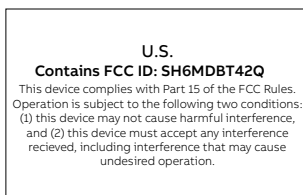
- Korea/KCC: MSIP-CRM-mcp-BM71BLES1FC2



- China/SRRC: CMIIT ID: 2016DJ5890



- United States/FCC ID: A8TBM71S2



- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

- Canada/ISED

- IC: 12246A-BM71S2
- HVIN: BM71BLES1FC2



This device complies with Industry Canada's license-exempt RSS standard(s).

Operation is subject to the following two conditions:

- This device may not cause interference, and
- This device must accept any interference, including interference that may cause undesired operation of the device.

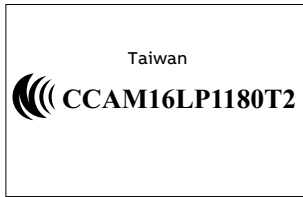
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

- l'appareil ne doit pas produire de brouillage, et
- l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Taiwan/NCC No: CCAN16LP0011T7



注意！

依據 低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，

非經許可，

公司、商號或使用者均不得擅自變更頻率、加大

功率或變更原設計

之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安

全及干擾合法通信；

經發現有干擾現象時，應立即停用，並改善至無

干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電信。

低功率射頻電機須忍受合法通信或工業、科學及

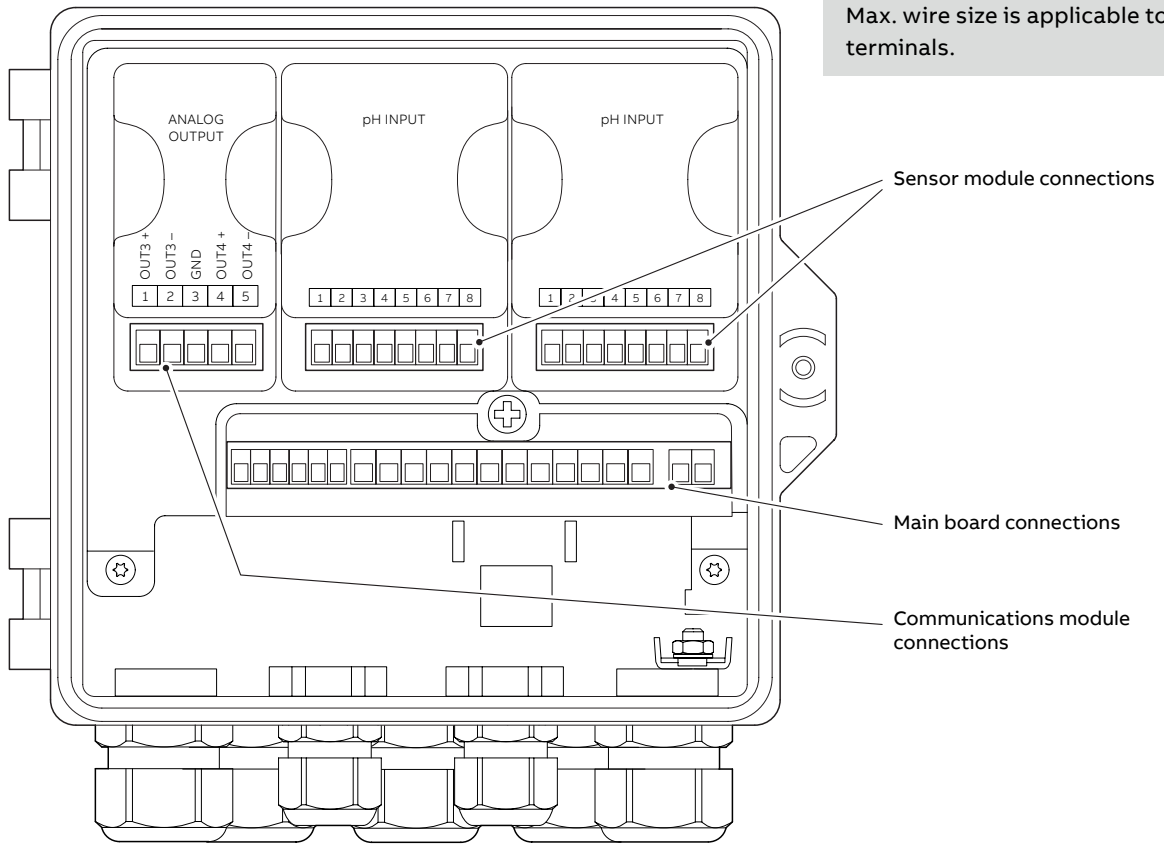
醫療用電波輻射性

電機設備之干擾。

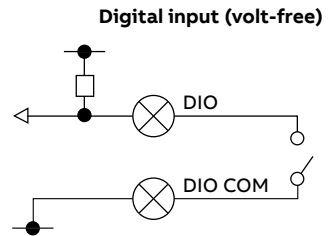
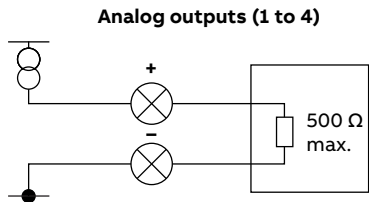
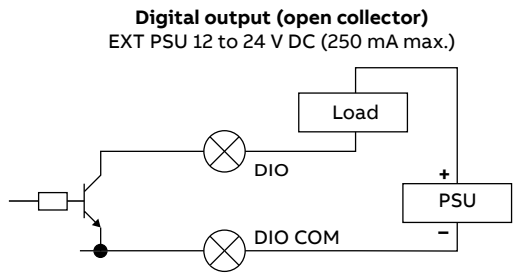
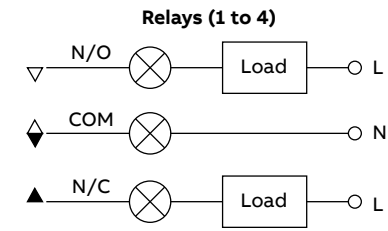
Electrical connections

Overview

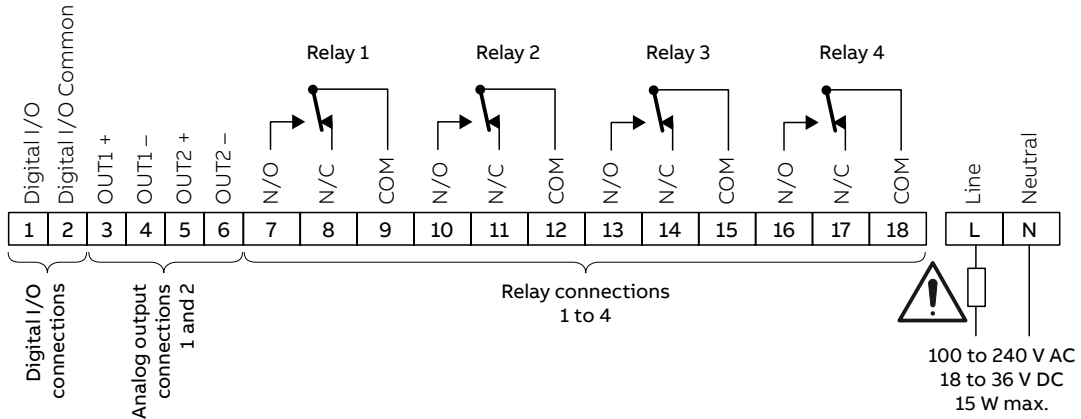
NOTICE
 Max. wire size: AWG 16 (1.5 mm²)
 Max. wire size is applicable to all terminals.



Relays and analog outputs



Main board connections



Communications module connections

TEST+	TEST-	SHIELD	OUT+	OUT-
1	2	3	4	5

HART

A (IN)	B (IN)	COMMON	A (OUT)	B (OUT)
1	2	3	4	5

PROFIBUS

TX+	TX-	TX/RX+	TX/RX-	COMMON
1	2	3	4	5

Modbus

OUT 3+	OUT 3-	SHIELD	OUT 4+	OUT 4-
1	2	3	4	5

Analog output

Sensor module connections

DRIVE+	DRIVE -	RTD1	RTD2	SHIELD	RTD3		
1	2	3	4	5	6	7	8

TE (2-electrode) modules

DRIVE+	SENSE+	SENSE-	DRIVE-	RTD1	RTD2	SHIELD	RTD3
1	2	3	4	5	6	7	8

EC (4-electrode) modules

1	2	3	4	5	6	7	8

pH/ORP (Redox) modules

WHITE	YELLOW	RED	GREEN	BLACK	BLUE	SCREEN	
1	2	3	4	5	6	7	8

Turbidity module

IN+	IN-	OUT+	OUT-	PT	PT	SCREEN	PT (3rd)
1	2	3	4	5	6	7	8

Universal Input Module

Refer to the Commissioning Instruction [CI/AWT420](#) for wiring connections.

Ordering information

AWT420 dual channel transmitter	AWT420/	X	X	XX	XX	XX	XX	XX	Options
Build revision									
Non-isolated outputs	A								
Enclosure type									
Polycarbonate		1							
Aluminum		2							
Power supply									
90 to 265 V AC, 50/60 Hz				A1					
18 to 36 V DC				D1					
Sensor input module – channel 1									
No sensor module (base unit only)					Y0				
Conductivity 2-electrode					C2				
Conductivity 4-electrode					C4				
Digital EZLink **					D1				
Analog pH/ORP (Redox)					P1				
Analog turbidity *					T1				
Universal Input Module *					U1				
Sensor input module – channel 2									
No sensor module					Y0				
Conductivity 2-electrode					C2				
Conductivity 4-electrode					C4				
Digital EZLink **					D1				
Analog pH/ORP (Redox)					P1				
Analog turbidity *					T1				
Universal Input Module *					U1				
Communications module									
No communications module							Y0		
Additional dual analog output (non-isolated)							A1		
ETHERNET							E1		
HART							H1		
Modbus (RS485)							M1		
PROFIBUS DPV1							D1		
Agency approvals									
Class I Div. 2, Zone 2 (cULus, ATEX/IECEX/UKEx) ***									E3
cULus general safety									E5

Optional ordering codes

Add 1 or more of the following codes after the standard ordering information to select any additional options if required:

Mounting kits									
Pipe mounting kit									A1
Panel mounting kit									A2
Weathershield									A3
Pipe mounting and weathershield kit									A4
Cable entry options									
M20 cable gland pack ****									U1
NPT cable gland pack									U3
SD card option									
SD card									D1
Identification tag									
316 stainless steel									T1
Documentation language (supplied as standard in English)									
German									M1
Italian									M2
Spanish									M3
French									M4
English									M5
Chinese									M6
Polish									M9
Portuguese									MA
Turkish									MT

* Not available with 'E3' class 1 Div 2 approval.

** When specified in conjunction with 'E3' agency approval, a Hazloc EZLink module will be supplied. Refer to Table 1.

*** Available only with aluminum enclosure.

**** When specified in conjunction with 'E3' agency approval, Ex-E cable glands are supplied.

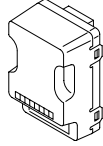
Spares

Analog sensor module assemblies

pH/ORP PCB UPGRADE/SPARES KIT

Part number

3KXA877420L0014

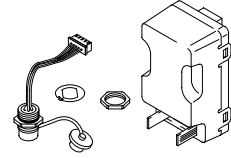


Digital EZLink module assemblies

EZLINK PCB UPGRADE/SPARES KIT

Part number

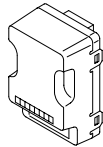
3KXA877420L0015



2-ELECTRODE CONDUCTIVITY PCB UPGRADE/SPARES KIT

Part number

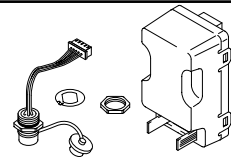
3KXA877420L0013



EZLINK HAZLOC PCB UPGRADE/SPARES KIT

Part number

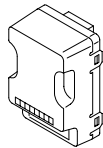
3KXA877420L0018



4-ELECTRODE CONDUCTIVITY PCB UPGRADE/SPARES KIT

Part number

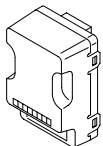
3KXA877420L0011



TURBIDITY PCB UPGRADE/SPARES KIT

Part number

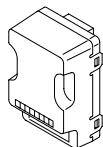
3KXA877420L0016



UNIVERSAL INPUT MODULE UPGRADE/SPARES KIT

Part number

3KXA877420L0019



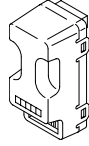
...Spares

Communications module assemblies

HART PCB UPGRADE/SPARES KIT

Part number

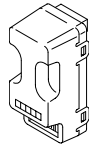
3KXA877420L0051



PROFIBUS PCB UPGRADE/SPARES KIT

Part number

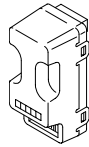
3KXA877420L0052



MODBUS PCB UPGRADE/SPARES KIT

Part number

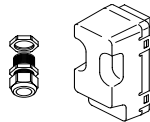
3KXA877420L0054



ETHERNET PCB UPGRADE/SPARES KIT

Part number

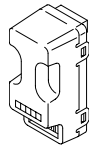
3KXA877420L0065



ANALOG OUTPUT PCB UPGRADE/ SPARES KIT (NON-ISOLATED)

Part number

3KXA877420L0056



Mounting kits

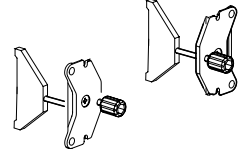
PANEL-MOUNT KIT

Part number

3KXA877210L0101

Description

Panel-mount kit, including fixings, flanges, clamps and seal



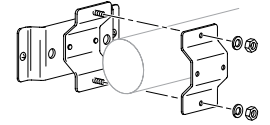
PIPE-MOUNT KIT

Part number

3KXA877210L0102

Description

Pipe-mount kit, including pipe-mount adapter plate, brackets and fixings (excludes pipe)



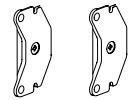
WALL-MOUNT KIT

Part number

3KXA877210L0105

Description

Wall-mount kit

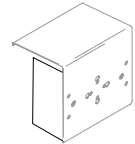


Weathershield kits

WEATHERSHIELD KIT

Part number

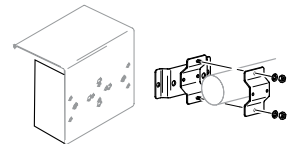
3KXA877210L0103



WEATHERSHIELD AND PIPE-MOUNT KIT

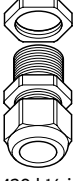
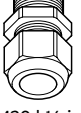

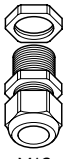

Part number

3KXA877210L0104



Gland packs/EZLink connectors

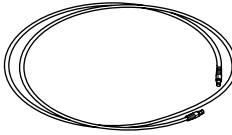
GLAND PACKS

Part number	Description	
3KXA877420L0111	M20 (× 5), M16 (× 2)	
3KXA877420L0112	½ in NPT (× 5), M16 (× 2)	
3KXA877420L0113	M20 (× 4), M16 (× 2) Ethernet (× 1)	M20 ½ in 
3KXA877420L0114	½ in NPT (× 4), M16 (× 2) Ethernet (× 1)	
3KXA877420L0115	Ethernet gland (× 1)	M16 
3KXA877420L0116	Ex-E gland pack (5 × M20, 2 × M16)	
3KXA877420L0117	Ex-E gland pack (5 × ½ in NPT, 2 × M16)	
3KXA877420L0118	Ex-E gland pack (4 × M20, 2 × M16, 1 × Ethernet)	
3KXA877420L0119	Ex-E gland pack (4 × ½ in NPT, 2 × M16, 1 × Ethernet)	

EZLINK AND EZLINK HAZLOC CONNECTOR ASSEMBLY

Part number	
3KXA877420L0066	

EZLINK EXTENSION CABLE ASSEMBLY

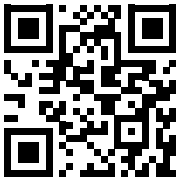
Part number	Description	
AWT4009010	1 m (3.3 ft)	
AWT4009050	5 m (16.4 ft)	
AWT4009100	10 m (32.8 ft)	
AWT4009150	15 m (49.2 ft)	
AWT4009250	25 m (82.0 ft)	
AWT4009500	50 m (164.0 ft)	
AWT4009000	100 m (328.0 ft)	

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