



Thermo Scientific Alpha Process Products



Thermo Scientific Alpha 500/550/560 Series Controllers
• pH • ORP • Conductivity • Dissolved Oxygen



One Source. Total Solution

Recognised internationally for industry-leading quality and accuracy, companies all over the world choose Thermo Scientific Process Products for reliable process monitoring and control across a broad range of water and wastewater applications:

- Wastewater Treatment
- Drinking Water
- Chemical Processing
- F&B Manufacturing
- Seawater Desalination
- Pharmaceutical
- Power
- Electroplating
- Semiconductor

Consistent monitoring and control of water quality are vital in many industries. Thermo Scientific products are built to stand up to the demands of on-line continuous use, even under the most severe conditions. With the Alpha 500 series, Thermo Scientific brings electrochemical processes in water and wastewater applications to a new level of reliability and versatility, offering flexible process control and monitoring at an excellent price point.

Whether it's pH, ORP, Conductivity or Dissolved Oxygen you are measuring, the Alpha 500 series delivers, accurately and consistently. Because at Thermo Scientific, reliability and ease-of-use aren't just features – they're fundamentals.

Reliability and ease-of-use aren't just features – they're fundamentals





Thermo Scientific Alpha 500/550/560 Series Process Meters:

The Controllers/Transmitters:

Durable, cost efficient and reliable, the no-frills Thermo Scientific Alpha 500, 550 and 560 series are easy to use with menu-driven calibration programmes and advance customization capabilities. Non-volatile memory retains all settings and calibration data, eliminating the hassle of recalibration in the event of a power loss. Meters come in IP65 weather-proof housing, flexibly designed for wall and panel mountings.

- **Alpha 500 Transmitter Series** features a two-wire design with input to output isolation, ensuring crisp-clear signal transmission in electronically noisy locations
- **Alpha 550 Monitors Series** comes with Automatic Temperature Compensation function and a two-line LCD, giving you accurate, reliable measurements of pH/ORP and temperature (in °C or °F)
- **Alpha 560 Controller Series** includes two additional relays with separately adjustable high and low set-point hysteresis, minimizing chattering, false alarms and unnecessary process downtime

The Electrodes:

Thermo Scientific offers a wide selection of process electrodes, buffers, standards and accessories to complement your process requirements.

- High-quality, double-junction **pH and ORP electrodes** with Kynar® or Annular PTFE reference junctions operate in environment from 0 °C up to 110 °C. Each electrode comes with integral low-noise semi-conductor cables (unless otherwise stated)
- 2-cell and 4-cell **Conductivity electrodes** that incorporates 3-wire Pt100 for automatic temperature compensation. Durable, low maintenance electrodes built with Titanium or SS316 give consistent performances in high temperature of up to 150 °C
- **Dissolved Oxygen electrodes** designed for minimal maintenance and quick, stable readings within short response time. Rugged and long-lasting galvanic electrodes require no warm-up time

Main Features:

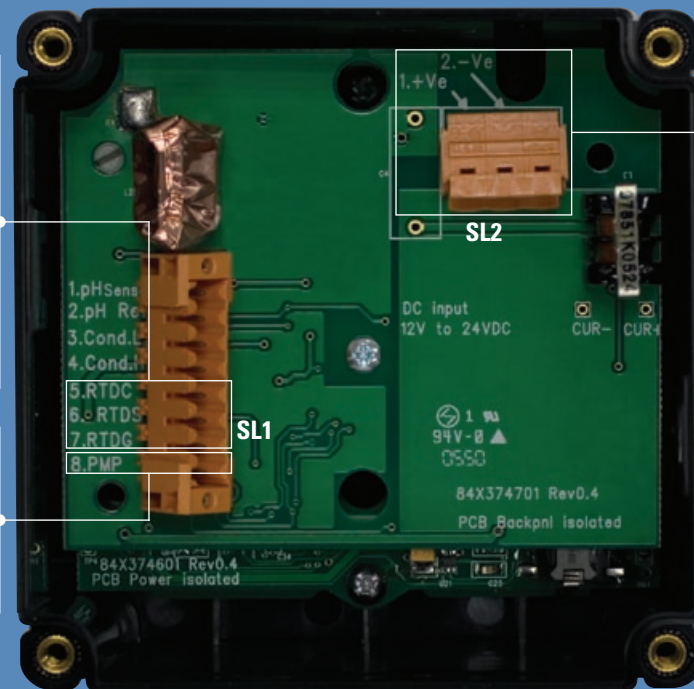
Thermo Scientific Alpha 500 Series
Back Panel

Two-Wire 4-20 mA Current Output
Fully scalable, galvanically-isolated outputs for parameter measurements. Out-of-range current at 3.8 mA

Automatic Temperature Compensation

Or manual temperature compensation without ATC probe. 3-wire system compensates for cable line resistance error. Independent settings for calibration and process temperatures for accurate temperature calibration

Liquid Ground caters for symmetrical mode of operation to prevent measurement error in an electrically noisy environment



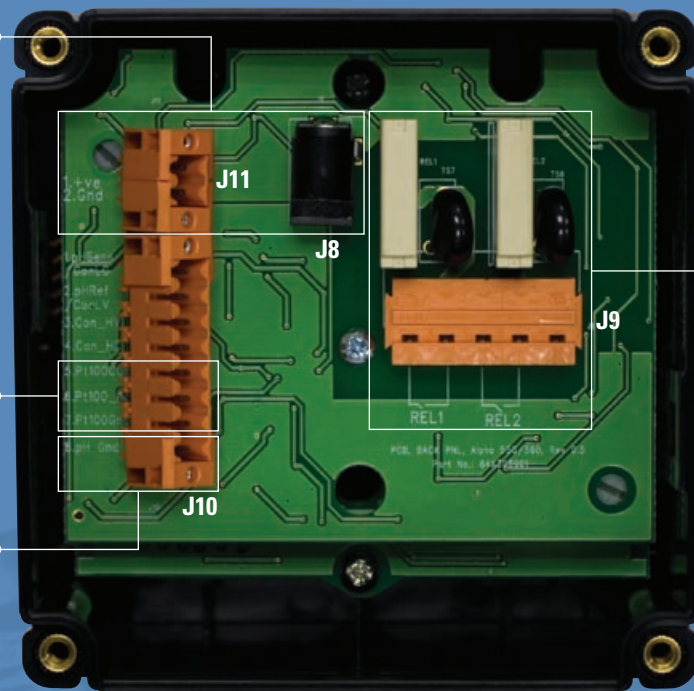
Alpha 500 Series		pH 500	COND 500	DO 500
SL1	1	pH sensor	No connection	DO input +ve
	2	pH reference electrode	No connection	DO input -ve
	3	No connection	Conductivity cell	No connection
	4	No connection	Conductivity cell	No connection
	5	Pt100 ATC	Pt100 ATC	Pt100 ATC
	6	Pt100 sensor	Pt100 sensor	Pt100 sensor
	7	Pt100 ground	Pt100 ground	Pt100 ground
	8	Potential matching pin	Potential matching pin	-
SL2	1	DC power supply +ve	DC power supply +ve	DC power supply +ve
	2	DC power supply -ve	DC power supply -ve	DC power supply -ve

Thermo Scientific Alpha 550/560 Series Back Panel

Flexible for use with 24 V DC or 9 V DC power source

Automatic Temperature Compensation
Or manual temperature compensation without ATC probe. 3-wire system compensates for cable line resistance error. Independent settings for calibration and process temperatures for accurate temperature calibration

Liquid Ground caters for symmetrical mode of operation to prevent measurement error in an electrically noisy environment



Two Independent Relays allow combination of high and low settings
Separately adjustable high and low hystereses prevent relay from switching between on and off during rapid fluctuations around set-points

*Available in Alpha 560 Series Only

Alpha 550/560 Series		pH 550	COND 550	pH 560	COND 560
J8		9 V DC power	9 V DC power	9 V DC power	9 V DC power
J9	1 & 2	–	–	Relay 1	Relay 1
	3 & 4	–	–	Relay 2	Relay 2
J10	1	pH sensor	No connection	pH sensor	No connection
	2	pH reference electrode	No connection	pH reference electrode	No connection
	3	No connection	Conductivity cell	No connection	Conductivity cell
	4	No connection	Conductivity cell	No connection	Conductivity cell
	5	Pt100 ATC	Pt100 ATC	Pt100 ATC	Pt100 ATC
	6	Pt100 sensor	Pt100 sensor	Pt100 sensor	Pt100 sensor
	7	Pt100 ground	Pt100 ground	Pt100 ground	Pt100 ground
	8	Potential matching pin	–	Potential matching pin	–
J11	1	24 V DC power supply +ve	24 V DC power supply +ve	24 V DC power supply +ve	24 V DC power supply +ve
	2	24 V DC power supply -ve	24 V DC power supply -ve	24 V DC power supply -ve	24 V DC power supply -ve



Thermo Scientific Alpha pH 500 pH/ORP 2-Wire Transmitter:

pH/ORP/Temperature:

Clear, uninterrupted data transmission is no problem with the Alpha pH 500, even in environments with electrical interferences. User-friendly and cost efficient, the transmitter comes with a large LCD screen to double up as a monitor – very convenient for quick checks on-the-spot.

- Measures, displays and transmit pH/ORP with temperature simultaneously
- Symmetrical Mode option, two-wire design and input-to-output isolation give clear, uninterrupted data transmission in electrically noisy ambient
- High quality, high resolution output at chart printers and other secondary devices
- Offset Adjustment Function allows you to adjust readings conveniently without having to remove electrode from the measurement tank or pipe
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation

**24/7 clear,
uninterrupted
pH data
transmission**



Thermo Scientific Alpha pH 550 pH/ORP Monitor:

pH/ORP/Temperature:

With a large, custom-size LCD screen, the Alpha pH 550 provides clear visuals even in dark ambients. Monitor automatically recognizes US and NIST buffers for easy calibration, and is flexibly designed for panel mounting or wall mounting.

- Measures and displays pH/ORP with temperature simultaneously
- Symmetrical Mode option gives clear, accurate readings in electrically noisy ambient
- Push button operation for easy set-up programming and customization
- US and NIST auto buffer recognition for quick, easy calibration
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation

No frills pH monitoring with symmetrical mode options for clear pH measurements, even in electronically noisy ambients



Thermo Scientific Alpha pH 560 pH/ORP Controller:

pH/ORP/Temperature:

Alpha pH 560 limit control meter simplifies the task of controlling several processes with two set-point relays. Separately adjustable high and low hysteresis ensures chatter-free signals, preventing false alarms and unnecessary down-times.















- Separately adjustable High/Low hysteresis with user-adjustable time delay of up to 2000 seconds for minimal chattering and false alarm
- Two switching contacts as set-point relays
- Large UV Light protected LCD with backlight
- Symmetrical Mode option gives clear, accurate readings in electrically noisy ambient
- Push button operation for easy set-up programming and customization
- US and NIST auto buffer recognition for quick, easy calibration
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation





Reliable pH control with minimal false alarms and unnecessary down-times

Specification Information

pH/ORP Transmitter/Monitor/Controller	Alpha pH 500	Alpha pH 550	Alpha pH 560
Order Code	TSPHCTP0500	TSPHCP0550	TSPHCP0560
Part No.	01X303608	01X402503	01X402603
pH:			
Range:	0.00 to 14.00 pH		
Resolution:	0.01 pH		
Accuracy:	±0.01 pH		
ORP:			
Range:	-1000 to 1000 mV		
Resolution:	1 mV		
Accuracy:	±2 mV		±1 mV
Temperature:			
Range:	-10.0 to 110.0 °C	-10.0 to 125.0 °C / 14.0 to 157.0 °F	
Resolution:	0.1 °C	0.1 °C / 0.1 °F	
Accuracy:	±0.5 °C	±0.5 °C / ±0.9 °F	
Sensor:	Pt100; 2 or 3 wire		
Compensation:	Auto/manual		
Transmitter (Alpha pH 500 only):			
Transmitter function:	4 to 20 mA scalable outputs for pH/ORP, galvanically isolated	-	
Out-of-range current output:	3.8 mA: 'On' select selects 3.8 mA 'Off' selects 4 mA (under range) Selects 20 mA (over range)	-	
Hold current output:	22 mA: 'On' select selects 22 mA 'Off' selects last measured current value	-	
Load:	Max. 600 Ω	-	
Controller (Alpha pH 560 only):			
Set point 1 (SP1) / set point 2 (SP2):	-	0.00 to 14.00 pH	
Switching pH hysteresis:	-	±1.0 pH	
Switching ORP hysteresis:	-	10 to 100 mV	
Function (switchable):	-	Limit control; off	
Pickup/dropout delay:	-	0 to 2000 sec	
Contact outputs:	-	2 SPST relays	
Switching voltage/current power:	-	1/8 HP: at 125 VAC / max. 0.74 A / max. 93 VA 1/8 HP: at 250 VAC / max. 0.37 A / max. 93 VA	
Electrical data & connections:			
pH/ORP input:	2-pin terminal; asymmetrical/symmetrical		
Connection terminal:	3-pin & 8-pin terminal, detachable blocks	2-pin & 8-pin terminal, detachable blocks; DC jack	
Display:			
LCD:	7 segments display with symbols for status information		
Backlight:	No	Yes (on/off selectable)	
Power supply:			
Input:	12 to 24 V DC	12 to 24 V DC or 9 V DC	
EMC specifications:			
Emitted interference:	According to EN 61326		
Immunity to interference:	According to EN 61326		
Environmental conditions:			
Operating temperature range:	0 to 40 °C		
Max. relative humidity:	80 % up to 31 °C decreasing linearly to 50 % at 40 °C		
Mechanical specifications:			
Dimensions (WxHxD):	96 x 96 x 66 mm		
Weight:	210 g (unit) / 310 g (packed)		
Ingress protection:	IP65		

pH/ORP Electrodes

Order Code	EC100GTS020B	EC100GTS010B	EC100GTS005B	ECARGTS005B	ECARHTTS005B	ECARTSOHF05B	ECARTS005B
Part No.	93X417005	93X417006	93X218865	93X218864	93X218860	93X218872	93X218859
pH Electrodes							
							
Classification	pH						
pH range	0 to 14					0 to 14, HF resistant	0 to 14
Reference	Annular PTFE, double junction						
Reference electrolyte	Saturated KCl, polymerized gel						
Operating temperature	0 to 80 °C / 32 to 176 °F				0 to 110 °C / 32 to 230 °F high temp.	0 to 80 °C / 32 to 176 °F	
Pressure tolerance	6 bars (87 psi)				9 bars (130 psi)	6 bars (87 psi)	
Temperature sensor	Pt100				-		
Potential matching pin/liquid ground	Platinum				-		
Material	PPS (Ryton®)						
Thread	¾" NPT						
Cable	Integral 20 m (65.6 ft) low-noise semi-conductor screened	Integral 10 m (32.8 ft) low-noise semi-conductor screened	Integral 5 m (16.4 ft) low-noise semi-conductor screened				
Connector	BNC						
Dimensions	Length	151 mm (excludes cable)					
	Diameter	26 mm (external)					
Weight	950 g	850 g	650 g				430 g

Order Code	ECHTAUTS005B	ECHTPTTS005B	
Part No.	93X219128	93X219126	
ORP Electrodes			
			
Classification	ORP		
Sensor	Gold	Platinum	
ORP range	± 1000 mV		
Reference	Annular PTFE, double junction		
Reference electrolyte	Saturated KCl, polymerized gel		
Operating temperature	0 to 80 °C / 32 to 176 °F		
Pressure tolerance	6 bars (87 psi)		
Potential matching pin/liquid ground	Platinum		
Material	PPS (Ryton®)		
Thread	¾" NPT		
Cable	Integral 5 m (16.4 ft) low-noise semi-conductor screened		
Connector	BNC		
Dimensions	Length	151 mm (excludes cable)	
	Diameter	26 mm (external)	
Weight	430 g		

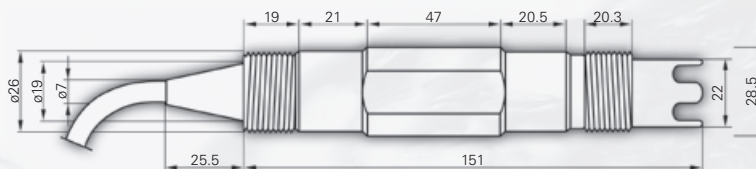
Electrode Selection Guide

	EC100GTSO20B 93X417005	EC100GTSO10B 93X417006	EC100GTSO-05B 93X218865	ECARGTSO-05B 93X218864	ECARHTTSO-05B 93X218860	ECARTSOHF-05B 93X218872	ECARTSO-05B 93X218859	ECHTAUTSO05B 93X219128	ECHTPPTS005B 93X219126
pH/ORP Electrodes									
General pH measurement	•	•	•	•	•	•	•		
pH measurement with ATC	•	•	•						
pH measurement in noisy environment eg. electroplating	•	•	•	•					
pH measurement at high temperatures (up to 110 °C/230 °F ; 9 bar/130 psi)					•				
pH measurement in the presence of Hydrofluoric Acid (HF)						•			
General ORP/Redox measurement								•	•
ORP measurement in noisy environment								•	•
ORP measurement in Cyanide treatment								•	
ORP measurements in oxidising applications (above 500 mV)									•
ORP measurements in reducing applications (below 500 mV)								•	

Line Diagram (All dimensions are in mm unless specified otherwise)

pH/ORP Electrodes

EC100GTSO20B
EC100GTSO10B
EC100GTSO05B
ECARGTSO05B
ECARTSOHF05B
ECARTSO05B
ECHTAUTSO05B
ECHTPPTS005B



Ordering Information

Order Code	Part Number	Description
TSPHCTP0500	01X303608	Alpha pH 500 wall/panel-mount pH/ORP 2-wire transmitter with 4-20 mA output and 12-24 V DC. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, etc
TSPHCP0550	01X402503	Alpha pH 550 wall/panel-mount pH/ORP monitor. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, power adapters, etc
TSPHCP0560	01X402603	Alpha pH 560 wall/panel-mount pH/ORP controller with 2 relay outputs. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, power adapters, etc
EC100GTSO20B	93X417005	Ryton®-body pH combi electrode with Pt100 RTD (ATC) & 20 m cable with BNC & PMP
EC100GTSO10B	93X417006	Ryton®-body pH combi electrode with Pt100 RTD (ATC) & 10 m cable with BNC & PMP
EC100GTSO05B	93X218865	Ryton®-body pH combi electrode with Pt100 RTD (ATC) & 5 m cable with BNC & PMP
ECARGTSO05B	93X218864	Ryton®-body pH combi electrode with 5 m cable with BNC & connector for PMP (no ATC)
ECARHTTSO05B	93X218860	Ryton®-body pH combi electrode with 5 m cable with BNC connector (no ATC); measures up to 110 °C
ECARTSOHF05B	93X218872	Ryton®-body pH combi electrode without ATC & 5 m cable with BNC connector. HF resistant glass
ECARTSO05B	93X218859	Ryton®-body pH combi electrode with 5 m cable with BNC connector (no ATC)
ECHTAUTSO05B	93X219128	Ryton®-body ORP gold electrode with 5 m cable with BNC & PMP (no ATC)
ECHTPPTS005B	93X219126	Ryton®-body ORP platinum electrode with 5 m cable with BNC & PMP (no ATC)
ECCBL05SMK50	01X222801	Low-noise 50 m coaxial SMK cable for pH/ORP electrodes (without ATC), 5 mm, open-ended with no connectors
28X088001	28X088001	Male BNC connector for 5 mm extension cable; 1 unit (need BNC crimping tool to connect to extension cable)
ECCBL030510	01X222802	Low-noise 10 m coaxial cable for pH/ORP electrodes (without ATC; with PMP), 3 mm/5 mm, male-male BNC connectors (for extending ECARGTSO05, ECHTAUTSO05B & ECHTPPTS005B)
ECCBL030520	01X222803	Low-noise 20 m coaxial cable for pH/ORP electrodes (without ATC; with PMP), 3 mm/5 mm, male-male BNC connectors (for extending ECARGTSO05, ECHTAUTSO05B & ECHTPPTS005B)
ECCONBNCBNC	01X243102	BNC to BNC adapter (for extension of cable connection) – a pack of 10 units
ECAC021011	81X220801	CPVC electrode tee for pH/ORP electrodes with ¾" to 1" adapter
ECAK061014	81X220802	Kynar® electrode tee for pH/ORP electrodes with ¾" to 1" adapter
ECPREAMP	01X228601	Pre-amplifier (for cable length exceeding 25 m) with female-female BNC connectors at each side of the junction box; batteries included
ECPHSIMULATOR	01X373301	Precision hi-low impedance & multiple buffers pH simulator (with BNC-BNC cable provided)



Thermo Scientific Alpha COND 500 Conductivity 2-Wire Transmitter:

Conductivity/Temperature:

The Alpha COND 500 transmits clear, uninterrupted conductivity readings simultaneously with temperature across six conductivity ranges. User-friendly and cost efficient, the transmitter features advanced self-diagnostic capabilities, low maintenance requirements, and comes with a large LCD screen to double up as a monitor.

- ± 1 % accuracy across six Conductivity ranges
- Push-button calibration – quick, easy, no hassle

- High quality, high resolution output at chart printers and other secondary devices
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation
- Offset Adjustment Function allows you to adjust readings conveniently without having to remove electrode from the measurement tank or pipe

**No frills
monitoring
and transmission
of up to six
Conductivity
ranges**



Thermo Scientific Alpha COND 550 Conductivity Monitor:

Conductivity/Temperature:

Featuring quick, easy calibration with push-button off-set adjustment, the no-frills Alpha COND 550 offers user-friendly operations and reliable conductivity measurements at an excellent price point. Monitor comes with a large LCD screen for clear visuals in dark environments, and is flexibly designed for both panel mounting and wall mounting.

- ± 1 % accuracy across six conductivity ranges
- User-selectable range, cell-constant and temperature coefficient to suit different application needs, including pure water measurements

- Push button operation for easy set-up programming and customization
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation

Custom-size LCD screen for clear readings, even in dark ambients



Thermo Scientific Alpha COND 560 Conductivity Controller:

Conductivity/Temperature:

The Alpha COND 560 controller simplifies process control with separately adjustable high/low hysteresis, and two switching contacts that act as set-point relays. Advanced control feature allows user to set alarm delay of up to 2000 seconds, preventing false alarms and unnecessary down-times.








- ± 1 % accuracy across six Conductivity ranges
- Separately adjustable High/Low hysteresis with user-adjustable time delay of up to 2000 seconds for minimal chattering and false alarms
- User-selectable range, cell-constant and temperature coefficient to suit different application needs, including pure water measurements
- Two switching contacts as set-point relays
- Large UV Light protected LCD with backlight
- Push button operation for easy set-up programming and customization
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation

**Reliable
Conductivity
control with
minimal false
alarms and
process
down-times**

Specification Information

Conductivity Controller	Alpha COND 500	Alpha COND 550	Alpha COND 560
Order Code	TSCONCTP0500	TSCONCP0550	TSCONCP0560
Part No.	01X378408	01X402703	01X402803
Conductivity:			
Range:	... to 19.99 $\mu\text{S/cm}$; ... to 199.9 $\mu\text{S/cm}$; ... to 1999 $\mu\text{S/cm}$; ... to 10.00 mS/cm ; ... to 19.99 mS/cm ; ... to 199.9 mS/cm	... to 2 $\mu\text{S/cm}$; ... to 20 $\mu\text{S/cm}$; ... to 200 $\mu\text{S/cm}$; ... to 2000 $\mu\text{S/cm}$; ... to 20 mS/cm ; ... to 200 mS/cm	
Resolution:	0.01 $\mu\text{S/cm}$; 0.1 $\mu\text{S/cm}$; 1 $\mu\text{S/cm}$; 0.01 mS/cm ; 0.1 mS/cm	0.001 $\mu\text{S/cm}$; 0.01 $\mu\text{S/cm}$; 0.1 $\mu\text{S/cm}$; 1 mS/cm ; 0.01 mS/cm ; 0.1 mS/cm	
Accuracy:		± 1 % full scale	
Cell constant:		$k = 0.1, 1.0, 10.0$	
Temperature:			
Range:	0.0 to 110.0 $^{\circ}\text{C}$	-10.0 to 125.0 $^{\circ}\text{C}$ / 14.0 to 157.0 $^{\circ}\text{F}$	
Resolution:	0.1 $^{\circ}\text{C}$	0.1 $^{\circ}\text{C}$ / 0.1 $^{\circ}\text{F}$	
Accuracy:	± 0.5 $^{\circ}\text{C}$	± 0.5 $^{\circ}\text{C}$ / ± 0.9 $^{\circ}\text{F}$	
Sensor:		Pt100; 2 or 3 wire	
Compensation:		Auto/manual	
Coefficient:		0 to 10 % (selectable)	
Normalization:		20.0 to 25.0 $^{\circ}\text{C}$ (selectable)	
Transmitter (Alpha COND 500 only):			
Transmitter function:	4 to 20 mA scalable outputs for Conductivity		–
Out-of-range current output:	3.8 mA: 'ON' select selects 3.8 mA 'OFF' selects 4 mA (under range) Selects 20 mA (over range)		–
Hold current output:	22 mA: 'ON' select selects 22 mA 'OFF' selects last measured current value		–
Load:	Max. 600 Ω		–
Controller (Alpha COND 560 only):			
Set point 1 (SP1) / set point 2 (SP2):	–		... to 2 $\mu\text{S/cm}$ or ... to 20 $\mu\text{S/cm}$ or ... to 200 $\mu\text{S/cm}$ or ... to 2000 $\mu\text{S/cm}$ or ... to 20 mS/cm or ... to 200 mS/cm
Switching Conductivity hysteresis:	–		0 to 10 % full scale reading
Function (switchable):	–		Limit control; off
Pickup/dropout delay:	–		0 to 2000 sec
Contact outputs:	–		2 SPST relays
Switching voltage/current power:	–		$\frac{1}{8}$ HP: at 125 VAC / max. 0.74 A / max. 93 VA $\frac{1}{8}$ HP: at 250 VAC / max. 0.37 A / max. 93 VA
Electrical data & connections:			
Conductivity input:			2-pin terminal
Connection terminal:	3-pin & 8-pin terminal, detachable blocks		2-pin & 8-pin terminal, detachable blocks; DC jack
Display:			
LCD:			7 segments display with symbols for status information
Backlight:		No	Yes (on/off selectable)
Power supply:			
Input:	12 to 24 VDC		12 to 24 V DC or 9 V DC
EMC specifications:			
Emitted interference:			According to EN 61326
Immunity to interference:			According to EN 61326
Environmental conditions:			
Operating temperature range:			0 to 40 $^{\circ}\text{C}$
Max. relative humidity:			80 % up to 31 $^{\circ}\text{C}$ decreasing linearly to 50 % at 40 $^{\circ}\text{C}$
Mechanical specifications:			
Dimensions (WxHxD):			96 x 96 x 66 mm
Weight:			210 g (unit) / 310 g (packed)
Ingress protection:			IP65

Conductivity Electrodes

Order Code	EC91346S	ECCONSEN88X	ECCS10-0-1S	ECCS10-0-1SSP	ECCONSEN89X	ECCS10-1-0S	ECCS10-1-0SSP
Part No.	93X219048	93X272101	93X219020	93X219055	93X272102	93X219021	93X219056
Conductivity Electrodes							
Conductivity range	Up to 500 mS/cm	0.01 to 2 mS/cm	0.5 to 200 µS/cm		0.1 to 200 µS/cm	0.01 to 100 mS/cm	0.01 to 200 mS/cm
Cell constant, K	0.3, 4-cell	1.0, 2-cell	0.1, 2-cell			1.0, 2-cell	
Temperature sensor	Pt100, 3-wire						
Pressure rating at 25 °C	6 bar (87 psi)	1 bar (14 psi)	3.4 bar (50 psi)	6.8 bar (100 psi)	1 bar (14 psi)	3.4 bar (50 psi)	6.8 bar (100 psi)
Operating temperature	-5 to 100 °C / 23 to 212 °F	-5 to 50 °C / 23 to 122 °F		-5 to 150 °C / 23 to 302 °F	-5 to 50 °C / 23 to 122 °F		-5 to 120 °C / 23 to 248 °F
Material	Ryton®, SS316	Graphite	SS316		Graphite	SS316	
Fitting material	–	Nylon plastic		Stainless steel	Nylon plastic		Stainless steel
Thread	¾" NPT				½" NPT		
Cable	Integrated 7.6 m (24.9 ft), 8-wire double-shielded, tinned ends	Integrated 7.5 m (24.6 ft), 6-wire double-shielded, tinned ends					
Dimensions	Length	150.5 mm (excludes cable)	132 mm (excludes cable)	168 mm (excludes cable)	132 mm (excludes cable)	168 mm (excludes cable)	
	Diameter	22.2 mm (external)	12 mm (external)	12.8 mm (external)	12 mm (external)	12.8 mm (external)	
Weight	430 g	316 g	560 g	660 g	316 g	590 g	660 g

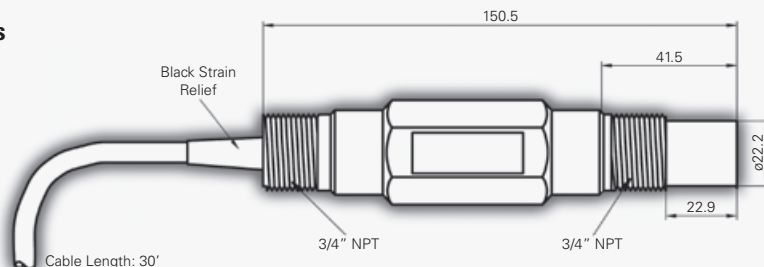
Electrode Selection Guide

Conductivity Electrodes	EC91346S 93X219048	ECCONSEN88X 93X272101	ECCS10-0-1S 93X219020	ECCS10-0-1SSP 93X219055	ECCONSEN89X 93X272102	ECCS10-1-0S 93X219021	ECCS10-1-0SSP 93X219056
General Conductivity measurements	•	•	•	•	•	•	•
Low Conductivity measurements			•	•	•		
High Conductivity measurements (4-cell electrodes)	•						
Conductivity measurements with ATC	•	•	•	•	•	•	•
Conductivity measurements of boiler water				•	•		
Conductivity measurements of power plant & condensate water		•	•	•	•	•	•

Line Diagram (All dimensions are in mm unless specified otherwise)

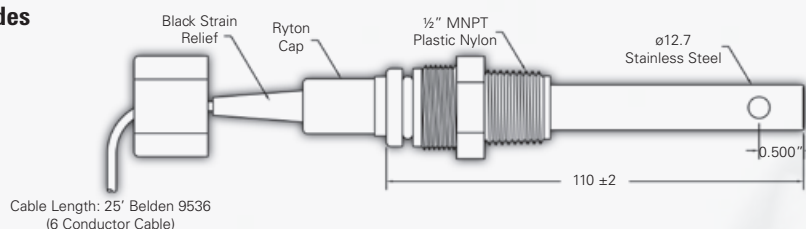
Conductivity Electrodes

EC91346S



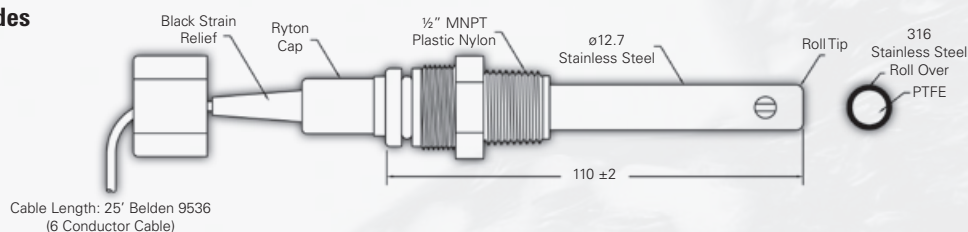
Conductivity Electrodes

ECCS10-0-1S



Conductivity Electrodes

ECCS10-1-0S



Ordering Information

Order Code	Part Number	Description
TSCONCTP0500	01X378408	Alpha COND 500 wall/panel-mount Conductivity 2-wire transmitter with 4-20 mA output and 12-24 V DC. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, etc
TSCONCP0550	01X402703	Alpha COND 550 wall/panel-mount Conductivity monitor. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, power adapters, etc
TSCONCP0560	01X402803	Alpha COND 560 wall/panel-mount Conductivity controller with 2 relay outputs. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, power adapters, etc
EC91346S	93X219048	4-Cell Conductivity electrode with 3-wire Pt100, 30 ft tinned open-ended cable
ECCONSEN88X	93X272101	Conductivity graphite 2-ring epoxy-body electrode with Pt100, cell constant K=1.0, 7.5 m tinned open-ended cable
ECCS10-0-1S	93X219020	Conductivity electrode with Pt100, cell constant K=0.1, stainless steel with 25 ft tinned open-ended cable (with 1/2 inch nylon plastic cap threading)
ECCS10-0-1SSP	93X219055	Conductivity electrode with Pt100, cell constant K=0.1, stainless steel with PEEK insert and 25 ft tinned open-ended cable (with 1/2 inch stainless steel cap threading)
ECCONSEN89X	93X272102	Conductivity graphite 2-ring epoxy-body electrode with Pt100, cell constant K=0.1, 7.5 m tinned open-ended cable
ECCS10-1-0S	93X219021	Conductivity electrode with Pt100, cell constant K=1.0, stainless steel with 25 ft tinned open-ended cable (with 1/2 inch nylon plastic cap threading)
ECCS10-1-0SSP	93X219056	Conductivity electrode with Pt100, cell constant K=1.0, stainless steel with PEEK insert and 25 ft tinned open-ended cable (with 1/2 inch stainless steel cap threading)
ECAC021022	81X220803	CPVC electrode tee for Conductivity/Resistivity electrodes with 1/2" to 1" adapter



Thermo Scientific Alpha DO 500 Dissolved Oxygen 2-Wire Transmitter:

Dissolved Oxygen/Temperature:

The Alpha DO 500 Transmitter transmits dissolved oxygen readings across a wide measurement range to the peripheral instrument of your choice, reliably and accurately.



- Measures dissolved oxygen (in mg/L, ppm and % saturation) simultaneously with temperature
 - ± 1.5 % full scale accuracy
 - Quick, easy calibration using atmospheric air as calibration media for 100 % air saturation
 - Push-button calibration – quick, easy, no hassle
 - High quality, high resolution output at chart printers and other secondary devices
- Reliable, accurate measurements at different temperature with Automatic Temperature Compensation
 - Offset Adjustment Function allows you to adjust readings conveniently without having to remove electrode from the measurement tank or pipe

**Broad range
dissolved oxygen
monitoring in
mg/L, ppm or
% saturation**

Specification Information

Dissolved Oxygen Transmitter	Alpha DO 500
Order Code	TSDOCTP0500
Part No.	01X412004
Dissolved Oxygen:	
Range:	0 to 19.99 mg/L / 0.00 to 19.99 ppm 0 to 199.9 % saturation
Resolution:	0.01 mg/L or 0.01 ppm 0.1 %
Accuracy:	±1.5 % full scale
Temperature:	
Range:	0.0 to 100.0 °C
Resolution:	0.1 °C
Accuracy:	±0.5 °C
Sensor:	Pt100; 2 or 3 wire
Compensation:	Auto/manual (0 to 50 °C)
Pressure:	
Compensation:	0.74 to 3.00 bars 550 to 2250 mmHg 10.7 to 43.5 psi (manual setting and automatic correction)
Salinity:	
Compensation:	0.0 to 50.0 ppt (manual setting and automatic calibration)
Transmitter:	
Transmitter function:	4 to 20 mA scalable outputs for Dissolved Oxygen, galvanically isolated
Out-of-range current output:	3.8 mA: 'On' select selects 3.8 mA 'Off' selects 4 mA (under range) Selects 20 mA (over range)
Hold current output:	22 mA: 'On' select selects 22 mA 'Off' selects last measured current value
Load:	Max. 600 Ω
Electrical data & connections:	
DO input:	2-pin terminal
Connection terminal:	3-pin & 8-pin terminal, detachable blocks
Display	
LCD:	7 segments display with symbols for status information
Power supply:	
Input:	12 to 24 V DC
EMC specifications:	
Emitted interference:	According to EN 61326
Immunity to interference:	According to EN 61326
Environmental conditions:	
Operating temperature range:	0 to 40 °C
Max. relative humidity:	80 % up to 31 °C decreasing linearly to 50 % at 40 °C
Mechanical specifications:	
Dimensions (WxHxD):	96 x 96 x 66 mm
Weight:	210 g (unit) / 310 g (packed)
Ingress protection:	IP65

Dissolved Oxygen Electrodes

Order Code	ECDOGEN-S 01X247507	ECDOTPII-S 01X247508
Part No.		
Dissolved Oxygen Electrodes		
Dissolved Oxygen range	0.50 to 20 ppm	0.03 to 20 ppm
Type	Galvanic	
Flow rate	50 mm/sec (dependent on temperature and O ₂ level)	
Response time	40 to 50 sec to attain 95 % of actual reading	
Temperature sensor	Pt100	
Pressure rating	6 bar (87 psi)	
Operating temperature	0 to 50 °C / 32 to 122 °F	
Material	Delrin housing	
Membrane	HDPE	
Cable	Integral 5 m (16.3 ft) water-resistant, tinned ends	
Dimensions	Length	152.4 mm (excludes cable)
	Diameter	58.4 mm (external)
Weight	670 g	

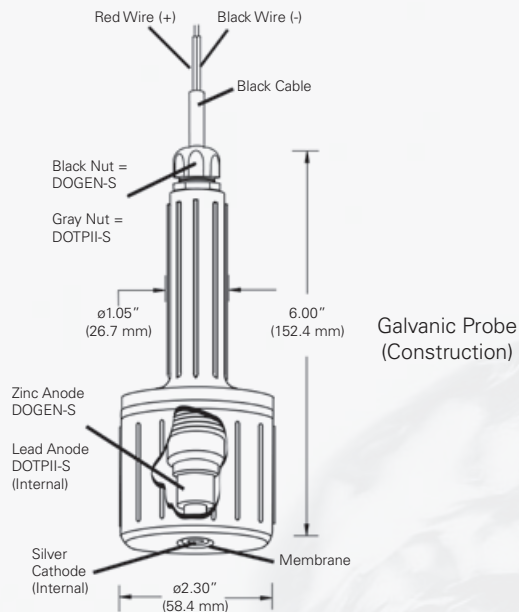
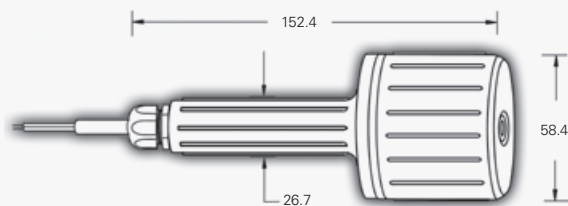
Electrode Selection Guide

Dissolved Oxygen Electrodes	ECDOGEN-S 01X247507	ECDOTPII-S 01X247508
DO measurements at low levels		•
Waterproof probes	•	•
Galvanic DO measurements system for general purposes, eg. wastewater & aquaculture	•	•
Galvanic DO measurements system for low DO level, eg. power plants, metal corrosion test facilities		•

Line Diagram (All dimensions are in mm unless specified otherwise)

Dissolved Oxygen Electrodes

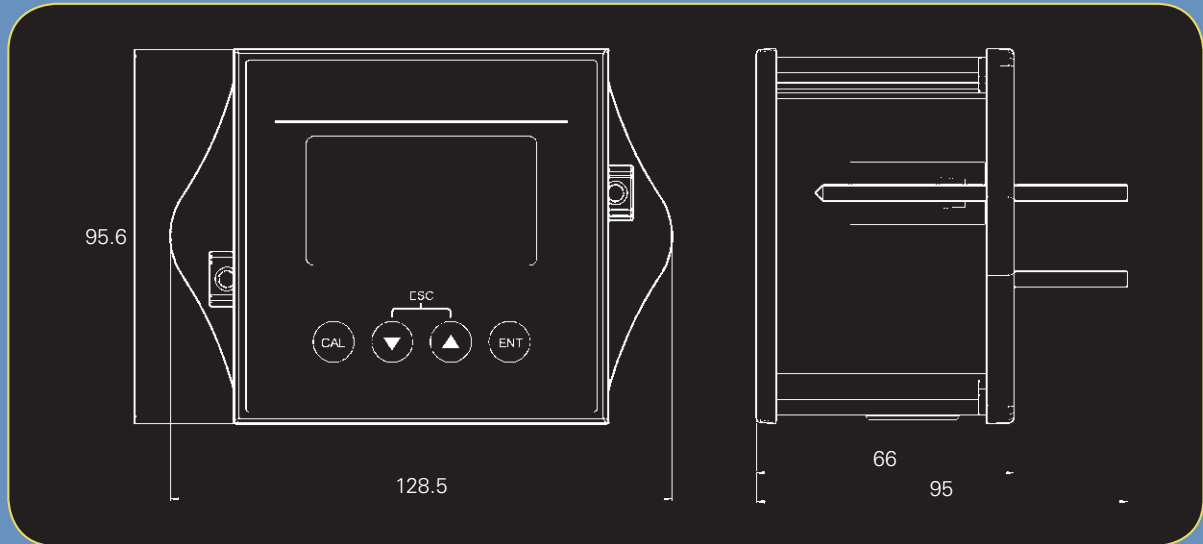
ECDOGEN-S
ECDOTPII-S



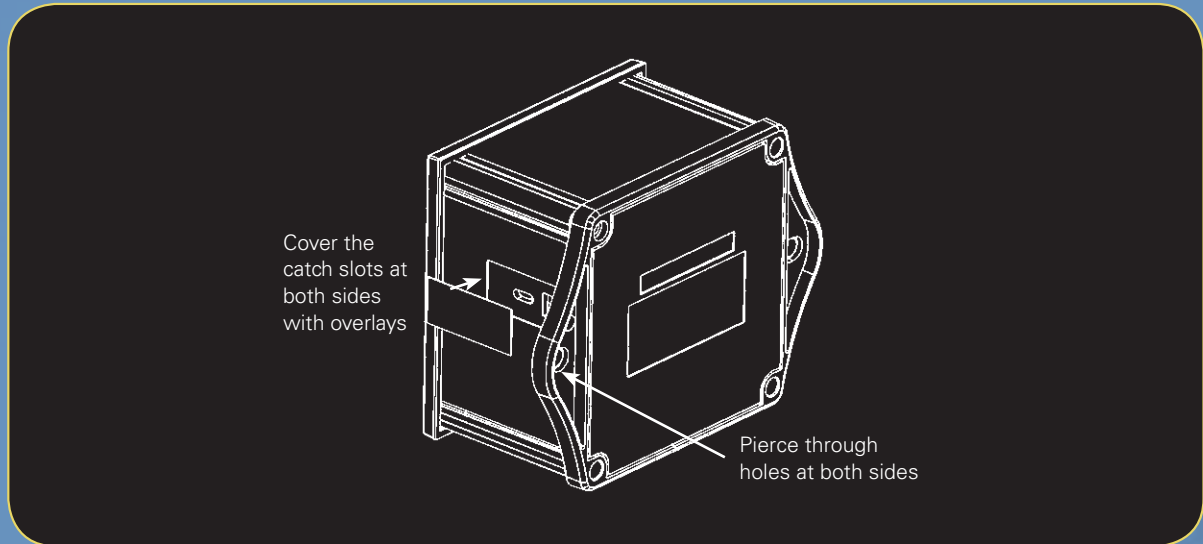
Ordering Information

Order Code	Part Number	Description
TSDOCTP0500	01X412004	Alpha DO 500 wall/panel-mount Dissolved Oxygen 2-wire transmitter with 4-20 mA output & 12-24 V DC. Incl. cable glands, terminal blocks, gasket, threaded rods, catch, etc
ECDOGEN-S	01X247507	Delrin housing-body galvanic Dissolved Oxygen electrode with Pt100, 5 m tinned open-ended cable
ECDOTPII-S	01X247508	Delrin housing-body galvanic Dissolved Oxygen electrode with Pt100, 5 m tinned open-ended cable
01X241605	01X241605	Set of 5 o-rings & membranes (DOGEN-S)
01X241606	01X241606	Set of 5 o-rings & membranes (DOTPII-S)
32X246702	32X246702	Large o-ring (DOGEN-S/DOTPII-S)
15X241503	15X241503	Tool for membrane housing (DOGEN-S/DOTPII-S)
ECDOGENSOLNBT	01X211228	DO refilling electrolyte for ECDOGEN-S (480 ml bottle)
ECDOTPIISOLNBT	01X211229	DO refilling electrolyte for ECDOTPII-S (480 ml bottle)

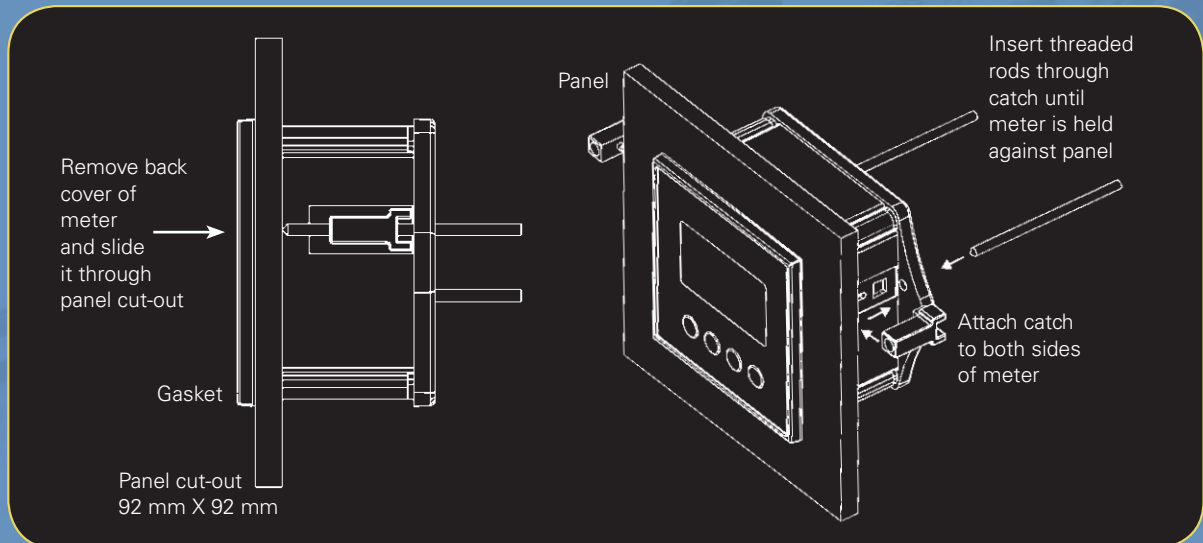
Mechanical Dimensions (in mm)



Wall Mount – ¼ DIN



Panel Mount – ¼ DIN (in mm)



Trademarks Used:

Kynar® is a registered trademark of Arkema Inc.
Ryton® is a registered trademark of Chevron
Phillips Chemical Company LLC.

Warranty:

Thermo Fisher Scientific provides one year of warranty against manufacturing defects for meters, and six months for electrodes.

Disclaimers:

Specifications and terms are subject to change.
Not all products are available in all countries.
Please consult your local sales representative
for details.

All drawings and diagrams are for illustration
purposes only and are not drawn to scale.

About Thermo Fisher Scientific

Thermo Fisher Scientific (NYSE: TMO) is the world leader in serving science, enabling our customers to make the world healthier, cleaner and safer. With annual sales of more than \$9 billion, we employ 30,000 people and serve over 350,000 customers within pharmaceutical and biotech companies, hospitals and clinical diagnostic labs, universities, research institutions, government agencies as well as environmental and industrial process control settings. Serving customers through two premier brands, Thermo Scientific and Fisher Scientific, we help solve analytical challenges from routine testing to complex research and discovery. Thermo Scientific offers customers a complete range of high-end analytical instruments as well as laboratory equipment, software, services, consumables and reagents to enable integrated laboratory workflow solutions. Fisher Scientific provides a complete portfolio of laboratory equipment, chemicals, supplies and services used in healthcare, scientific research, safety and education. Together, we offer the most convenient purchasing options to customers and continuously advance our technologies to accelerate the pace of scientific discovery, enhance value for customers and fuel growth for shareholders and employees alike.



Environmental Instruments

Water Analysis Instruments

North America

166 Cummings Center
Beverly, MA 01915 USA
Toll Free: 1-800-225-1480
Tel: 1-978-232-6000
Dom. Fax: 1-978-232-6015
Int'l Fax: 978-232-6031
www.thermo.com/process

Europe

Denmark House, Angel Drove
Ely, Cambridgeshire
CB7 4ET, UK
Tel: 44-1353-666111
Fax: 44-1353-666001

Asia Pacific

Blk 55, Ayer Rajah Crescent
#04-16/24, Singapore 139949
Tel: 65-6778-6876
Fax: 65-6773-0836



© 2008 Thermo Fisher Scientific Inc.
All rights reserved.

www.thermo.com/process

CON 08X233410 06/08 Rev 0

Thermo
SCIENTIFIC