TPS

Quality. Service. Value.

Instruments for Pool and Spa Monitoring and Control

easyCHEM Series
poolCHEM Series
Aqua-TP

Nothing's as cool, as a freshwater pool ™

www.tps.com.au/pools

About TPS

TPS has been designing and manufacturing instruments and sensors in Australia since 1968. We have extensive experience in all types of instrumentation from precision laboratory equipment to industrial process control. This experience carries over to our swimming pool controllers, which we have been producing for over 20 years.

At TPS, our aim is to provide you with the best quality, service and value for money and the TPS Quality System has been independanty certified in accordance with the AS/NZS ISO 9001 standard.

Why Chlorine instead of salt ?

Many people still believe (incorrectly) that salt water pools do not contain Chlorine. A salt chlorinator produces Chlorine from the salt dissolved in the water. A salt water pool should therefore contain the same amount of Chlorine as a freshwater pool. Unfortunately, salt chlorinators produce the same amount of Chlorine every day regardless of weather conditions or bather load. TPS controllers with ORP readout continuously monitor and control Chlorine concentration. Even on a hot summer day with all the neighbourhood kids in the pool, the TPS unit will maintain healthy, sanitary water. ORP controllers are mandatory for commercial pools by many health authorities. Why would you want anything less for your family ?

What about itchy eyes and Chlorine odours ?

Itchy eyes and "Chlorine" odours are rarely caused by Chlorine itself. Compounds known as Chloramines are formed when the Chlorine has reacted with organic matter. In a pool with poorly regulated Chlorine addition these Chloramines can reach a level where they cause eye and skin irritation and the familiar "Chlorine" smell. TPS controllers regulate Chlorine levels precisely whenever the pool pump is on, so you will not smell or taste it. You will feel like you are swimming in a fresh mountain lake. That's why we say, "*Nothing's as cool, as a freshwater pool*™".

Peristaltic Dosing Pumps

Peristaltic dosing pumps are the most reliable way of dosing liquid Chlorine and Acid. The chemical being dosed is never in contact with any pump components other than the squeeze tube. Peristaltic dosing pumps can also pump against moderate pressures, so they can be installed in the pool return line, after the filter, heater or any other in-line equipment. The service life of these devices is therefore considerably extended. Peristaltic pumps are self priming and will not be damaged if they run dry.

Be wary of any systems which use diaphragm pumps or solenoid valves. These devices have seals which often fail, allowing chemicals to attack the motor and electronics. Solenoid valve systems must have the valves installed in the suction side of the pump. When a solenoid valve fails, entire drums of chemical can be dosed into the pool in a short time. Also, the pump, filter, heater etc are exposed to concentrated chemicals before they have had a chance to be diluted in the pool.

Quick and easy to install

TPS controllers can be installed in minutes. The easy*CHEM* Series are supplied with a simple installation guide, so the installer does not need prior experience with this type of equipment. All settings and calibration are preset in the factory for the most common pool installations, so the controllers can simply be installed and switched on. All models are supplied with a single sensor and injection Tee for 40 and 50mm PVC pipe.

Please request a copy of the installation guide for the models which interest you for complete installation details.

Inbuilt Intelligence

All easy*CHEM* and pool*CHEM* models feature Shut-Off and Data alarms. The Shut-Off alarm detects when a pump has been dosing for too long without the reading getting back to the set point. The beeper sounds, providing a warning of events such as an empty chemical drum or a system fault. The Data alarm sounds when the reading has been outside of acceptable limits for a set time. Again, this can prevent problems before they become serious.

The easy*CHEM* 110 has an exclusive Smart-Temp function. If the water temperature becomes significantly higher or lower than normal, more or less chemical will be dosed accordingly. No other feeder or salt chlorinator has this ability.

All ORP and pH controllers need to be regularly serviced and calibrated. The easy*CHEM* series reminds the user when it is time to lubricate the pump tubes and calibrate. Nothing is left to chance when a TPS controller is on the job.

Superchlorination is occasionally required to shock the pool. Simply set the litres of Chlorine to be dosed on the easy*CHEM* and it will do the rest. The unit will also run the pump for an additional 4 hours after superchlorination, to ensure that the Chlorine is completely mixed.

Digital Pool Pump Timer Output

The easy*CHEM* 110, 220, 330, 550, 660 & 770 are fitted with a Pool Pump Timer Output. The timer uses the calendar clock to regulate the operation of the pool pump and has a battery back-up in case of power failure. The standard timer program runs the pump for two 4 hour cycles per day in Summer and one 4 hour cycle in Winter. The dates and cycles for Summer and Winter can be fully customised to your requirements. The timer output can also be used to assist with filter backwashing. Step by step instructions on the easy*CHEM* display lead the operator through the correct backwashing and rinse cycles before restoring the filter to its normal setting. A similar function is provided for pumping to waste.

Advanced poolCHEM Series Features

The pool*CHEM* Series is designed primarily for commercial applications. They have additional features such as Good Laboratory Practices (GLP), Automatic Datalogging and Computer Interfacing. The pool*CHEM* Series allows you to comply with health and other regulations by providing a computer record or printout of calibration and pool data, complete with dates and times. Please see the Specifications section of this brochure for further details on these functions. The pool*CHEM* Series also has password access protection. Only qualified users are able to change calibration data or set-up information.
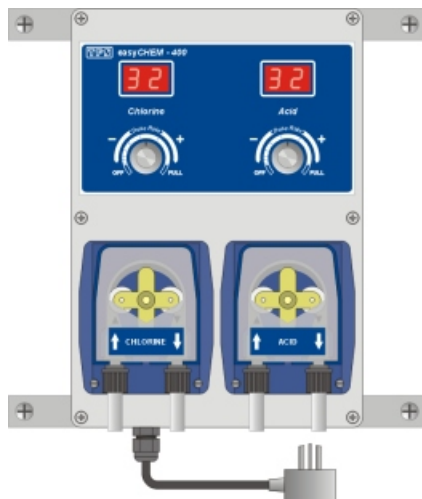
easyCHEM 100 — Chemical Feeder

> - *Proportional feeder for Chlorine, Acid or other chemicals.*
> - *Very simple to operate.*
> - *Pump rate can be set from 1 to 99 to fine-tune dose rate. Set to "00" to switch off, and "On" to pump continuously.*
> - *Highly reliable peristaltic pump.*
> - *Piggy-back power plug for pool pump, ensures feeder only operates when pool pump is on.*
> - *Easy to install injection Tee.*

The ideal alternative to salt water chlorinators for those people who prefer to swim in a fresh water pool.

easyCHEM 400 — Dual Chemical Feeder

> - *Proportional feeder for Chlorine and Acid.*
> - *Very simple to operate.*
> - *Pump rate can be set from 1 to 99 to fine-tune dose rate. Set to "00" to switch off, and "On" to pump continuously.*
> - *Highly reliable peristaltic pumps.*
> - *Piggy-back power plug for pool pump, ensures feeder only operates when pool pump is on.*
> - *Single, easy to install injection Tee.*

The ideal alternative to salt water chlorinators with the added benefit of acid injection.

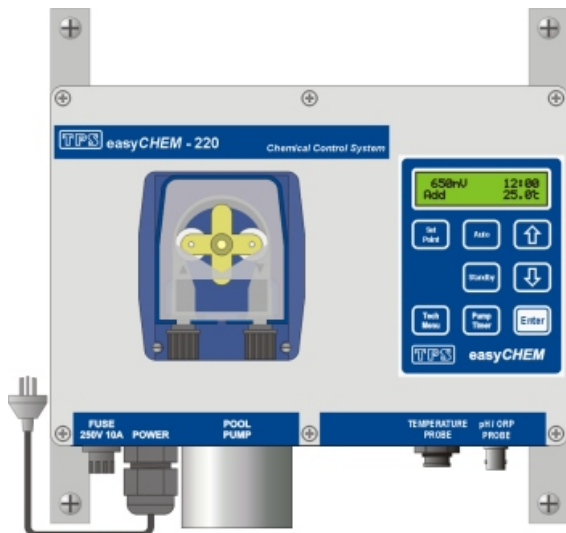## easyCHEM 110 — Chemical Feeder with Timer Output for Pool Pump
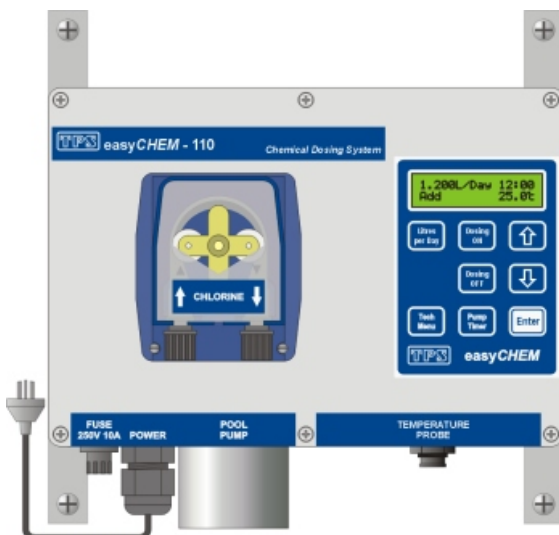
> - *Chlorine or Acid feeder for Swimming and Spa Pools. Inbuilt peristaltic pump makes installation a breeze.*
> - *Adds the same amount of Chlorine or Acid each day, even if pool pump is run for longer or shorter times.*
> - *Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.*
> - *Digital Temperature readout.*
> - *Smart-Temp function can be set to automatically increase dosing on hot days and decrease dosing on cold days.*
> - *Super-chlorinate function (Chlorine version only).*
> - *Filter backwash and pump to waste function.*
> - *Supplied with Temperature sensor and all accessories required for installation and operation.*

Exclusive Smart-Temp feature adjusts dosing during hot or cold weather.

easyCHEM 220 — Chlorine OR Acid Controller with Timer Output for Pool Pump

- Automatic controller for ORP OR Acid in Swimming and Spa Pools. Inbuilt peristaltic pump makes installation a breeze.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP or pH plus Temperature.
- Factory-supplied as ORP or pH, but can be re-configured by supplier (sensor must also be changed).
- Shutoff Alarm when dosing pump has run too long continuously. Stops an entire drum of chemical being dosed in case of an instrument or probe fault.
- Data Alarm in case reading goes outside normal levels. Safeguards against overdosing or underdosing chemicals.
- Super-chlorinate function (Chlorine version only).
- Filter backwash and pump to waste assist.

Precise control of one parameter.

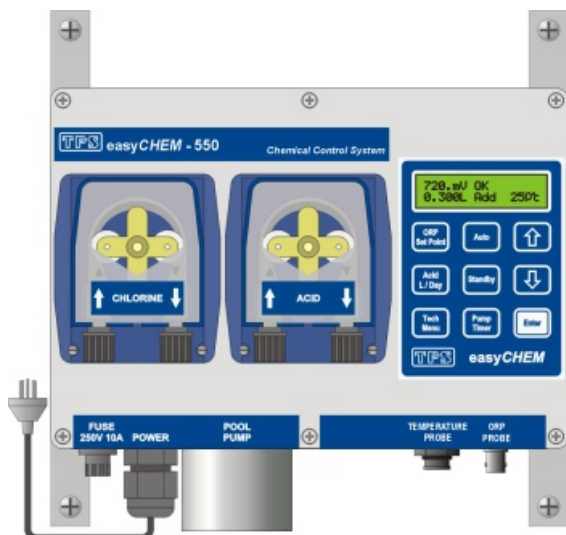## easyCHEM 330 — Chlorine OR Acid Controller with Timer Output for Pool Pump

- Automatic controller for ORP OR Acid in Swimming and Spa Pools.
- Weatherproof mains power output to control a dosing pump, solenoid, CO_2 valve, Salt Chlorinator etc.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP or pH plus Temperature.
- Factory-supplied as ORP or pH, but can be re-configured by supplier (sensor must also be changed).
- Shutoff Alarm when dosing pump has run too long continuously. Stops an entire drum of chemical being dosed in case of an instrument or probe fault.
- Data Alarm in case reading goes outside normal levels. Safeguards against overdosing or underdosing chemicals.
- Super-chlorinate function (Liquid Chlorine version only).
- Filter backwash and pump to waste assist.

The easyCHEM 330 is also available with a CO_2 valve kit for pH control.

easyCHEM 550 — Chlorine Controller and Acid Feeder with Timer Output for Pool Pump

- Automatic controller for ORP in Swimming and Spa Pools.
- Acid Feeder adds the same amount of acid each day, even if pool pump is run for longer or shorter times.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP plus Temperature.
- Shutoff Alarm when Chlorine pump has run too long continuously. Stops an entire drum of Chlorine being dosed in case of an instrument or probe fault.
- Data Alarm in case ORP reading goes outside normal levels. Safeguards against overdosing or underdosing Chlorine.
- Super-chlorinate function.
- Filter backwash and pump to waste assist.

Precise Chlorine control plus automatic Acid feeder.

easyCHEM 660 — ORP and pH Controller with Timer Output for Pool Pump
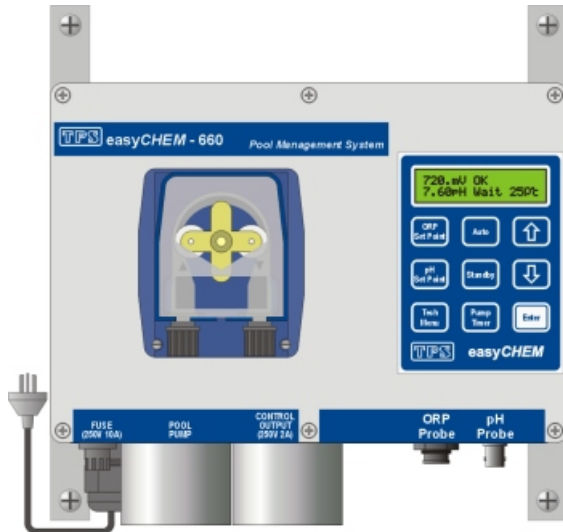
The easyCHEM 660 is also available with a CO₂ valve kit for pH control.

- Automatic controller for ORP and pH in Swimming and Spa Pools.
- The easyCHEM 660 has 1 inbuilt peristaltic pump and 1 mains power control output.
- Some set-up examples include...
  - Inbuilt pump adds Chlorine and output controls CO_2 valve.
  - Inbuilt pump adds Acid and output controls Salt Chlorinator or larger Chlorine dosing pump.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP and pH plus Temperature.
- Shutoff Alarm when pump has run too long continuously.
- Data Alarm in case ORP or pH readings exceed normal levels.
- Super-chlorinate function.
- Filter backwash and pump to waste assist.

easyCHEM 770 — ORP and pH Controller with Timer Output for Pool Pump

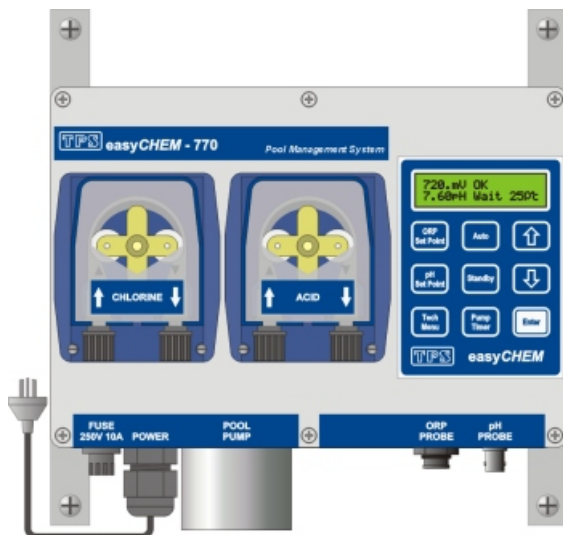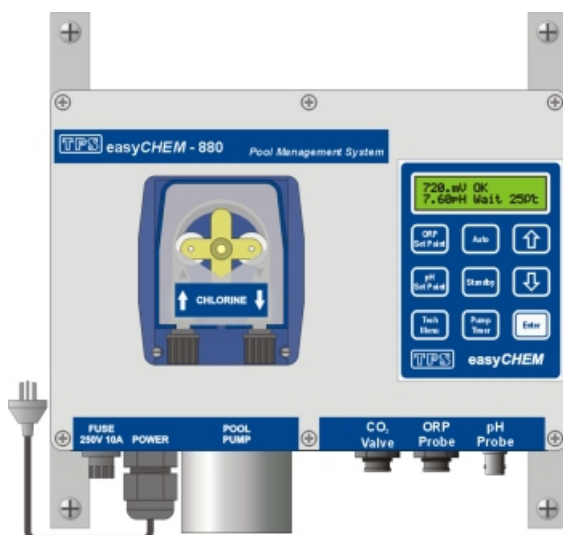**Our most popular controller for domestic and small commercial pools.**

- Automatic controller for ORP and pH in Swimming and Spa Pools.
- The easyCHEM 770 has 2 inbuilt peristaltic pumps, making installation a breeze.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP and pH plus Temperature.
- Shutoff Alarm when pump has run too long continuously. Stops an entire drum of chemical being dosed in case of an instrument or probe fault.
- Data Alarm in case ORP or pH reading goes outside normal levels. Safeguards against overdosing or underdosing chemicals.
- Super-chlorinate function.
- Filter backwash and pump to waste assist.

easyCHEM 880 — ORP and pH Controller with Timer Output for Pool Pump

Use safe CO_2 gas for pH control.

- Automatic controller for ORP and pH in Swimming and Spa Pools.
- The easyCHEM 880 has an inbuilt peristaltic pump for Chlorine control and an external solenoid valve for CO_2 control.
- Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles.
- Digital readout of ORP and pH plus Temperature.
- Shutoff Alarm when pump has run too long continuously.
- Data Alarm in case ORP or pH readings exceed normal levels.
- Super-chlorinate function.
- Filter backwash and pump to waste assist.

poolCHEM
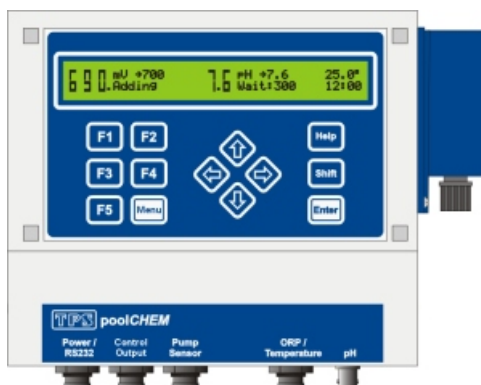
poolCHEM-1

poolCHEM-2

➢ *Automatic controller for ORP and pH in commercial Swimming and Spa Pools.*

➢ *The poolCHEM has 2 x 24V DC outputs. These would normally be used to control larger relays that switch dosing pumps, valves etc.*

➢ *The poolCHEM-1 has 1 x inbuilt pump and 1 x 24V DC output. You can choose which is assigned to control ORP and pH.*

➢ *The poolCHEM-2 has 2 x inbuilt pumps to control Chlorine and Acid.*

➢ *Advanced set-up features provides total flexibility for all installation situations.*

➢ *Simultaneous readout of ORP, pH, Temperature, Time, Set Points and Status*

➢ *Shutoff Alarm when pump has run too long continuously. Stops an entire drum of chemical being dosed in case of an instrument or probe fault.*

➢ *Data Alarm in case ORP or pH reading goes outside normal levels. Safeguards against overdosing or underdosing chemicals.*

➢ *Memory for 2300 stored readings with automatic datalogging facility.*

➢ *RS232 Serial interface for remote monitoring of system. Ideal for monitoring the unit from a control room or manager's office. Serial cable and software for Windows are optional.*

➢ *Pump sensor only allows automatic dosing when main pool pump is actually running.*

➢ *Quick-Dose function.*

➢ *Password protection, so only qualified users can change set-up or calibration.*

➢ *Good Laboratory Practices (GLP) function brings analytical Q.A. to swimming pools.*

Combines several important measurements into a single meter.

➢ *Display shows up to three readings simultaneously.*

➢ *Fully waterproof, portable design - can be used in the shop or on site.*

➢ *One-touch calibration.*

➢ *Fold-out stand for bench use.*

➢ *Runs on a standard 9 Volt Alkaline battery.*

➢ *Supplied with sensors and all accessories required for calibration and operation. (ORP sensor is optional).*

All TPS pool & spa instruments are supplied with all sensors and accessories required for installation and operation.

easyCHEM Series

	Part No
easyCHEM 100 for Chlorine	117101
easyCHEM 100 for Acid	117102
easyCHEM 400	117401
easyCHEM 110 for Chlorine	117111
easyCHEM 110 for Acid	117112
easyCHEM 220 for Chlorine	117221
easyCHEM 220 for Acid	117222
easyCHEM 330 for Chlorine	117331
easyCHEM 330 for Acid	117332
easyCHEM 330 for CO_2	117333
easyCHEM 550	117551
easyCHEM 660	117661
easyCHEM 660 for CO_2	117662
easyCHEM 770	117771
easyCHEM 880	117881

poolCHEM Series

poolCHEM	111113
poolCHEM - 1	111114
poolCHEM - 2	111115

Options for poolCHEM Series

RS232 Serial Interface Cable, 2m	130041
WinTPS communication software for Windows 95 & later	130086

See www.tps.com.au/products/software/wintps.htm for full details of this software package)

Aqua-TP

Aqua-TP	121136

Options for Aqua-TP

ORP sensor for Aqua-TP, 1m	121262
ZoBell 231mV ORP Standard, 200mL ea of Parts A & B	121309
Aluminium carry case, holds meter, sensors & standards	130057

Spares and Accessories

Plumbing Spares

Injection Tee for easyCHEM 100	117901
Injection Tee for easyCHEM 400	117902
Sensor / Injection Tee for easyCHEM 220 & 330	117903
Sensor / Injection Tee for easyCHEM 550, 660, 770 & poolCHEM	117904
Sensor / Injection Tee for easyCHEM 110	117905
Sensor / Injection Tee for easyCHEM 330 & 660 CO_2	117906
Sensor / Injection Tee for easyCHEM 880	117907
50 to 40 mm reduction bush pack of 2	117908

Peristaltic Pump Spares

Peristaltic pump suction tube, 2m	116358
Peristaltic pump output tube, 2m	116360
Drum lid with tube gland	116362
Tube weight for chemical drum	116354
Standard pump squeeze tube assembly, 1.8L/Hr	116353
Large pump squeeze tube assembly, 6L/Hr & 14.5L/Hr	116352
Pump squeeze tube lubricant, 3cc syringe	130103

CO_2 Kit

CO_2 Kit, including solenoid valve, regulator & accessories	117909

Sensors

pH sensor for easyCHEM & poolCHEM series, 2m	111230
pH sensor for Aqua-TP, 1m	121207
ORP sensor for easyCHEM 220, 330 & 550, 2m	111258
ORP sensor for easyCHEM 660, 770 & poolCHEM, 2m	111263
Salinity/TDS/Temperature sensor for Aqua-TP, 1m	122201
Temperature sensor, easyCHEM 110, 220, 330 & 550, 2m	124230
Pool pump sensor for poolCHEM Series	130102

Calibration Solutions

ZoBell 231mV ORP Standard, 200mL ea of Parts A & B	121309
pH7.00 Buffer, 200mL	121387
pH6.88 Buffer, 200mL	121306
pH4.00 Buffer, 200mL	121381
2000 ppM TDS Standard, 200mL	122307
0.8% Salinity Standard, 200mL	122308

Power Accessories

Dual 24V DC control output cable for poolCHEM, 2m	130054
Single 24V DC control output cable for poolCHEM-1, 2m	130053
poolCHEM power adaptor, 240V AC (Australia)	130106
poolCHEM power adaptor, 220V AC (Europe/Asia)	130108
poolCHEM power adaptor, 110/120V AC (USA)	130110
poolCHEM power adaptor, 240V AC (UK)	130112
9V Alkaline Battery for Aqua-TP	130026

TPS Pool & Spa Instruments at a Glance

Model	ORP / pH Readout	Temperature Readout	Salinity / TDS Readout	Control Method	Pool Pump Timer Output	Pool Pump Sensor
easyCHEM 100				1 x Inbuilt 1.8 L/Hr Peristaltic Pump		
easyCHEM 400				2 x Inbuilt 1.8 L/Hr Peristaltic Pumps		
easyCHEM 110		●		1 x Inbuilt 1.8 L/Hr Peristaltic Pump	●	
easyCHEM 220	ORP **OR** pH	●		1 x Inbuilt 1.8 L/Hr Peristaltic Pump	●	
easyCHEM 330	ORP **OR** pH	●		1 x Mains Power Control Output	●	
easyCHEM 330-CO_2	pH Only	●		1 x External Solenoid Valve for CO_2	●	
easyCHEM 550	ORP Only	●		2 x Inbuilt 1.8 L/Hr Peristaltic Pumps	●	
easyCHEM 660	ORP **AND** pH	●		1 x Inbuilt 1.8 L/Hr Peristaltic Pump, 1 x Mains Power Control Output	●	
easyCHEM 660-CO_2	ORP **AND** pH	●		1 x Mains Power ORP Control Output 1 x External Solenoid Valve for CO_2	●	
easyCHEM 770	ORP **AND** pH	●		2 x Inbuilt 1.8 L/Hr Peristaltic Pumps	●	
easyCHEM 880	ORP **AND** pH	●		1 x Inbuilt 1.8 L/Hr Chlorine Pump 1 x External Solenoid Valve for CO_2	●	
poolCHEM	ORP **AND** pH	●		2 x 24V DC Control Outputs		●
poolCHEM - 1	ORP **AND** pH	●		1 x Inbuilt 1.8 L/Hr Peristaltic Pumps, 1 x 24V DC Control Outputs		●
poolCHEM - 2	ORP **AND** pH	●		2 x Inbuilt 1.8 L/Hr Peristaltic Pumps		●
Aqua-TP	ORP **AND** pH	●	●			

ORP Readout

Range . . . . 0 to 1000 mV
(0 to 1500 mV for Aqua-TP)
Resolution . . . . 1 mV
Accuracy . . . . +/-1 mV

pH Readout

Range . . . . 2.00 to 12.00 pH
(0.00 to 14.00 pH for Aqua-TP)
Resolution . . . . 0.01 pH
(pool*CHEM* Series can also be set to 0.1pH)
Accuracy . . . . +/-0.02 pH

Temperature Readout

Range . . . . -10.0 to 120.0 $^\circ$C
(0 to 1500 mV for Aqua-TP)
Resolution . . . . 0.1 $^\circ$C
Accuracy . . . . +/-0.2 $^\circ$C

TDS Readout (Aqua-TP only)

Range . . . . 0 to 2500 ppM TDS
Resolution . . . . 1 ppM TDS
Accuracy . . . . +/-2 ppM TDS

Salinity Readout (Aqua-TP only)

Range . . . . 0 to 1.00 % Salt
Resolution . . . . 0.01 % Salt
Accuracy . . . . +/-0.02 % Salt

Temperature Compensation

Temperature affects the readings for pH, TDS and Salinity. The temperature readout for all models is used to automatically correct for these variations, providing optimum precision in all conditions.

Calibration

Automatic, push-button calibration is provided for all readouts. Calibration is a breeze with TPS instruments. Not applicable to easy*CHEM* 100 & 400.

Peristaltic Pumps

- 2 roller, weatherproof peristaltic pumps.
- Chemical resistant Santoprene pump tubing
- 2 squeeze tube sizes - 6 mm for 1.8 L/Hr and 8 mm for 6 L/Hr.
- 2 motor speeds - standard for 1.8 and 6 L/Hr and fast for 14.5 L/Hr
- Note : easy*CHEM* 100 and easy*CHEM* 400 have their flow rates limited in order to deliver the required dose gradually over a long period. The above flow rates apply when these units are set to "FULL".

Control Output

easyCHEM 330 & 660
220/240V AC, 2 Amps max. Can be factory-set for 110/120V AC.

poolCHEM & poolCHEM-1
24V DC, 150 mA max per output.

Calendar Clock

24 Hour clock with time and date. Battery backup in case of power failure will last for 10 years. Not applicable to easy*CHEM* 100 & 400.

Timer Output for Pool Pump

easyCHEM 110, 220, 330, 550, 660 & 770
Digital timer output for pool pump, with automatic adjustment for Summer and Winter cycles. 220 / 240V AC, 10 Amps with fuse.

Enclosure

Tough ABS enclosures, waterproof to IP65. Keypad and sensor connectors waterproof to IP65. Where fitted, mains output sockets and fuse holders are waterproof to IP25.

Display

easyCHEM 100 & 400
12.7mm high LED

easyCHEM 110, 220, 330, 550, 660 & 770
32 character LCD with user friendly menu and help system.

poolCHEM Series
80 character LCD with user friendly menu and help system. Large digit or graphic display modes.

Aqua-TP
24 character LCD with user-friendly text prompting.

Power

easyCHEM Series
220/240 V AC, 5 watts max for controller. Can be factory-set for 110/120 V AC.

poolCHEM Series
24V DC via AC/DC Adaptor. Adaptor to suit specified country is supplied with the unit.

Aqua-TP
9V Alkaline battery for 70+ hours. Battery saver function can be user-set to switch the unit off if no key has been pressed for 5 minutes.

Dimensions

easyCHEM 100
200 x 120 x 75 mm

easyCHEM 400
120 x 200 x 75 mm

easyCHEM 110, 220, 330, 550, 660 & 770
265 x 185 x 130 mm

poolCHEM Series
210 x 180 x 90 mm

Aqua-TP
158 x 80 x 31 mm

Shipping Weight

1.5 to 5 kg, depending on model.

Environment

Temperature . . . . 0 to 45 $^\circ$C
Humidity . . . . 0 to 90% R.H.

Extra Specifications for poolCHEM Series only

Good Laboratory Practices

All calibration and user-adjustable set-up information is stored in memory, and can be recalled on the display at any time. This information can also be printed or downloaded to a computer when the optional Serial Cable is ordered.

The unit's serial number is stored in memory. This is displayed at turn-on and included with GLP information.

GLP gives the user the ability to provide evidence of calibration and instrument set-up at the touch of a button. TPS makes it easier for you to comply with health and regulatory requirements.

Datalogging

Memory
2300 readings, including date and time.

Notepad
Records reading into memory at the touch of a button.

Automatic Datalogging
User selectable for one reading every...
1, 2, 5, 10, 15, 20 or 30 minutes
or every...
1, 2, 3, 4, 6, 8, 12 or 24 hours

RS232 Serial Interface

300, 9600 and 19200 Baud. 8 Bits, No Parity, 1 Stop Bit, XON/XOFF Protocol.

The RS232 Serial Interface can be used to connect the pool*CHEM* unit directly to a serial printer (e.g. Epson LX300+) or to a computer. Win*TPS* software to communicate between the pool*CHEM* and computers operating on Windows 95 or later is available as an optional accessory. Win*TPS* allows the pool*CHEM* to be monitored remotely.

Your dealer is