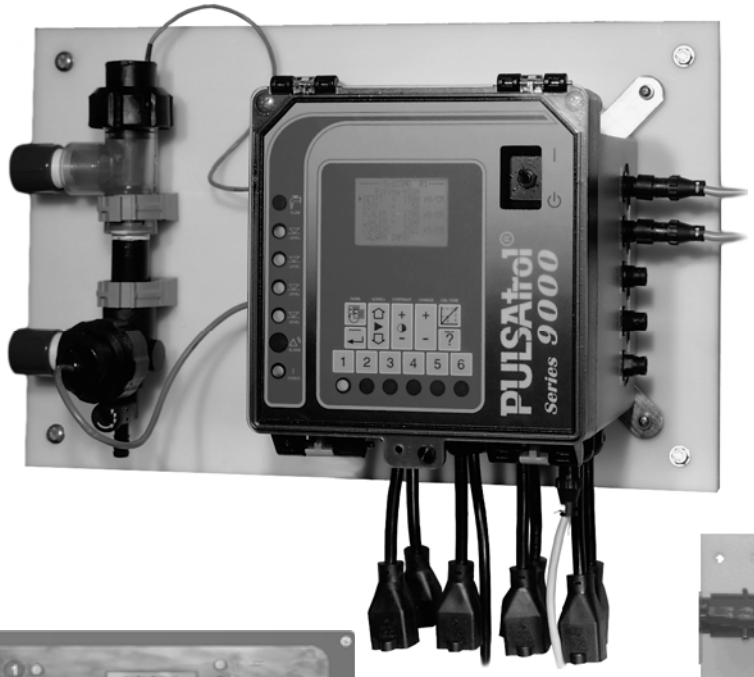
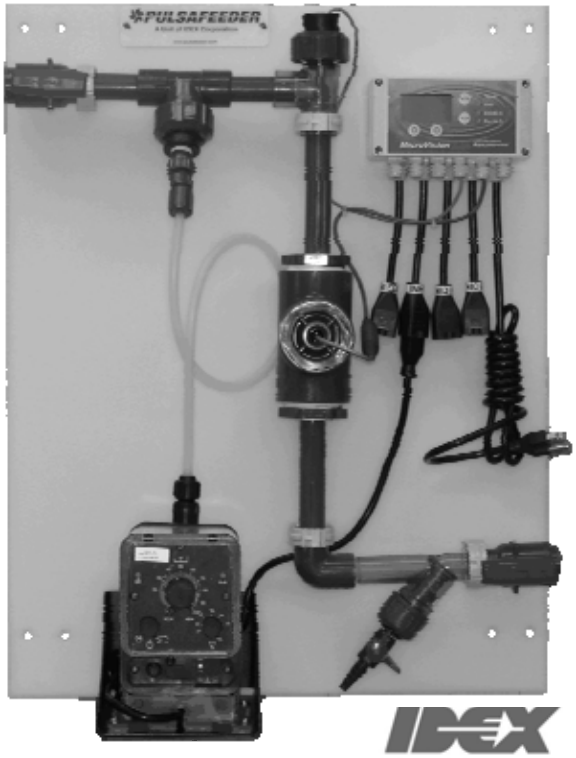
PULSAFEEDER®

PROCESS CONTROL INSTRUMENTATION

Product List Schedule

Effective 06/01/08





PULSAFEEDER

27101 Airport Road, Punta Gorda, FL 33982
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IDEX
FLUID & METERING

Agriculture
Chemical Processing
Fuels & Energy
Sanitary
Water

TABLE OF CONTENTS

DUE TO CONTINUOUS IMPROVEMENT OF OUR PRODUCTS, WE RESERVE THE RIGHT TO UPDATE THE INFORMATION CONTAINED IN THIS CATALOG WITHOUT NOTICE.

IMPORTANT INFORMATION

WHEN PLACING AN ORDER

1) Fax, mail or telephone orders directly to the Customer Service Department:

Pulsafeeder Incorporated—A Unit of IDEX Corporation
Standard Product Operations Main Office & Manufacturing Facility
27101 Airport Road, Punta Gorda, Florida, USA 33982-2462 E-Mail: pulsaspo.cs@idexcorp.com
Telephone: 800-333-6677 or 941-575-3800 Fax: 800-456-4085 or 941-575-4085
www.pulsatron.com

2) Please have the following information available when placing an order:

Account Name	Special Tags or Marks (if needed)
Billing Zip Code	Item(s) Being Ordered
Purchase Order Number	Quantity of Each Item
Ship To Address	

3) Orders are immediately entered into the computer upon receipt. Our ability to change in house orders is limited. Please be certain your orders are complete when placed.

4) For assistance or to order a "special" pump model not available in the price schedule, please contact our Technical Support Department.

5) Orders are assigned standard lead times based on the size of the order and the time required to manufacture the particular products. Requests to expedite orders may be routed through our Customer Service Department.

6) Repairs and returns are coordinated through our Customer Service Department. All orders returned must have factory authorization and are subject to a 25% restocking charge.

7) Other Locations:

PULSAFEEDER (Knight UK Limited)
15 Brunel Centre Newton Road
Crawley, West Sussex, England, RH10 9YU
Tel: +44 80022102210
Fax: +44 80044104410

Latin America (Office Only)
Hegel 153-602, Colonia Polanco,
11560 Mexico, D.F., Mexico
Tel: 52-555-255-1357
Fax: 52-555-255-1356

Far East (Office Only)
Room 3403, South Tower, Hong Kong Plaza
No 283 Huai Hai Zhong Road
Shanghai 200021, China
Tel: 86-2163906367
Fax: 86-2163863338

IDEX India Private Ltd.
202 Matharu Arcade
32, Subhash Road, Vile Parie (East),
Mumbai-400 057, India
Tel: 91-22-66976631
Fax: 91-22-66976633

- Prices are subject to change without notice and are effective when order is accepted and acknowledged at point of shipment.
- When ordering, specify your P.O. number, model number, quantity, price, shipping and/or billing address and order date.
- **Standard terms are NET 30 days from date of invoice for approved accounts on open account.**
- **WE ACCEPT VISA AND MASTERCARD.**
- **ONE PERCENT DISCOUNT AVAILABLE FOR PAYMENT WITHIN 10 DAYS OF INVOICE DATE FOR ACCOUNTS THAT ARE CURRENT.**
- **PAYMENT BY CREDIT CARD WILL NOT RECEIVE AN ADDITIONAL DISCOUNT.**
- All prices are F.O.B. Punta Gorda, FL or factory warehouse location.
- Custom product sales are final.
- Charges for export documentation apply.
- Expediting fees may apply.
- Fees for changes to or cancellation of orders may apply.
- **Minimum factory order of $50.**
- Possession of price schedule does not guarantee right to purchase direct from factory.

VISION SERIES

The Vision Series line of process control instrumentation has been designed to handle a multitude of applications and is modular and expandable. The innovative use of USB technology makes these units customizable. Soft keys allow for easy programming and flexibility.

In a few simple steps, you can create a custom control package for your application:

1) Start by selecting a UV or LV controller from the guide (page 6).
2) Select the desired IntelliSense packages (page 7).
3) If ordering an LV unit and more than three USB inputs/outputs are required, select a USB Hub (page 9).
4) If ordering an LV unit and more than four relays are required, select a Relay Expansion Box (page 8).
5) Choose a flow assembly with or without a panel mount (page 8) or a custom panel system (page 11).
6) Accessorize! Make your calibration high tech. . .check out the IntelliScan handheld on page 9.

Model UV

The Vision Series Model UV is a single system process control instrument. Included as standard are two IntelliSense connections allowing for the use of one Multipurpose IntelliSense input/output and one general sensor IntelliSense input (conductivity, pH or ORP); four selectable relays; one alarm relay; three taggable timers; one flow switch input; and one input suitable for use with dry contact or hall effect water meters.

Model LV

The Vision Series Model LV is a dual system process control instrument. As standard, it comes with three IntelliSense connections (allowing for the use of three general sensor inputs, two general sensor inputs and one multipurpose input/output or one general sensor input and two multipurpose inputs/outputs), four selectable relays, one alarm relay, six taggable timers, two flow switch inputs, and two inputs suitable for use with dry contact or hall effect water meters.

The LV's capability can be maximized to allow it to handle up to two Multipurpose IntelliSense inputs/outputs and any combination of up to four conductivity, pH or ORP (general sensors) IntelliSense inputs through the use of a USB Hub (page 8) and up to eight selectable relays through the use of a Relay Expansion Box (page 6).

Note: Ion specific probes require the use of a multipurpose IntelliSense. When using an ion specific probe, the package counts as both a general sensor IntelliSense input and a multipurpose IntelliSense input.

Vision One Step Model

Model Number	Conductivity	pH control	ORP control	Inhibitor	Biocides	Programmable timers	Water Meter Input	Flow Switch	Panel Mounted	Ethernet
CUVCXXX-XX-XXXXX	1	0	0	1	2	0	1	NO	NO	NO
CUVCXXX-F1-XXXXX	1	0	0	1	2	0	1	YES	YES	NO
CUVXXOX-F1-XXXXX	0	0	1	**0	**0	3	1	YES	NO	NO
CUVCXXX-P1-XXXXX	1	0	0	1	2	0	1	YES	YES	NO
CLVCXXX-XX-XXXXX	1	0	0	1	2	0	2	NO	NO	NO
CLVCPXX-XX-XXXXX	1	1	0	1	1	0	2	NO	NO	NO
CLVXPOX-XX-XXXXX	0	1	1	0	0	2	2	NO	NO	NO
CLVCXOX-XX-XXXXX	1	0	1	1	1	0	2	NO	NO	NO
CLVCXXX-P1-XXXXX	1	0	0	1	2	0	2	YES	YES	NO
CLVCPXX-P2-XXXXX	1	1	0	1	1	0	2	YES	YES	NO
CLVXPOX-P2-XXXXX	0	1	1	1	1	0	2	YES	YES	NO
CLVCXOX-P2-XXXXX	1	0	1	1	1	0	2	YES	YES	NO
CLVCXXX-P1-EXXXX	1	0	0	1	2	0	2	YES	YES	YES
CLVCPOX-P3-XXXXX	1	1	1	1	0	0	2	YES	YES	NO
CLVCPOX-P3-EXXXX	1	1	1	1	0	0	2	YES	YES	YES
CLVCPOR-PC-XXXXX	1	1	1	1	2	3	2	YES	YES	NO
Boiler Blowdown controllers										
BUVBXXX-XX-XXXXX	1	0	0	1	0	2	1	NO	NO	NO
BLVBBXX-XX-XXXXX	2	0	0	2	0	0	2	NO	NO	NO
BUVBXXX-XX-XPXXX	1	0	0	1	0	2	1	NO	NO	NO

** Programmable timers may be set as pulse, percent, percent post bleed, limit, or 28 Day biocide.

VISION SERIES

Vision One Step Descriptions		
Item	**Model No.**	**Item Description**
Cooling Tower Control Pacages	**CUVCXXX-XX-XXXXX** **Includes one of each:** UVP1SXXX ISPCSTD-U015-XXX	**Vision Series UV with Conductivity Intellisense package (15' USB cable). Bleed , inhibitor feed, and dual biocides output relays. Includes an alarm output relay, and water meter inputs as standard.** UV, PREWIRE, NO PANEL COND. HAT, PROBE, 15 FT. USB
	CUVCXXX-F1-XXXXX **Includes one of each:** UVP1SXXX ISPCSTD-U003-XXX FA1T-XL	**Vision Series UV with Conductivity Intellisense package (3' USB cable). Bleed, inhibitor feed, and dual biocide output relays. Includes an alarm output relay, and water meter input, and flow assembly.** UV, PREWIRE COND. HAT, PROBE, 3 FT. USB FLOW ASS'Y, 1-TEE, NO PANEL
	CUVXXOX-F1-XXXXX **Includes one of each:** UVP1SXXX ISPOSTD-U003-XXX FA1T-XL	**Vision Series UV with an ORP Intellisense package (3' USB cable). ORP Control, and three programmable timer output relays. Includes an alarm output relay, and water meter input, and flow assembly.** UV, PREWIRE ORP. HAT, PROBE, 3 FT. USB FLOW ASS'Y, 1-TEE, NO PANEL
	CUVCXXX-P1-XXXXX **Includes one of each:** UVP1PXXX ISPCSTD-P003-XXX FA1T-PL	**Panel Mounted Vision Series UV with Conductivity Intellisense package (3' USB cable). Bleed, inhibitor feed, and dual biocide output relays. Includes an alarm output relay, and water meter input, and a mounted flow assembly** UV , PREWIRE, W/PANEL COND. HAT, PROBE, 3 FT. USB FLOW ASS'Y, 1-TEE, W/PANEL
	CLVCXXX-XX-XXXXX **Includes one of each:** LVP1SXXX ISPCSTD-U015-XXX	**Vision Series LV with Conductivity Intellisense package (15' USB cable). Bleed , inhibitor feed, and dual biocide output relays. Includes an alarm output relay, and two water meter inputs as standard.** LV, PREWIRE, NO PANEL COND. HAT, PROBE, 15 FT. USB
	CLVCPXX-XX-XXXXX **Includes one of each:** LVP1SXXX ISPCSTD-U015-XXX ISPPSTD-U015-XXX	**Vision Series LV with Conductivity and pH Intellisense package (15' USB cable). Bleed, pH Acid feed, inhibitor feed, and single biocide output relays. Includes an alarm output relay, and two water meter inputs as standard.** LV, PREWIRE, NO PANEL COND. HAT, PROBE, 15 FT. USB pH HAT, PROBE, 15 FT. USB
	CLVXPOX-XX-XXXXX **Includes one of each:** LVP1SXXX ISPPSTD-U015-XXX ISPOSTD-U015-XXX	**Vision Series LV with pH and ORP Intellisense packages (15' USB cable). pH Acid feed, ORP Control, and two programmable timer output relays. Includes an alarm output relay, and two water meter inputs.** LV, PREWIRE, NO PANEL pH HAT, PROBE, 15 FT. USB ORP HAT, PROBE, 15 FT. USB
	CLVCXOX-XX-XXXXX **Includes one of each:** LVP1SXXX ISPCSTD-U015-XXX ISPOSTD-U015-XXX	**Vision Series LV with Conductivity and ORP Intellisense packages (15' USB cable). Bleed, ORP Control, inhibitor feed, and single biocide output relays. Includes an alarm output relay, and two water meter inputs as standard.** LV, PREWIRE, NO PANEL COND. HAT, PROBE, 15 FT. USB ORP HAT, PROBE, 15 FT. USB
	CLVCXXX-P1-XXXXX **Includes one of each:** LVP1PXXX ISPCSTD-P003-XXX FA1T-PL	**Panel mounted Vision Series LV with Conductivity Intellisense package (3' USB cable). Bleed, inhibitor feed, and dual biocide output relays. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly.** LV PREWIRE, W/PANEL COND. HAT, PROBE, 3 FT. USB FLOW ASS'Y, 1-TEE, W/PANEL
	CLVCPXX-P2-XXXXX **Includes one of each:** LVP1PXXX ISPCSTD-P003-XXX ISPPSTD-P003-XXX FA2T-PL	**Panel mounted Vision Series LV with Conductivity and pH Intellisense packages (3' USB cable). Bleed, pH Acid Feed, inhibitor feed, and single biocide output relays. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly.** LV, PREWIRE, W/PANEL COND. HAT, PROBE, 3 FT. USB pH HAT, PROBE, 3 FT. USB FLOW ASS'Y, 2-TEE, W/PANEL
	CLVXPOX-P2-XXXXX **Includes one of each:** LVP1PXXX ISPPSTD-P003-XXX ISPOSTD-P003-XXX FA2T-PL	**Panel mounted Vision Series LV with pH and ORP Intellisense packages (3' USB cable). pH Acid Feed, ORP Control, inhibitor feed, and two programmable timer output relays. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly.** LV, PREWIRE, W/PANEL pH HAT, PROBE, 3 FT. USB ORP HAT, PROBE, 3 FT. USB FLOW ASS'Y, 2-TEE, W/PANEL
	CLVCXOX-P2-XXXXX **Includes one of each:** LVP1PXXX ISPOSTD-P003-XXX ISPCSTD-P003-XXX FA2T-PL	**Panel mounted Vision Series LV with Conductivity and ORP Intellisense packages (3' USB cable). Bleed, ORP Control, inhibitor feed, and single biocide output relays. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly.** LV, PREWIRE, W/PANEL ORP HAT, PROBE, 3FT. USB COND. HAT, PROBE, 3 FT. USB FLOW ASS'Y, 2-TEE, W/PANEL

VISION SERIES

Vision One Step Descriptions

Item	Model No.	Item Description
Cooling Tower Control Packages	**CLVCXXX-P1-EXXXX**	**Panel Mounted Vision Series LV with Conductivity Intellisense package (3' USB cable). Bleed, inhibitor feed, and dual biocide output relays. Includes an alarm output relay, two water meter inputs, and a mounted flow assembly. Includes Ethernet communications**
	Includes one of each	
	LVP3PXXX	LV, PREWIRE, W/PANEL
	ISPCSTD-P003-XXX	COND. HAT, PROBE, 3 FT. USB
	FA1T-PL	FLOW ASS'Y, 2-TEE, W/PANEL
	CLVCPOX-P3-XXXXX	**Panel mounted Vision Series LV with Conductivity, pH and ORP Intellisense packages (3' USB cable). Bleed, pH Acid Feed, ORP Control and inhibitor feed output relays. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly.**
	Includes one of each:	
	LVP1PXXX	LV, PREWIRE, W/PANEL
	ISPPSTD-P003-XXX	pH HAT, PROBE, 3 FT. USB
	ISPOSTD-P003-XXX	ORP HAT, PROBE, 3 FT. USB
	ISPCSTD-P003-XXX	COND. HAT, PROBE, 3 FT. USB
	FA3T-PL	FLOW ASS'Y, 3-TEE, W/PANEL
	CLVCPOX-P3-EXXXX	**Panel mounted Vision Series LV with Conductivity, pH and ORP Intellisense packages (3' USB cable). Bleed output relay, pH Acid Feed, ORP Control and an inhibitor feed. Includes an alarm output relay, and two water meter inputs as standard and a mounted flow assembly. Includes Ethernet communications.**
	Includes one of each:	
	LVP3PXXX	LV, PREWIRE, W/PANEL
	ISPPSTD-P003-XXX	pH HAT, PROBE, 3 FT. USB
	ISPOSTD-P003-XXX	ORP HAT, PROBE, 3 FT. USB
	ISPCSTD-P003-XXX	COND. HAT, PROBE, 3 FT. USB
	FA3T-PL	FLOW ASS'Y, 3-TEE, W/PANEL
	CLVCPOS-PC-EXXXX	**Panel mounted Vision Series LV with Conductivity, pH and ORP Intellisense packages (3' USB cable). Bleed output relay, pH Acid Feed, ORP Control, an inhibitor feed timer, dual biocide program and three programmable timers. Includes an alarm output relay, and two water meter inputs as std and a mounted flow assembly. Includes Ethernet communications.**
	Includes one of each:	
	LVP3PXXX	LV, PREWIRE, W/PANEL
	ISPCSTD-P003-XXX	COND. HAT, PROBE, 3 FT. USB
	ISPPSTD-P003-XXX	pH HAT, PROBE, 3 FT. USB
	ISPOSTD-P003-XXX	ORP HAT, PROBE, 3 FT. USB
	RB-PU003P-XXX	Relay Expansion box
	UH115-03P-XXX	USB expansion hub
	PMS-PE3XXX-COXX-XXX11	Panel mount assembly
Boiler Control Packages	**BUVBXXX-XX-XXXXX**	**Vision Series UV Single boiler Blowdown controller, with a Conductivity Intellisense package (50' cable). Boiler Blowdown, inhibitor feed, and two programmable timer outputs are included. System also Includes an alarm output relay, and a water meter input as standard. Unit has conduit connections for wiring the input and output power.**
	Includes one of each:	
	UVC1SXXX	UV, CONDUIT
	ISPCCBS-E050-XXX	BOILER HAT, PROBE, 50 FT. cable
	BLVBBXX-XX-XXXXX	**Vision Series LV Dual boiler blowdown controller, with two Conductivity Intellisense pkgs (two 50' cables). Boiler Blowdown 1, Boiler Blowdown 2, and two inhibitor feed timer outputs are included. System also Includes an alarm output relay, and two water meter inputs as std. Unit has conduit connections for wiring the input and output power.**
	Includes one of each:	
	LVC1SXXX	LV, CONDUIT
	(2) ISPCCBS-E050-XXX	BOILER HAT, PROBE, 50 FT. cable
	BUVBXXX-XX-XPXXX	**Vision Series UV Single boiler Blowdown controller, with a Conductivity Intellisense package (50' cable). Boiler Blowdown, inhibitor feed, and two programmable timer outputs are included. System also Includes an alarm output relay, and a water meter input as standard. Unit has conduit connections for wiring the input and output power.**
	Includes one of each:	
	UVC1SXXX	UV, CONDUIT
	ISPCCBS-E050-XXX	BOILER HAT, PROBE, 50 FT. cable

VISION Series Selection Guide

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MODELS Position 1 & 2	**UV**	= UniVision
	LV	= LiquiVision
RELAY & POWER WIRING Position 3	**P**	= Prewire (115V only)
	C	= Conduit (required for CE)
COMMUNICATIONS Position 4	**1**	= No Communications
	2	= Modem
	3	= Ethernet
PANEL DESIGNATOR Position 5	**S**	= Standard (No Panel)
	P	= Unit to be factory mounted on panel
SUFFIX CODE Position 6, 7 & 8	**XXX**	= Suffix Code

VISION SERIES

IntelliSense/Sensor Package

By converting an analog sensor input to a digital signal, the IntelliSense provides auto sensor recognition, eliminates drifting potential and allows travel of up to 150 feet (multipurpose IntelliSense has a max of 15'). Each of the 5 available sensory heads are color coded and measure a multitude of variables. Because the Vision Series is completely modular, the controller discount will be applied when purchasing an IntelliSense/Sensor Package.

NOTE: The multipurpose IntelliSense can only be used with a USB connection and consists of four functions (a contact input and ouput, and a 4-20 mA input and output), which can all be used simultaneously and independently.

INTELLISENSE/SENSOR PACKAGE Selection Guide

ISP _ _ _ _ _ - _ _ _ - XXX

PRODUCT DESIGNATOR Position 1, 2 & 3	**ISP**	= IntelliSense Package
INTELLISENSE TYPE Position 4	**C**	= Conductivity (light gray)
	P	= pH (blue)
	O	= ORP (red)
	M	= Multipurpose (MPIO) (orange)
SENSOR TYPE Position 5, 6 & 7	**XXX**	= No probe (for MPIO only)
	CBS	Conductivity - Boiler System (boilers cannot use STD/SUB)
	STD	Standard (DIN connector) (for conductivity, toroidal, pH & ORP
	SUB	Submersible with 10' cable (for conductivity, toroidal, pH & ORP) (see suffix code selection below to order a sumbersible mounting kit)
	S30	Submersible with 30' cable (for conductivity, pH & ORP)
	FLT	Flat tip pH probe [for use in tee (not included) or sub apps w/10' cable]
	F30	Flat tip pH probe [for use in tee (not included) or sub apps w/30' cable]
	CL2	Chlorine Dioxide, 0-2 PPM (for use with MPIO)
	C10	Chlorine Dioxide, 0-10 PPM (for use with MPIO)
CONNECTION TYPE Position 8	**P**	= USB (use this option for panel systems)
	U	= USB
	E	= USB Extension
CABLE LENGTH (IN FEET) Position 9, 10 & 11	**XXX**	No Cable
	003	= 3 feet USB (use this option for panel systems)
	015	= 15 feet USB
	050	= 50 feet USB Extension
	100	100 feet USB Extension
	150	= 150 feet USB Extension
SUFFIX CODES: Position 12, 13 & 14	**XXX**	= Suffix Code
	036	= Submersible mounting kit - 36" PVC
	060	= Submersible mounting kit - 60" PVC
	120	= Submersible mounting kit - 120" PVC

Replacement Sensors

SENSOR Selection Guide

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SENSOR DESIGNATOR Position 1	**C**	= Conductivity
	P	= pH
	O	= ORP
	M	= Other
SENSOR TYPE Position 2, 3, & 4	**CBS**	= Conductivity - Boiler System (boilers cannot use STD/SUB)
	STD	= Standard (DIN connector) (for conductivity, torroidal, pH & ORP)
	SUB	= Submersible with 10' cable (for conductivity, torroidal, pH & ORP)
	S30	= Submersible with 30' cable (for conductivity, pH & ORP)
	FLT	= Flat tip pH probe [for use in tee (not included) or sub apps w/10' cable]
	F30	= Flat tip pH probe [for use in tee (not included) or sub apps w/30' cable]
	CL2	= Chlorine Dioxide, 0-2 PPM (for use with MPIO)
	C10	= Chlorine Dioxide, 0-10 PPM (for use with MPIO)

VISION SERIES

Flow Assembly

The flow assembly features 3/4" PVC plumbing with a flow switch and sample valve. When ordering the flow assembly you can specify if you would like it mounted on a panel with the process control instrument. Customized panel systems on page 9 have a flow assembly option, so it is not necessary to order a separate flow assembly. Because the Vision Series is completely modular, the controller discount will be applied when purchasing a flow assembly.

FLOW ASSEMBLY Selection Guide

FA _ _ - _ _

PRODUCT DESIGNATOR Position 1 & 2	**FA** = Flow Assembly
SENSOR TEES Position 3 & 4	**0T** = No Sensor Tees **1T** = One Sensor Tee **2T** = Two Sensor Tees **3T** = Three Sensor Tees **4T** = Four Sensor Tees
PANEL DESIGNATOR Position 5	**XL** = Standard (no panel) - Left Flow **XR** = Standard (no panel) - Right Flow **PL** = Factory mounted on panel w/ process control instrument - Left Flow **PR** = Factory mounted on panel w/ process control instrument - Right Flow **Panel material is polyethylene**

Relay Expansion Box

The Relay Expansion Box can be used to add four additional relays to a Vision Series Model LV. A maximum of one Relay Expansion Box can be used with the LV and will require the use of one USB input. Because the Vision Series is completely modular, the controller discount will be applied when purchasing a Relay Expansion Box.

RELAY EXPANSION BOX Selection Guide

RB - _ _ _ _ _ - XXX

PRODUCT DESIGNATOR Position 1 & 2	**RB** = Relay Box
RELAY & POWER WIRING Position 3	**P** = Prewire (115V only) **C** = Conduit (required for CE)
CABLE TYPE Position 4	**U** = USB **E** = USB Extension
CABLE LENGTH (IN FEET) Position 5, 6 & 7	**XXX** No Cable **003** = 3 feet USB (use this option for panel systems) **015** = 15 feet USB **050** = 50 feet USB Extension **100** 100 feet USB Extension **150** = 150 feet USB Extension
PANEL DESIGNATOR Position 8	**S** Standard (not for use on a custom panel system) **P** = To be factory mounted on custom panel system
SUFFIX CODE Position 9, 10 & 11	**XXX** = Suffix Code

VISION SERIES

USB Expansion Hub

The USB Expansion Hub can be used with the Vision Series Model LV to maximize the number of USB inputs/outputs. The USB Expansion Hub is required if more than three USB inputs/outputs are to be used with a LV. A maximum of one USB Expansion Hub can be used with the LV. Because the Vision Series is completely modular, the controller discount will be applied when purchasing a USB Expansion Hub.

USB HUB Series Selection Guide — UH _ _ _ - _ _ _ - XXX

PRODUCT DESIGNATOR Position 1 & 2	**UH**	= USB Hub
VOLTAGE Position 3, 4 & 5	**115**	= 115V
	230	= 230V
CABLE (for connection to controller) Position 6 & 7	**XX**	= No Cable
	03	= 3' USB Cable (use this option for panel systems)
	15	= 15' USB Cable
PANEL DESIGNATOR Position 8	**S**	= Standard (not for use on a custom panel system)
	P	= To be factory mounted on custom panel system
SUFFIX CODE Position 9, 10 & 11	**XXX**	= Suffix Code

IntelliScan

The IntelliScan is a handheld device that revolutionizes the calibration process by eliminating the need for manual data entry. It has an infrared port that allows calibration data to be transmitted to the IntelliSense from the IntelliScan. The IntelliScan comes with its own convenient carrying case and belt-clip attachment.

INTELLISCAN Selection Guide — ISCN _ _ - XXX

PRODUCT DESIGNATOR Position 1 & 2	**ISCN**	= IntelliScan
INTELLISENSE TYPE Position 3	**XX**	= No Sensor
	CD	= Conductivity
	PO	= pH/ORP
	CB	= Combo (one conductivity sensor and one pH/ORP sensor)
SUFFIX CODE Position 4	**XXX**	= Suffix Code

IntelliScan Replacement Sensors

ISCN-CD	Conductivity Sensor
ISCN-PO	pH/ORP Sensor

VISION SERIES

IntelliSense

By converting an analog sensor input to a digital signal, the IntelliSense provides auto sensor recognition, eliminates drifting potential and allows travel of up to 150 feet (multipurpose IntelliSense has a max of 15'). Each of the 5 available sensory heads are color coded and measure a multitude of variables.

INTELLISENSE Selection Guide

IS _ _ - XXX

PRODUCT DESIGNATOR Position 1 & 2	**IS** = IntelliSense
INTELLISENSE TYPE Position 3	**C** = Conductivity (light gray) **P** = pH (blue) **O** = ORP (red) **M** = Multipurpose (MPIO) (orange)
CONNECTION TYPE Position 4	**U** = USB **E** = USB Extension
SUFFIX CODE Position 5	**XXX** = Suffix Code

Boards/Communications

Part No.	Description	Applicable Model
CB01-1020	I/O Board	UV
CB01-1030	I/OI Board with communications (requires modem or Ethernet module)	UV
CB01-1010	I/O Board	LV
CB01-1022	I/O Board with communications (requires modem or Ethernet module)	LV
CB01-1026	Modem Module	UV/LV
CB01-1025	Ethernet Module	UV/LV
CB01-1115	Power Supply Board	UV/LV
LE01-3000	Front Panel Assembly	UV
LE01-2000	Front Panel Assembly	LV

Cables

Part No.	Description	Applicable Model
U003	USB Cable - 3'	UV/LV
U015	USB Cable - 15'	UV/LV
R050	50' cable to be used for USB Extension models only	UV/LV
R100	100' cable to be used for USB Extension models only	UV/LV
R150	150' cable to be used for USB Extension models only	UV/LV

Miscellaneous Parts

Part No.	Description	Applicable Model
HA01-1002	IntelliSense Adapter	IntelliSense
DA01-1000	USB to RS422 Adapter	UV/LV
05-053-18	5 Amp Fuse	UV/LV
SMK036	Submersible Mounting Kit - 36	IntelliSense
SMK060	Submersible Mounting Kit - 60	IntelliSense
SMK120	Submersible Mounting Kit - 120	IntelliSense
USBXDR-000	USB Ethernet Extender Azzy	UV/LV

VISION SERIES

Custom Panel Systems

These custom panels can be used to create a complete chemical injection system for use in numerous applications. Systems with a flow assembly feature 3/4" PVC plumbing with a flow switch, sample valve, isolation valves and a strainer. Panel systems will receive the controller discount.

CUSTOM PANEL SYSTEM Selection Guide

PMS - _ _ - _ _ _ _ - _ _ _ - _ _ _ _ _ _ _ _

PRODUCT DESIGNATOR	**PMS**	= Panel Mount System
PANEL MATERIAL	**PE**	= Polyethylene no other options available at this time
FLOW ASSEMBLY WITH FLOW SWITCH	**Not available with Chlorine Dioxid Probe**	
	X	= No Flow Assembly
	0	= No Sensor Tee
	1	= One Sensor Tee
	2	= Two Sensor Tees
	3	= Three Sensor Tees
	4	= Four Sensor Tees
INJECTION TEES	**X**	= No Injection Tee
	1	= One Injection Tee
	2	= Two Injection Tees
	3	= Three Injection Tees
	4	= Four Injection Tees
	5	= Five Injection Tees
	6	= Six Injection Tees
PUMP MOUNTING HARDWARE (pumps must be ordered separately)	**X**	No Pumps
	1	= One Pump
	2	= Two Pumps
	3	= Three Pumps
	4	= Four Pumps
	5	= Five Pumps
	6	= Six Pumps
FLOW METER	**X**	= No Flow Meter
	M	= Flow Meter
COUPON STATION (coupons are not included)	**C0**	= No Corrosion Coupon Station
	C1	= 1 Corrosion Coupon Station
	C2	= 2 Corrosion Coupon Stations
	C3	= 3 Corrosion Coupon Stations
	C4	= 4 Corrosion Coupon Stations
MOUNTING RAILS	**X**	= No Mounting Rails
	R	= Mounting Rails
BACK FLOW CHECK VALVE	**X**	= No Check Valve
	V	= 3/4" Back Flow Check Valve
RECEPTACLE BOX	**X**	= No Receptacle Box
	1	= One Receptacle Box
	2	= Two Receptacle Boxes
JUNCTION BOX (Conduit Only)	**X**	= No Junction Box
	1	= One Junction Box
	2	= Two Junction Boxes
	3	= Three Junction Boxes
	4	= Four Junction Boxes
MULTIPURPOSE INTELLISENSE	**X**	= None To be mounted on panel
	1	= One Multipurpose IntelliSense To be mounted on panel **(must be ordered separately)**
	2	= Two Multipurpose IntelliSenses To be mounted on panel **(must be ordered separately)**
USB HUB	**X**	= None To be mounted on panel
	1	= One USB Hub To be mounted on panel **(must be ordered separately)**
RELAY EXPANSION BOX	**X**	= None To be mounted on panel
	1	= One Relay Expansion Box To be mounted on panel **(must be ordered separately)**

PULSATROL MC9000 SERIES

The PULSAtrol® 9000 Series cooling tower controllers represent a significant improvement in the PULSAtrol product line. We have simplified the configurations to bring you the most popular features as standard without compromising the flexibility to select the product you need to meet your specific requirement. All controllers come standard with a complete flow assembly mounted to a polypropylene backboard. All the installer needs to do is mount the assembly to the wall and connect the power and water.

MC9200 Series

In addition to the mounted flow assembly, all MC9200 Series include as standard, a pre-wired selectable timer, alarm output relay, dry contact alarm output and water meter totalizer. Options include up to two 28-day biocide timers, single or dual 4-20 mA outputs, communications and agency approvals.

MC9200 Series Selection Guide

MC92_ _ _ _ _ _ _ _ _

MODELS: Position 5 & 6	**10** = Conductivity control **20** = pH control **30** = Conductivity and pH control
RELAY & POWER WIRING Position 7	**X** = Prewire (Standard) (Not available with CE Approval) **A** = Conduit only (required for CE Approval)
TIMER 1 Position 8	**X** = None **A** = Single 28 day biocide timer **B** = Dual 28 day biocide timer (not available on MC9230)
ANALOG I/O Position 9	**X** = None **A** = Single isolated 4-20mA output **B** = Dual 4-20mA outputs
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = "CE" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 15.** **X** = Standard Panel with flow assembly **A** = Conductivity panel, prewire **B** = Conductivity, pH panel, prewire **C** = Conductivity panel, conduit (must select conduit option in position 7 of model string) **D** = Conductivity, pH panel, conduit (must select conduit option in position 7 of model string)

A completed model number should look like "MC9210XXXXXX"

NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

Series MC9000 Optional Sensors and Flow Assemblies

All controllers can be configured with high pressure flow assemblies and non-standard sensor configurations. Contact your sales representative or Technical Support with your specifications to arrange a quote.

PULSATROL MC9000 SERIES

MC9300 Series

In addition to the mounted flow assembly, all MC9300 Series include as standard, four tagable timers two water meter totalizers user configured as dry contact or hall effect, dry contact alarm relay and alarm output relay. Options include two 4-20 mA outputs, conduit connection for power and relays, communications, language and agency approvals.

MC9300 Series Selection Guide

MC93_ _ _ _ _ _ _ _

MODELS: Position 5	**1** = Conductivity control **2** = Conductivity and ORP control **3** = Conductivity and pH control
ANALOG I/O Position 6	**0** = None **1** = Dual 4-20mA Outputs
RELAY & POWER WIRING Position 7	**X** = Prewire (Standard) (Not available with CE Approval) **A** = Conduit only (required for CE Approval)
pH SETTINGS Position 8	**X** = Not applicable (for non pH systems) **A** = Single set point (uses 1 relay selectable for high pH or low pH) **B** = Dual set point (uses 2 relays, one for high pH and one for low pH
LANGUAGE Position 9	**X** = English (Standard) **A** = Spanish **B** = German **C** = French
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = CE"" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 15.** **X** = Standard Panel with flow assembly **A** = Conductivity panel, prewire **B** = Conductivity, pH panel / or Conductivity, ORP panel, prewire **C** = Conductivity panel, conduit (must select conduit option in position 7 of model string) **D** = Conductivity, pH panel / or Conductivity, ORP panel, conduit (must select conduit option in position 7 of model string)

A completed model number should look like "MC9310XXXXXX"

NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

Series MC9000 Optional Sensors and Flow Assemblies

All controllers can be configured with high pressure flow assemblies and non-standard sensor configurations. Contact your sales representative or Technical Support with your specifications to arrange a quote.

PULSATROL MC9000 SERIES

MC9500 Series

In addition to the mounted flow assembly, all 9500 Series include as standard, four tagable timers, two water meter totalizers user configured as dry contact or hall effect, four drum level inputs, dry contact alarm relay and alarm output relay. Options include up to four 4-20 mA inputs and outputs, conduit connection for power and relays, communications, language and agency approvals.

MC9500 Series Selection Guide

MC95_ _ _ _ _ _ _ _

MODELS: Position 5	**1** = Conductivity control **2** = Conductivity and ORP **3** = Conductivity and pH control **4** = Conductivity, make-up conductivity and pH control **5** = Conductivity (with make-up), pH and ORP **6** = Dual Conductivity for use on open loop (tower) and closed loop (chiller) **7** = Dual Conductivity for use on dual cooling tower systems
4-20mA INPUTS/OUTPUTS Position 6	**0** = 0 Inputs, 0 Outputs **1** = 0 Inputs, 2 Outputs **2** = 0 Inputs, 4 Outputs **3** = 2 Inputs, 0 Outputs **4** = 2 Inputs, 2 Outputs **5** = 2 Inputs, 4 Outputs **6** = 4 Inputs, 0 Outputs **7** = 4 Inputs, 2 Outputs **8** = 4 Inputs, 4 Outputs
RELAY & POWER WIRING Position 7	**X** = Prewire (Standard) (Not available with CE Approval) **A** = Conduit only (required for CE Approval)
pH SETTINGS Position 8	**X** = Not applicable (for non pH systems) **A** = Single set point (uses 1 relay selectable for high pH or low pH) **B** = Dual set point (uses 2 relays, one for high pH and one for low pH
LANGUAGE Position 9	**X** = English (Standard) **A** = Spanish **B** = German **C** = French
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = CE"" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 15.** **X** = Standard Panel with flow assembly **A** = Conductivity panel, prewire **B** = Conductivity, pH panel / or Conductivity, ORP panel, prewire **C** = Conductivity panel, conduit (must select conduit option in position 7 of model string) **D** = Conductivity, pH panel / or Conductivity, ORP panel, conduit (must select conduit option in position 7 of model string)

A completed model should look like " MC9510XXXXXX"

NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

Series MC9000 Optional Sensors and Flow Assemblies

All controllers can be configured with high pressure flow assemblies and non-standard sensor configurations. Contact your sales representative or Technical Support with your specifications to arrange a quote.

OPTIONAL PANEL ASSEMBLIES

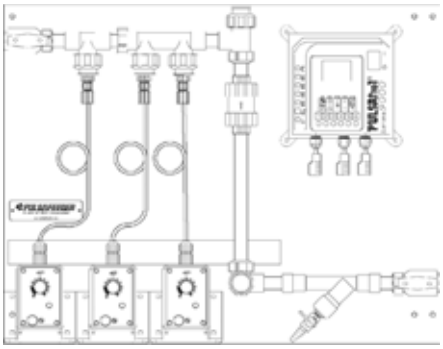
Series MC9000 Optional Panel Assemblies

All MC9000 Systems come standard with a flow assembly and sensor tee mounted to a sturdy polypropylene panel. Optional configurations of the panel can be selected to create a complete chemical injection system. These systems are designed to simplify installation and reduce problems caused by a poor installation.
Each panel includes 3/4" plumbing with the following features:

- Quick disconnect sensor mounting tees
- Chemical injection points
- Ball valves on the inlet and outlet
- Back flow check valve
- Flow strainer
- Mounting brackets for chemical metering pumps

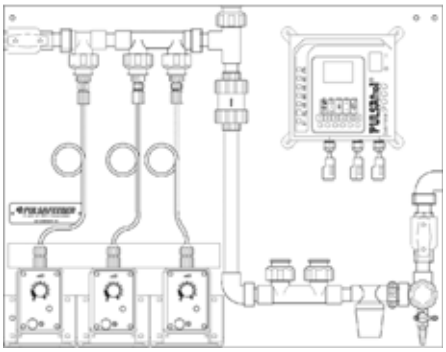
Select from one of the following configurations and insert the option code into digit #12 when configuring your controller.

Note: Pumps must be ordered separately. If ordering PULSAtron Pumps in conjunction with a panel, use suffix code PFB in place of the XXX in the last three digits and the pumps will be installed on the panel during assembly. If you already have a suffix code, then order your standard suffix code followed by PF. For example, if your suffix code is G15, then you would order G15PF when ordering in conjunction with a panel.



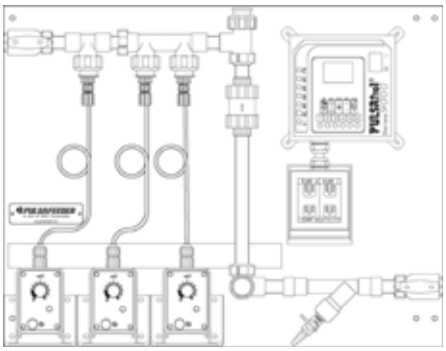
Conductivity Panel - Prewire

Enter Option "**A**" in position 12 of the PULSAtrol 9000 Model String.
Panel features 'quick-disconnect' sensor tee; three injectors for inhibitor and biocides; and mounting brackets for three pumps.



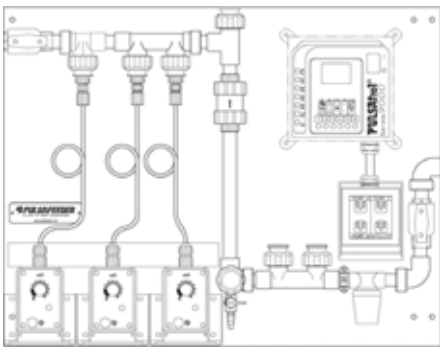
Conductivity, pH, ORP Panel - Prewire*

Enter Option "**B**" in position 12 of the PULSAtrol 9000 Model String.
Panel features 'quick-disconnect' sensor tees for all parameters; three injectors for inhibitor and biocides; and mounting brackets for three pumps.



Conductivity Panel - Conduit

Enter Option "**C**" in position 12 of the PULSAtrol 9000 Model String.
This option also requires option 'A' in position 7 for conduit.
Panel features 'quick-disconnect' sensor tee; three injectors for inhibitor and biocides; and mounting hardware for three pumps. Pump and bleed relays are wired into a watertight outlet box with a splash guard cover.



Conductivity, pH, ORP Panel - Conduit*

Enter Option "**D**" in position 12 of the PULSAtrol 9000 Model String.
This option also requires option 'A' in position 7 for conduit.
Panel features 'quick-disconnect' sensor tees for all parameters; three injectors for inhibitor and biocides; and mounting hardware for three pumps. Pump and bleed relays are wired into a watertight outlet box with a splash guard cover.

***NOTE:** The sensor tee is capped on systems that do not require it.

MC9000 SENSORS

Series MC9000 Replacement Sensors

Item No.	Application	Note:
04-600-92-1	Conductivity	MC9000 Series replacement sensor. Stainless steel electrodes, 12" cable terminated with DIN plug.
04-600-92-2	Conductivity or Make-up	MC9000 Series replacement sensor. Stainless steel electrodes, 120" cable terminated with DIN plug.
04-600-93-1	Conductivity	MC9000 Series replacement sensor. CE approved, Stainless steel electrodes, 12" cable terminated with DIN plug.
04-600-93-2	Conductivity or Make-up	MC9000 Series replacement sensor. CE approved, Stainless steel electrodes, 120" cable terminated with DIN plug.
04-000-00	pH	MC9000 replacement sensor. Epoxy body, dual junction, 42mm extension with 3 ft. cable.
04-000-01	pH	MC9000 replacement sensor. Epoxy body, dual junction, 42mm extension with 10 ft. cable.
04-000-10	ORP	MC9000 replacement sensor. Epoxy body, platinum band, single junction, 42mm extension with 3 ft. cable.
04-000-11	ORP	MC9000 replacement sensor. Epoxy body, platinum band, single junction, 42mm extension with 10 ft. cable.
04-300-92	Flow	Flow switch, 3/4" with 18" cable terminated with DIN plug.
04-300-94	Flow	Flow switch, 3/4" with 120" cable terminated with DIN plug.
04-300-93	Flow	Flow switch, CE approved, 3/4" with 18" cable terminated with DIN plug.
04-300-95	Flow	Flow switch, CE approved, 3/4" with 120" cable terminated with DIN plug.

MC9500 ACCESSORIES

Single Point Level Wands

16-171-81-2 Adjustable to 26" with 3 ft. cable
16-171-81-1 Adjustable to 42" with 3 ft. cable
16-171-81-4 Adjustable to 60" with 3 ft. cable

pH/ORP CONTROL

MCT Series Selection Guide

MCT1_ _

_ _ _ _ _ _ _ _ _ _ _

MODELS: Position 5 & 6	**20**	= MCT1_ _ (pH) control with high/low alarm indicator and limit timer
	30	= MCT1_ _ (ORP) control with high/low alarm indicator and limit timer
AVAILABLE OPTIONS Position 7 thru 16 as needed	**A**	= Conduit (Required for 220V, ""PI""s and ""FW""s)
	B	= Mounted flow assembly (not required on prefab's)
	B2	= High pressure flow assy for pH, 250 psi Max.
	B4	= High pressure flow assy for orp, 250 psi Max.
	C	= Selectable timer: %, limit, pulse, % post blow down
	D	= Alarm output relay (limit one per unit)
	E	= 28 day single biocide w/ bleed lockout & pre-bleed
	K	= Alarm dry contact
	M3	= 4-20 mA isolated proportional programmable output
	R	= ETL Approval
	R1	= CE Mark (option A required)
	W (1)	= Private Label

Notes: (1) First time private label customers need to contact the factory or sales representative for information.

MicroVision SERIES

MicroVision Series

The MicroVision controller series features is innovative Toroidal sensor technology. Toroidal sensors are not susceptible to fouling and eliminate the need for routine cleaning and calibration.

The MicroVision is designed specifically for cooling tower applications. The MicroVision is a microprocessor-based conductivity controller with selectable timer and dual biocide control.

The MicroVision controller comes standard with selectable timer, Dry contact/Hall Effect water meter input, dual biocide with pre-bleed, lockout, inhibitor interface, and four programmable start times per biocide, 4-20mA output, dry contact alarm output and 3 drum level inputs.

The base unit comes with the controller, toroidal sensor with signal cable, and a power cord. Optional features such as a sensor mounting tee, pre-wired pigtails on the relays, and a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100’ optional, on models without a flowswitch, and a 3' cable is standard on models with a flowswitch.

MicroVision Selection Guide

MVS _ _ _ - _ _ _ _ _

PRODUCT DESIGNATOR Position 1, 2 & 3	**MVS**	= MicroVision Toroidal Conductivity Cooling Tower Controller
VOLTAGE Position 4	**1**	= 115 volt
	2	= 230 volt (no prewired power cord or relays available)
POWER WIRING Position 5	**X**	= Conduit connections (required for 230 VAC)
	P	= Prewired power cord and pigtails
PANELS Position 6	**X**	= No Panel and No Flow assembly
	F	= Flow assembly, No Panel
	A	= Standard Panel & Flow Assembly
	B	= Panel & Flow Assy, 1 Pump Mount, strainer, sensor tee, inj tee & rails
	C	= Panel & Flow Assy, 2 Pump Mount, strainer, sensor tee, 2 inj tees & rails
	D	= Panel & Flow Assy, 3 Pump Mount, strainer, sensor tee, 3 inj tees & rails
SUFFIX CODE Position 7, 8 & 9	**XXX**	= Suffix Code
	750	= 3/4" Back Flow Check Valve
	PC025	= 25 Feet (7.6m)
	PC050	= 50 Feet (15.2m)
	PC075	= 75 Feet (22.8m)
	PC100	= 100 Feet (30.4m)

MICROtrac SERIES

MICROtrac Series

The MICROtrac controller series features is innovative Toroidal sensor technology. Toroidal sensors are not susceptible to fouling and eliminate the need for routine cleaning and calibration.

The MICROtrac measures the conductivity of the cooling tower recirculating water via a toroidal conductivity sensor. The controller activates two independent relay outputs based on bleed and a selectable feed mode of operation.

The MICROtrac controller comes standard with selectable rising or falling setpoint for open or closed loop control, water meter pulse input, percent timer, % post bleed timer and limit timer.

The base unit comes with the controller, toroidal sensor with signal cable, and a power cord. Optional features such as a sensor mounting tee, pre-wired pigtails on the relays, and a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100’ optional, on models without a flows witch, and a 3' cable is standard on models with a flow switch.

MICROtrac Selection Guide

MTC _ _ _ _ - _ _ _ _ _

PRODUCT DESIGNATOR Position 1, 2 & 3	**MTC**	= MICROtrac Toroidal Conductivity Cooling Tower Controller
VOLTAGE Position 4	**1**	= 115 volt
	2	= 230volt (no prewired power cord or relays available)
RELAY & POWER WIRING Position 5	**X**	= Prewired power cord & Liquid-Tight relay connections
	L	= Liquid-Tight connections only (required for 230 volt)
	P	= Prewired power cord and relays
SENSOR TEE Position 6	**X**	= Standard (no tee)
	T	= Sensor Tee with 3/4"" inlet/outlet connections
FLOW SWITCH Position 7	**X**	= Standard (no flow switch)
	F	= Flow Switch with 3' cable
	L	= Standard Flow Assembly (no panel)
	A	= Standard Panel & Flow Assembly
	B	= Deluxe Panel & Flow Assy, 1 Pump Mount, in/out ball valves, strainer, inj tee & rails
SUFFIX CODE Position 7, 8 & 9	**XXX**	= Suffix Code
	750	= 3/4" Back Flow Check Valve
	PC025	= 25 Feet (7.6m)
	PC050	= 50 Feet (15.2m)
	PC075	= 75 Feet (22.8m)
	PC100	= 100 Feet (30.4m)

MICROtrac PARTS

04-000-21	Toroidal sensor
16-100-01	Flow switch
16-100-33	Sensor Tee

DCS900 SERIES

DCS900 Series

The DCS900 was designed specifically to control conductivity and feed inhibitor in cooling tower systems. With three timer modes and optional water meter input, the DCS900 offers the best value in a stand-alone control system. Sensor and flow switch are connected to the controller via DIN plug type connectors -eliminating the need to remove the front cover for wiring.

Each system comes standard with a flow switch, 4-electrode stainless steel sensor, bleed relay and control relay for controlling a chemical feed pump. The DCS902 includes a water meter totalizer that is user configurable as a dry contact or Hall Effect.

The mounted flow option provides a rugged polypropylene back board onto which the flow / sensor assemblies and controller are mounted.

DCS900 Series Selection Guide

DCS90_ _ _ X

MODELS	1	= No water meter input, % T, % Post and Limit Timer
	2	= Water Meter Input (includes 3 ft. cable), Pulse Timer, % T, % Post and Limit Timer
ELECTRICAL	X	= 115 VAC 50/60 Hz, ETL Approval
	A	= 230 VAC 50/60 Hz, CE Approvals (Conduit Required)
FLOW	X	= Flow switch and tee with 8.5' cable (Standard)
	A	= Mounted Flow Assembly, Pre-wire (see note 1)
	B	= Mounted Flow Assembly, Conduit (see note 2)
SENSOR	X	= Stainless Steel Sensor (Standard)
	A	= Carbon Graphite Sensor

1. Controller and flow assembly mounted onto a polypropylene back board. Flow switch and sensor cords cut to an appropriate length.
2. Controller and flow assembly mounted onto a polypropylene back board. Flow switch and sensor cords cut to appropriate length. Power and relay outputs accessable to the electrical contractor through a junction box mounted onto the back board.

Series DCS900 Replacement Sensors

Item No.	Description
04-600-34	DCS900 replacement sensor. Stainless steel, 18" cable terminated with DIN plug.
04-600-38	DCS900 replacement sensor. Carbon Graphite, 18" cable terminated with DIN plug.
04-600-32	DCS900 replacement sensor. Stainless steel, 7 ft. cable terminated with DIN plug.
04-600-36	DCS900 replacement sensor. Carbon Graphite, 7 ft. cable terminated with DIN plug.

ACT SERIES

ACT Series Selection Guide

ACT102 _ _ _ _ _ _

MODEL: Position 1 thru 6	ACT102	= Analog Meter Conductivity Controller Selectable Dual Scale 0-2500 and 0-5000 µs/cm
AVAILABLE OPTIONS Position 7 thru 12 as needed	A	= Conduit
	B	= Flow assembly
	C	= Lockout timer
	P	= 220v, 50/60 Hz service (option "A" required)
	V	= Agency Approval US/Canada
	V1 (1)	= Agency Approval ""CE""
	W (2)	= Private Label

A completed model should look like "ACT102BC"

Notes: (1) Option "A" (conduit) and option "P" (220V) required.
(2) First time private label customers need to contact the factory or sales representative for information.

ACT Replacement Sensor

04-600-02 Conductivity; Stainless Steel with 10' cable

PANEL SYSTEMS

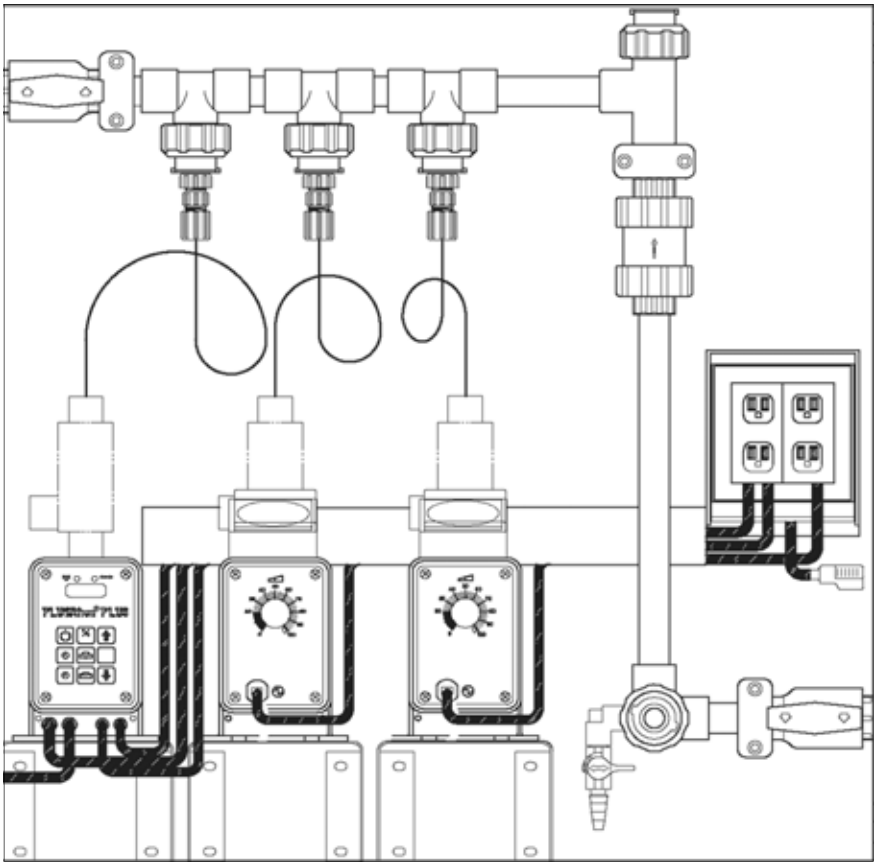
CTS Panel

The PULSAtron Plus Cooling Tower Control System allows you to create a low cost Cooling Tower Control System based on the PULSAtron Plus. The PULSAtron Plus is a simple Feed & Bleed Conductivity Controller built into a metering pump. It is available with up to four flow/pressure ratings.

The PULSAtron Series T7 is a timer pump with a built in 7-day timer. Program the timer with up to 8 on/off cycles per day. Each timed event can be set to run any day of the week on a 7-day cycle.

The CTS panel comes standard with the following features:

- Series CW Conductivity Control Pump
- Series T7 Timer Pump (second timer pump optional)
- 3 pump shelf brackets
- Flow Switch
- Backflow Check Valve
- Sensor tee with sample valve
- Watertight electrical outlet box with splashguard cover
- Ball valves on inlet and outlet
- Mounting rails



Ordering Information:

To order, build your model number by selecting one item from each of the categories below.

PULSATRON PLUS PANEL SYSTEM Selection Guide

CTS_ _ _ _ XXX

VOLTAGE	**2**	= 115 volt, 50/60 Hz
PUMP A "PULSATRON +"	**2**	= 6 GPD/.95 LPH @ 150 PSI/10 BAR, Cond. control pump w/ water meter inputs
	3	= 12 GPD/1.9 LPH @ 150 PSI/10 BAR, Cond. control pump w/ water meter inputs
	4	= 24 GPD/3.8 LPH @ 100 PSI/7 BAR, Cond. control pump w/ water meter inputs
	6	= 30 GPD/4.7 LPH @ 100 PSI/7BAR, Cond. control pump w/ water meter inputs
PUMP B "SERIES T7"	**2**	= 12 GPD/1.9 LPH @ 100 PSI/7 BAR, Timer pump for biocide control
	3	= 24 GPD/3.8 LPH @ 100 PSI/7 BAR, Timer pump for biocide control
	4	= 30 GPD/4.7 LPH @ 100 PSI/7 BAR, Timer pump for biocide control
PUMP C "SERIES T7""	**0**	= None
	2	= 12 GPD/1.9 LPH @ 100 PSI/7 BAR, Timer pump for biocide control
	3	= 24 GPD/3.8 LPH @ 100 PSI/7 BAR, Timer pump for biocide control
	4	= 30 GPD/4.7 LPH @ 100 PSI/7 BAR, Timer pump for bio
SUFFIX CODE	**XXX**	= Standard

PULSATROL MB9000 SERIES

The PULSAtrol® MB9000 Series boiler controllers represent a significant improvement in the PULSAtrol product line. We have simplified the configurations to bring you the most popular features as standard without compromising the flexibility to select the product you need to meet your specific requirement.

MB9200 Series

All MB9200 Series include as standard, two selectable timers, alarm output relay, dry contact alarm output, water meter totalizer, stainless steel sensor and mounting hardware for each boiler. Options include single or dual 4-20 mA outputs, communications and agency approvals.

MB9200 Series Selection Guide

MB92_ _ _ _ _ _ _ _ _

MODELS: Position 5 & 6	**10** = Conductivity control **20** = Dual Conductivity control includes 2 water meter totalizers
4-20 mA OUTPUTS Position 7	**X** = None **A** = Single isolated 4-20mA output **B** = Dual 4-20mA outputs
RELAYS & POWER WIRING Position 8	**X** = Conduit (Standard)
N/A Position 9	**X** = No Options Available
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = "CE" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 24.** **X** = None (Standard) **A** = Panel with junction boxes for power, relays and valves **B** = Panel with junction boxes for power, sensors & valves, receptical box for pump relays, two pump brackets **C** = Panel with junction boxes for power, sensors & valves, receptical box for pump relays, three pump brackets **D** = Panel with junction boxes for power, sensors & valves, receptical box for pump relays, four pump brackets

A completed model number should look like "MB9210XXXXXX"

NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

PULSATROL MB9000 SERIES

MB9300 Series

All MB9300 Series include as standard, four selectable timers, alarm output relay, dry contact alarm output, two water meter totalizers and temperature compensated stainless steel sensors. Options include two 4-20 mA outputs, communications, language and agency approvals

MB9300 Series Selection Guide

MB93_ _ _ _ _ _ _ _

MODELS: Position 5	**1** = Conductivity control **2** = Dual Conductivity control
ANALOG I/O Position 6	**0** = None **1** = Dual 4-20mA Outputs
RELAY & POWER WIRING Position 7	**X** = Conduit (Standard)
N/A Position 8	**X** = No Options Available
LANGUAGE Position 9	**X** = English (Standard) **A** = Spanish **B** = German **C** = French
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = CE"" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 24.** **X** = Standard Panel with flow assembly **A** = Conductivity panel, prewire **B** = Conductivity, pH panel, prewire **C** = Conductivity panel, conduit (must select conduit option in position 7 of model string) **D** = Conductivity, pH panel, conduit (must select conduit option in position 7 of model string)

A complete model number should look like "MB9310XXXXXX"

NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

PULSATROL MB9000 SERIES

MB9600 Series

All MB9600 Series include as standard, three or four selectable timers, two water meter totalizers user configured as dry contact or hall effect, four single point drum level inputs, dry contact alarm relay, alarm output relay and temperature compensated stainless steel sensors. Options include up to four 4-20 mA inputs and outputs, communications, language and agency approvals.

MB9600 Series Selection Guide

MB96_ _ _ _ _ _ _ _

MODELS: Position 5	**1** = Conductivity control **2** = Dual Conductivity control **3** = Triple Conductivity control includes only 3 timers **4** = Conductivity Condensate / pH control
4-20mA INPUTS/OUTPUTS Position 6	**0** = 0 Inputs, 0 Outputs **1** = 0 Inputs, 2 Outputs **2** = 0 Inputs, 4 Outputs **3** = 2 Inputs, 0 Outputs **4** = 2 Inputs, 2 Outputs **5** = 2 Inputs, 4 Outputs **6** = 4 Inputs, 0 Outputs **7** = 4 Inputs, 2 Outputs **8** = 4 Inputs, 4 Outputs
RELAY & POWER WIRING Position 7	**X** = Conduit (Standard)
pH SENSOR TYPE Position 8	**X** = Not applicable (for non pH systems) **A** = pH, Hi-Pressure **B** = pH, Hi-Pressure, preamplifier with power supply, ext. cable required (pg. 25) **C** = Selfcleaning pH **D** = Selfcleaning pH, preamplifier with power supply, ext. cable required (pg. 25)
LANGUAGE Position 9	**X** = English (Standard) **A** Spanish **B** = German **C** = French
COMMUNICATIONS Position 10	**X** = None **A** = Serial line communications, includes software **B** = Communications with modem and software
AGENCY APPROVAL Position 11	**X** = None **A** = ETL Approval (conduit on inlet power) **B** = CE"" Approval
PANEL ASSEMBLY Position 12	**FOR DETAILS ON OPTIONAL PANEL CONFIGURATIONS, SEE PAGE 24.** **X** = Standard Panel with flow assembly **A** = Conductivity panel, prewire **B** = Conductivity, pH panel, prewire **C** = Conductivity panel, conduit (must select conduit option in position 7 of model string) **D** = Conductivity, pH panel, conduit (must select conduit option in position 7 of model string)

A completed model numbe should look like "MB96110XXXXXX"

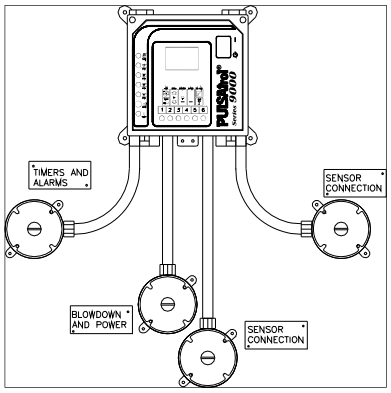
NOTE: Cables for water meters, 4-20mA I/O and alarms must be ordered separately. See page 27.

OPTIONAL PANEL ASSEMBLIES

Series MB9000 Optional Panel Assemblies

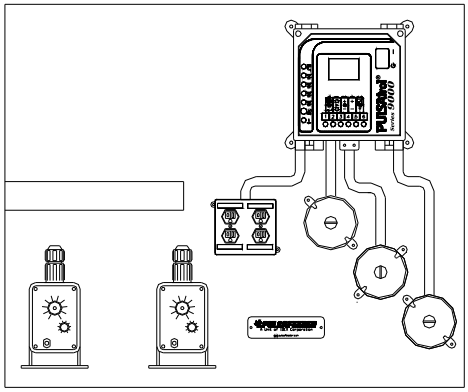
All MB9000 Systems have the following panel mounted options available. **Note: Pumps must be ordered separately. If ordering PULSAtron Pumps in conjunction with a panel, use suffix code PFB in place of the XXX in the last three digits and the pumps will be installed on the panel during assembly. If you already have a suffix code, then order your standard suffix code followed by PF. For example, if your suffix code is G15, then you would order G15PF when ordering in conjunction with a panel.**

Select from one of the following configurations and insert the option code into digit #12 when configuring your controller.



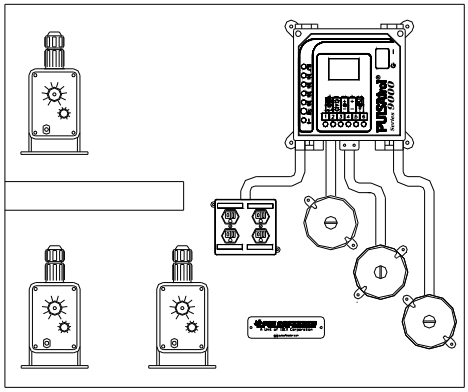
Panel with Junction Boxes

Enter Option "**A**" in position 12 of the PULSAtrol 9000 Model String. Panel features junction for timers, alarms, blowdown, power and sensor connections. The number of junction boxes may vary depending on the controller model.



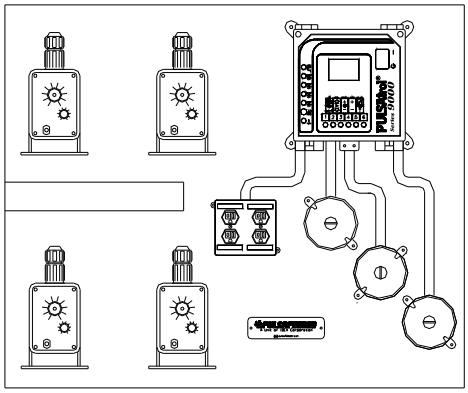
Panel with Junction Boxes and Mounting Hardware for Two Pumps

Enter Option "**B**" in position 12 of the PULSAtrol 9000 Model String. Panel features junction for timers, alarms, blowdown, power and sensor connections and mounting hardware for two pumps. The number of junction boxes may vary depending on the controller model.



Panel with Junction Boxes and Mounting Hardware for Three Pumps

Enter Option "**C**" in position 12 of the PULSAtrol 9000 Model String. Panel features junction for timers, alarms, blowdown, power and sensor connections and mounting hardware for three pumps. The number of junction boxes may vary depending on the controller model.



Panel with Junction Boxes and Mounting Hardware for Four Pumps

Enter Option "**D**" in position 12 of the PULSAtrol 9000 Model String. Panel features junction for timers, alarms, blowdown, power and sensor connections and mounting hardware for four pumps. The number of junction boxes may vary depending on the controller model.

MB9000 SENSORS

Series MB9000 Replacement Sensors

Item No.	Application	Note:
04-750-18	Conductivity	MB9000 Series replacement sensor. Stainless steel electrodes.
04-048-00	pH	MB9000 Series replacement sensor. Stainless steel body, 10' cable.
04-400-50	pH, Self Cleaning	MB9000 Series replacement sensor. Kynar body, 3' cable.

MB9600 ACCESSORIES

Single Point Level Wands

16-171-81-2 Adjustable to 26" with 3 ft. cable
16-171-81-1 Adjustable to 42" with 3 ft. cable
16-171-81-4 Adjustable to 60" with 3 ft. cable

PULSATROL MBC100 SERIES

MBC Series Selection Guide — MBC110 _ _ _ _ _ _

MODEL: Position 1 thru 6	**MBC110**	= Conductivity control woth selectable sample mode (continuous or timed), single line display, S.S. sensor
AVAILABLE OPTIONS Position 7 thru 12 as needed	**C**	= Selectable timer: %, limit, pulse, % post blow down
	D	= Alarm output relay
	K	= Alarm dry contact
	M3	= 4-20 mA isolated proportional programmable output
	R	= Agency approval - US/Canada (conduit on inlet power)
	R1	= CE Mark approved
	W (1)	= Private Label

A completed model should look like " MBC110CDR1"

Notes: (1) First time private label customers need to contact the factory or sales representative for information.

MBC Replacement Sensor

04-750-13-1 Conductivity; In-Line type Max. Press.250psi, Max Temp. 400ºF w/ Temp. Comp.

ABC SERIES

ABC Series Selection Guide — ABC102 _ _ _ _

MODEL: Position 1 thru 6	**ABC102**	= Analog Meter Conductivity Controller Selectable Dual Scale 0-500, 0-1,000, 0-2,000, 0-5,000, 0-10,000 and 0-20,000 µs/cm
AVAILABLE OPTIONS Position 7 thru 10 as needed		= Standard Unit
	P5	= 220v, 50 Hz service
	P6	= 220v, 60 Hz service
	V	= Agency Approval US/Canada
	V1(1)	= Agency Approval ""CE""
	W (2)	= Private Label

Notes: (1) Option "P5" (220V) is required.
(2) First time private label customers need to contact the factory or sales representative for information.

ABC Replacement Sensors

04-750-14-1 Conductivity (ABC50) only
In-Line type Max. Press. 250 psi, Max Temp. 400ºF
04-750-13-1 Conductivity (ABC101/102) only
In-Line type Max. Press. 250 psi, Max Temp. 400ºF w/Temp. Comp.

CABLES

Some cables for the PULSAtrol 9000 and DCS 900 are ordered separately to provide you the opportunity to buy only the cables required for your application and cut to your specified length. Some cables, e.g. sensor and communications cables are included.

Cables that come **standard** with the product are as follows:

Sensor cables. All sensor cables are cut to the length required for installation into the provided flow assembly. If you order a dual system, the sensor that comes with the second flow assembly will be cut to 10 ft or 3 meters.

Flow Switch cables. All flow switch cables are cut to length required for installation into the provided flow assembly. If you order a dual system, the sensor that comes with the second flow assembly will be cut to 10 ft or 3 meters.

Communications cables. When you order the communications option, you will receive a 10 foot (3 meter) cable with a DIN connection on one end for plugging into the controller and a standard RJ-45 connection on the other end. If your communications option includes the modem, you will also receive an RJ-45 to RJ-11 adapter for connecting into a standard telephone jack.

Optional cables that must be ordered separately are as follows:

Levels – All four drum level inputs are available from a single DIN on the controller. When you order a cable for levels, one end is terminated with the mating DIN for connecting to the controller. The cable is 8-conductor twisted pair. The other end of the cable is terminated with 4 dual-pin Molex connectors, one set for each of the four drum levels.

Water Meters – All water meters inputs are available from a single DIN on the controller. When you order a cable for water meters, one end is terminated with the mating DIN for connecting to the controller. The cable is 8-conductor twisted pair. The other end of the cable has no terminals. Color-coded stripped leads are available for wiring to your specific water meter.

Analog (4-20mA) Inputs – All 4-20 mA inputs are available from a single DIN on the controller. When you order a cable for 4-20mA inputs, one end is terminated with the mating DIN for connecting to the controller. The cable is 8-conductor twisted pair. The other end of the cable has no terminals. Color-coded stripped leads are available for wiring to your analog output device.

Analog (4-20mA) Outputs – All 4-20 mA outputs are available from a single DIN on the controller. When you order a cable for 4-20mA outputs, one end is terminated with the mating DIN for connecting to the controller. The cable is 8-conductor twisted pair. The other end of the cable has no terminals. Color-coded stripped leads are available for wiring to your analog output device.

Dry-contact Alarm – All dry contact alarm outputs are available from a single DIN on the controller. When you order cable for dry contact alarms, one end is terminated with the mating DIN for connecting to the controller. The cable is 8-conductor twisted pair. The other end of the cable has no terminals. Color-coded stripped leads are available for wiring to your alarm input.

Extension cables for sensors – as stated, all sensors come with standard length cables. If you need to extend the length of cable for your sensor, you can order an extension cable up to the maximum distance allowed for proper operation. The cable will come with a DIN plug on one end and a DIN receptacle on the other.

Extension cables for the flow switch – as stated, all flow switch sensors come with standard length cables. If you need to extend the length of cable for your flow switch, you can order an extension cable up to the maximum distance allowed for proper operation. The cable will come with a DIN plug on one end and a DIN receptacle on the other.

Extension cables for single point drum levels – drum level wands come with 3 ft of cable terminated with a two-pin Molex receptacle that mates to one of the four drum level outputs on the level cable coming from the controller. If you need to extend the length of a single point drum level, you can order an extension cable up to the maximum distance allowed for proper operation. The cable will come with a 2-pin Molex receptacle on one end and a 2-pin Molex plug on the other.

CABLES

Controller Cables

Use the selection guide below to configure an accessory cable to the length necessary for your application. Please refer to the information at the bottom of the table for maximum lengths.

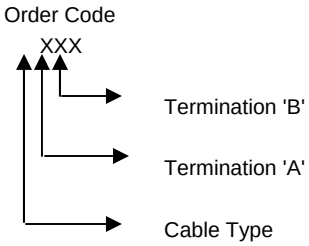
CONTROLLER CABLE Selection Guide

CBL_ _ _ | _ _ - XXX

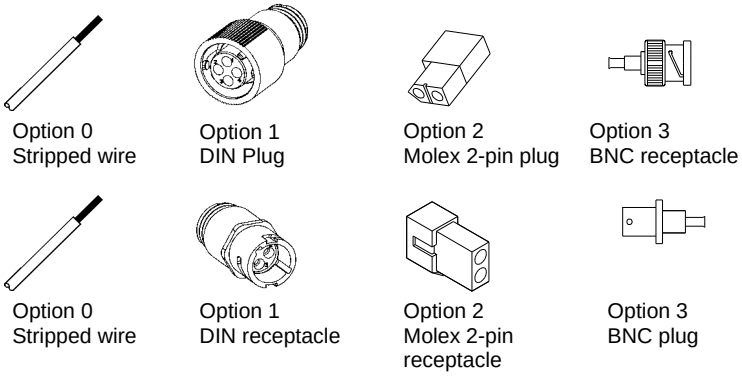
CABLE TYPE	**121** = Multi-port drum level, 4 drum levels **101** = Water Meters, Analog Input, Analog Output, Dry Contact Alarms **211** = Extension Cable for Flow Switch **111** = Extension Cable for Conductivity Sensor **311** = Extension Cable for Conductivity Sensor **433** = Extension Cable for pH/ORP **222** = Extension Cable for single point drum levels
AGENCY APPROVAL	**X** = No agency approval required **A** = CE Approval (required for use with CE approved options)
CABLE LENGTH	**003** = 3 ft. standard minimum length **XXX** = Desired length in feet up to maximum allowed by application (see below)

Cable Application (1 ft = 0.30 m, 1m = 3.28 ft)	**Maximum**
Level Wands	500 ft / 152.5 m
Flow Switch	500 ft / 152.5 m
Series 9000 Conductivity Sensor	200 ft / 61 m
DCS 900 Conductivity Sensor	35 ft / 10.5 m
Level Wands - multiple wands (4) in one cable	500 ft / 152.5 m
4-20mA Signals	500 ft / 152.5 m
Dry Contact Water Meters	500 ft / 152.5 m
Hall Effect (paddle wheel) water meters	500 ft / 152.5 m
pH/ORP - for distances greater than 30 ft/9.2m, you must use a preamp.	1000 ft / 305 m

The following diagrams indicate the type of terminals on the cable based on the three digit order code.



1 = 8-conductor twisted par
2 = 2-conductor
3 = 8-conductor shielded cable
4 = 2-conductor shielded



pH Preamp Options (Extension Cable Required)

04-046-16	Preamp with power supply only
04-046-18	Preamp with battery pack only
04-046-20	Replacement battery for preamp
45-000-25-1	Preamp with power supply and flow assembly plug
45-000-25-2	Preamp with battery pack and flow assembly plug

PREFABRICATED SYSTEMS

Prefabricated Systems

If a standard panel system does not fit your requirements, Pulsafeeder can fabricate a system tailored to your application. Some of the systems we have developed include:

- Boiler Panels that include a boiler controller, metering pumps and water tight conduit boxes mounted to a polypropylene or stainless panel.
- Fully Enclosed system with pumps, controller and all electrical mounted into a Nema 4X enclosure for installations in extreme conditions.
- Floor or Wall mounted drum rack systems.
- High Pressure Flow Assemblies.
- Corrosion Monitoring systems that combine the features of a standard panel system with a coupon rack.

For details on any of these systems contact your sales representative or the Pulsafeeder Technical Support team with your specifications to arrange a quote.

MicroVision SERIES

MicroVision Timer

The MicroVision -Timer is a microprocessor-based selectable timer controlller. Designed specifically for timer based control applications, MicroVision Timer comes with the features and functions you need for accurate timer based control.

The MicroVision Timer comes standard with the five programmable digital inputs that can be programmed as Drum Level inputs, water meter inputs or a Hall effect input and five programmable timers for 28 day, pulse, percent, cycle and system alarm.

The base unit comes with the controller and a power cord. Optional features such as a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100’ optional, on models without a flow switch, and a 3' cable is standard on models with a flow switch.

MicroVision Timer Selection Guide

MVT _ _ _ - _ _ _

PRODUCT DESIGNATOR Position 1, 2 & 3	**MVT**	= MicroVision Timer Controller
VOLTAGE Position 4	**1**	= 115 volt
	2	= 230 volt (no prewired power cord or relays available)
POWER WIRING Position 5	**X**	= Liquid Tite connections only (required for 230VAC)
	P	= Prewired w/Power Cord and Pigtails for 115 VAC
PANELS Position 6	**X**	= No Panel and No Flow assembly
	F	= Flow assembly, No Panel
	A	= Standard Panel & Flow Assembly
	B	= Panel & Flow Assy, 1 Pump Mount, strainer, sensor tee, inj tee & rails
	C	= Panel & Flow Assy, 2 Pump Mount, strainer, sensor tee, 2 inj tees & rails
	D	= Panel & Flow Assy, 3 Pump Mount, strainer, sensor tee, 3 inj tees & rails
SUFFIX CODE Position 7, 8 & 9	**XXX**	= Suffix Code

A completed model should look like "MVT1PB-XXX

PULSATROL 400 SERIES

MPT Programmable Timer

All MPT400 Series include as standard, alarm output relay, dry contact alarm output, three water meter totalizers, standard flow assembly and 4 single point drum level inputs. Options include one to five timers, communications and agency approvals

MPT400 Series Selection Guide

MPT4_ _ _ _ _ _ _ _ _

MODELS: Position 5 & 6	**10**	= One Timer
	20	= Two Timers
	30	= Three Timers
	40	= Four Timers
	50	= Five Timers
CONDUIT / PREWIRE FLOW ASSEMBLY Position 7	**A**	= Conduit without flow assembly
	B	= Conduit with flow assembly
	C	= Prewire without flow assembly (115V only) (Not available with "CE")
	D	= Prewire w/ flow assembly (115V only) (Not avail w/ "CE") (Std)
POSITION 8	**X**	= No Options Available
POSITION 9	**X**	= No Options Available
COMMUNICATIONS Position 10	**X**	= No communications (Standard)
	A	= Communications, no modem with software
	B	= Communications with internal modem and software
AGENCY / PRIVATE LABEL Position 11	**X**	= No agency approvals (Standard)
	A	= No agency approvals private label
	B	= Agency approval - US/Canada (Conduit on inlet power)
	C	= Agency approval - US/Canada with private label (Conduit on inlet power)
	D	= CE approval (Conduit only, not applicable with pH preamp)
	E	= CE approval with private label (Conduit only, not applicable with pH preamp)
LANGUAGE CODE Position 12		**** LEAVE BLANK FOR ENGLISH ****
	Z000S	= Spanish (Spanish with English as alternate language)

A completed model number should look like "MPT410DXXXX"

PULSATROL SERIES

MPT Programmable Timer

MPT Series Selection Guide

MPT_ _ _

			Available Inputs/Outputs			
MODEL: Position 1 thru 6	**210**	= 28 day biocide timer with 24 hour bleed lockout	2	1	2	1
	220	= 28 day dual biocide timer with 24 hour bleed lockout	2	1	1	1
	250	= Dual selectable: %, limit, pulse, % post blow down		1	2	1

AVAILABLE OPTIONS Position 7 thru 12 as needed			Digital In	Dry Contac	Relay Out	Serial Comm
	A	= Conduit (Required for 220V, "PI"s and "FW"s)				
	B	= Mounted flow assembly				
	C (4)	= Selectable timer: %, limit, pulse, % post blow down	1		1	
	D (5)	= Alarm output relay (available on MPT2_ _ series only)		1		
	H (3)	= 28 day program biocide timer			1	
	K	= Alarm dry contact				
	L1	= Serial line communication,with PULSAworks software				1
	L2	= Serial line communication & modem, with PULSAworks software				
	L3 (2)	= Alarm call out (requires a modem)				
	L4 (2)	= No serial line communication software				
	R	= Agency approval - US/Canada (conduit on inlet power)				
	R1	= CE Mark (option A required)				
	W (1)	= Private Label				

A completed model should look like "MPT220BD"

When ordering a controller for a prefabricated system, preface the Model Number with a "P" (i.e. PMPT210). Option "A" required on "PI" & "FW".

Notes: (1) First time private label customers need to contact factory or sales representative for information.

(2) Only available with option "L1" or "L2"

(3) Not available on MPT150 or MPT210.

(4) Not available on MPT250.

(5) Not available on MPT120.

ANALOG MINI SERIES

Analog Timers

Model No.

MP1 Mini Pulse Timer
Water meter actuated. Enclosure: Molded fiberglass, prewired to include power cord, duplex AC receptacle & 8' water meter hook-up (0-9 min. scale std.).

LO1 Lockout Timer
Add timer output to an existing controller. Fiberglass, prewired encl. 0-90 min. scale.

MPC1 Percentage Timer
%/recycle timer in fiberglass prewired encl. Adjustable % on-time; fixed 9 min. scale.

MPC2 Percentage Timer
Percentage/recycle timer in fiberglass prewired enclosure. Adjustable on-time and off-time. Standard scales 0-9 minute on-time, 0-9 minute off-time.

Available options for models MP1, LO1, MPC1 and MPC2:
Optional time scales

A2	0-18 seconds
A4	0-18 minutes
A5	0-90 seconds
A6	0-180 seconds
A7	0-90 minutes

Push button setting, single timer. Select scale below. (Not for LO1, MPC1 or MPC2)

FA	0-9.9 minutes
FB	0-99 seconds

MP2G Dual Mini Pulse Timer
Dual water meter actuated. Push button setting (0-9.9 min. scales std.).

Available options for Model MP2G:

A1	0 to 9.9 minutes, 0-99 seconds
A2	0 to 99 seconds, 0 to 99 seconds
S	Sequential operation

DIGITAL GLYCOL FEEDERS

DIGITAL GLYCOL FEEDER Selection Guide

DGF_ _ _ _ _ _ _ _

CLOSED LOOPS Position 4	**1** = Single Loop **2** = Dual Loop
CONDUIT / PREWIRE Position 5	**A** = Conduit **B** = Prewire
AUDIBLE ALARM Position 6	**A** = without Audible Alarm **B** = with Audible Alarm
ALARM OUTPUT OPTION Position 7	**X** = None **A** = Dry Contact, Single **B** = Dry Contact, Dual **C** = AC Output, Single **D** = AC Output, Dual **E** = Dry Contact, Single & AC Output, Single
PRESSURE SWITCH OPTION Position 8	**A** = Standard pressure switch, 30 to 50 psi (adjustable to 80 psi) **B** = Low pressure switch, 5 to 10 psi (adjustable to 35 psi) **C** = One standard and one low pressure switch (DGF2 only)
PUMP AND VOLTAGE RATING Position 9	**A** = 115VAC no pump **B** = 230VAC no pump (must be conduit) **C** = 115VAC 60Hz 1.50GPM @ 100psi **E** = 115VAC 60Hz 3.75GPM @ 100 psi
AGENCY APPROVAL Position 10	**X** = None **A** = ETL Approval
PANEL ASSEMBLY Position 11	**B** = Assembled (must ship via freight)

ACCESSORIES

Digital Glycol Feeder for Closed Loop Systems

Replacement Pumps

Part No.	
18-600-35	115V 60Hz 1.50GPM @ 100PSI
18-600-42	115V 60Hz 3.75GPM @ 100PSI

Replacement Wand

16-171-81-9	Wand, level, adjustable up to 34

Cables

16-171-81-3	Cable, extension, 10' with connectors

Replacement Fuse

05-052-18	Fuse, 16A, 250V, 5X20MM

Replacement Relay

10-006-01	Relay, 5V, 12A, PCB Type

Pressure Switches

12-140-00	Standard pressure switch 30 - 50psi (adjustable to 80 psi)
12-140-01	Low pressure switch to 5 - 10psi (adjustable to 35 psi)

Pressure Gauge

12-130-01	Standard pressure gauge 0-100psi, liquid filled
12-130-03	Low pressure gauge 0-30psi, liquid filled

FLOW CONTROLLERS

Flow Controllers

Model No.

FC2000 Flow Controller
Standard flow controller has 3/4 PVC threaded connections with 3/4" PVC slip adaptors to use if needed. 1 GPM minimum flow required for activation

FC2000C Flow Controller
Standard flow controller w/ 1 PVC slip connectors; 1 GPM min. flow required for activation.

Available options for FC2000 & FC2000C:
Receptacle functions (Standard--both on with flow)

1	Both on with no flow
2	One on with flow, other on no flow
3	One on with flow, other service
4	One on with no flow, other service

Replacement Flow Assemblies

16-977-79 3/4 (FC2000)
16-977-71 1 (FC2000C)

CORROSION COUPON RACKS

Corrosion Coupon Racks

Standard system includes: PVC coupon holder, nylon screw and nut, PVC inlet ball valve, 0.75 in. (19mm) piping, and Schedule 80 PVC mounted on 0.50 in. HDPE. System does not include coupons (see page 33).

Model No.

CCR1	1 station .....
CCR2	2 stations .....
CCR3	3 stations .....
CCR4	4 stations .....
CCR5	5 stations .....
CCR6	6 stations .....

Available optional Piping:

1" PVC piping	3/4" CPVC piping	1" CPVC piping	3/4" black iron piping
CCR1A	CCR1B	CCR1C	CCR1D
CCR2A	CCR2B	CCR2C	CCR2D
CCR3A	CCR3B	CCR3C	CCR3D
CCR4A	CCR4B	CCR4C	CCR4D
CCR5A	CCR5B	CCR5C	CCR5D
CCR6A	CCR6B	CCR6C	CCR6D

Available options:

X1	Quick release coupon holders (PVC only)
X4	3/4 hot/cold water flow meter
X6	1 cold water flow meter
X7	PVC outlet ball valve std, 3/4 blk iron units use 3/4" brass gate valve 250 psi
X8A	Y Strainer for 3/4 PVC
X8B	Y Strainer for 1 PVC or CPVC
X8C	Y Strainer for 3/4 CPVC or black iron
X9	Clear PVC pipe sections
U1	Mounting strut - Black Iron only (no panel)
F3	Flow control valve 3 GPM (3/4" only)
F5	Flow control valve 5 GPM (3/4" only)

NOTE: Options X4 and X6 for max. 150 psi (10.4 bar) @ 130ºF (54ºC).

Coupon Rack Replacement Parts

Part No.

16-756-51-1	Quick Release coupon holder with hardware
16-756-50	PVC and CPVC holder with hardware
16-756-42	Steel on black iron holder with hardware
33-022-16	3/4 hot/cold water flow meter

CORROSION DEPOSIT MONITOR

Corrosion Deposit Monitor

Model No.
Self contained systems for monitoring corrosion and deposition characteristics of cooling water s

DPM14
DPM24 (230 VAC wiring)

Coupons for Corrosion Coupon Racks & Corrosion Deposit Monitors

Part No.	
03-220-10	Mild Steel
03-220-00	Copper
03-220-60	303 Stainless Ste
03-220-70	304 Stainless Steel
03-220-20	316 Stainless Steel
03-220-50	Nickel
03-221-30	Brass
03-221-40	Bronze
03-221-50	Aluminum

Corrosion Deposit Monitor Replacement Parts

03-008-00	Small Neoprene O-rings (2 required)
03-210-06	Compression fittings for end blocks (2 per block)
03-013-00	Large Neoprene O-rings (2 required)
05-047-50	Sight glass (1 required)
05-052-00	15 amp fuse (1 required)
05-051-00	Fuse holder for 05-052-00
05-047-20	Heater cartridge (1 required)
05-047-30	Left exchanger end block (1 required)
05-047-40	Right exchanger end block (1 required)
05-047-35	Center exchanger block (1 required)

Specimen Tubes for Corrosion Deposit Monitor

03-223-00	Mild Steel
03-223-10	Copper
03-223-30	304 Stainless Steel
03-223-40	316 Stainless Steel
03-223-50	Nickel
03-223-60	Brass

Corporation Stops

J61135	3/4" corporation stop - PVC 120 psi

Surge Protector

10-014-03	AC Power and Telecom surge/spike protector (115V)

Sample Coolers

12-066-00	Sample Cooler

WATER METERS

CONTACTING WATER METERS - COLD WATER

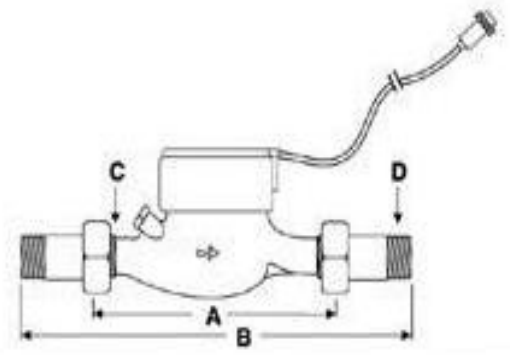
	Code	Rating	Reference	MTR _	_ _
Select Water Meter Size	2 =	.75" NPT	.22 - 22 GPM		
	3 =	1" NPT	.44 - 52 GPM		
	4 =	1.5" NPT	.88 - 88 GPM		
	5 =	2" NPT	2 - 132 GPM		
	6 =	3" Flanged	440 GPM		
	7 =	4" Flanged	660 GPM		
	8 =	6" Flanged	1650 GPM		

Code	Rating	Gallons Per Contact (GPC)						
		3/4"	1"	1.5"	2"	3"	4"	6"
01 =	0.1 GPC	X						
02 =	0.25 GPC	X	X					
03 =	0.5 GPC	X	X					
04 =	1 GPC	X	X	X	X			
06 =	5 GPC	X	X	X	X			
07 =	10 GPC	X	X	X	X			
09 =	50 GPC	X	X	X	X			
10 =	100 GPC	X	X	X	X	X	X	X
13 =	1,000 GPC					X	X	X

3/4" - 2" Meters have male NPT Bronze Bodies, rated for 150 PSI max, 105 F max.

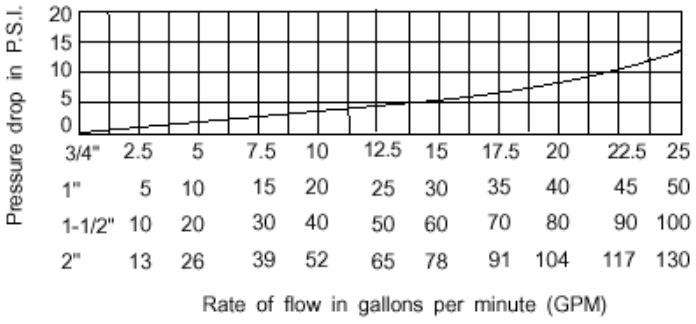
3", 4" & 6" Meters have Epoxy Coated Ductile Iron Flanged Bodies, rated for 200 PSI max, 105 F max.

3/4" - 2" Meters have male NPT Bronze Bodies
150 PSI max, 105 F max.

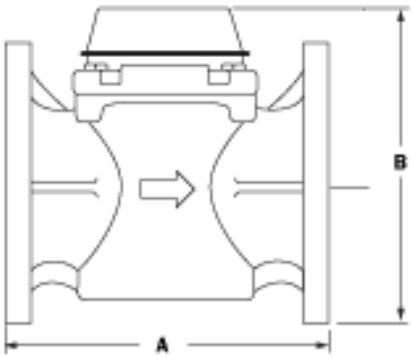


Size	A	B	C (IPS)	D (NPT)
3/4"	7.50	12.62	1	3/4
1"	10.25	15.62	1 1/4	1
1.5"	11.75	17.62	2	1 1/2
2"	11.75	17.62	2 1/2	2

Typical Pressure Drop Curve



3", 4" & 6" Meters have Epoxy Coated Ductile Iron Flanged Bodies
200 PSI max, 105 F max.



Size	A	B	Flanges
3"	8.86	10.87	150# ANSI
4"	9.84	11.26	
6"	11.81	13.60	

VALVES-COOLING APPLICATIONS

Solenoid Valves

SVC Series

Part No.

Zero psi differential, 105 psi max. 115 VAC, brass bodies, buna seals, NC, 176°F, 2 way

SVC-0.50-115-ODP
SVC-0.75-115-ODP

1.5 psi differential, 150 psi max. 115 psi max. 115 VAC, brass bodies, buna seals, NC, 176°F, 2 way

SVC-0.50-115
SVC-0.75-115

3 psi differential, 225 psi max. 115 psi max. 115 VAC, brass bodies, buna seals, NC, 176°F, 2 way

SVC-1.00-115
SVC-1.50-115
SVC-2.00-115

EC Series - Motorized Valves

Part No.

Motorized Valves for Cooling Tower Applications
Low differential pressure applications. Brass bodies.

12-045-00	1/2" NPT (25 psi maximum)
12-054-10	3/4" NPT (25 psi maximum)
12-057-00	1" NPT (15 psi maximum)

Dynamatic Series - Motorized Valves

Motorized Valves for Cooling Tower Applications.
Brass valve, full port, with electric actuator.

12-054-14	1/2" NPT
12-054-13	3/4" NPT
12-054-12	1" NPT
12-054-11	2" NPT

Bleed-off Piping Assembly

Includes SVC solenoid valve, steel Y-strainer, and brass shutoff valve.

16-900-18	3/4"
16-900-12	1"
16-900-13	1 1/2"
16-900-14	2"
16-900-18-1	16-900-18 less solenoid valve
16-900-12-1	16-900-12 less solenoid valve
16-900-13-1	16-900-13 less solenoid valve
16-900-14-1	16-900-14 less solenoid valve

Sample Stream Parts

26-034-48-1	Complete sample stream assembly. Includes: flow switch, PVC shutoff valve (input side), bowl strainer, sample valve, PVC shutoff valve (output side)
26-034-48-2	Same as above less flow switch
03-034-00	3/4" Tee TXTXT, PVC
03-174-00	Reducer Bushing, 3/4S x 1/2T, PVC
03-048-11	3/4" Tee TXTXT, CPVC
12-068-00	1" Steel Y-strainer
12-071-00	3/4" Steel Y-strainer
12-069-00	3/4" Clear PVC Y-strainer
12-070-00	Replacement mesh for 12-069-00
12-072-11	1" PVC shutoff valve
12-079-00	1" Brass shutoff valve
12-072-00	3/4" PVC ball valve
16-810-00	2 stage injection manifold
16-810-03	3 stage injection manifold
16-810-04	4 stage injection manifold
16-810-08	5 stage injection manifold
04-300-08	Sample valve assembly

VALVES-BOILER APPLICATIONS

Valve Packages (For Use with Times Sample Systems

Part No.

16-896-00 **Up to 100 psi**
Package includes 1/2" solenoid valve (12-048-00) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).

16-896-04 **Up to 300 psi**
Package includes 1/2" motorized ball valve with heavy duty 90 degree actuator (16-892-00) and 1/2" flow throttling valve (12-046-01).

16-896-08 **Up to 450 psi**
Package includes 1/2" motorized ball valve with 360 degree actuator (16-892-02) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).

Valve Packages (For Use with Continuous Sample Systems)

16-896-02 **Up to 100 psi**
Package includes 3/4" solenoid valve (12-056-00) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).

16-896-06 **Up to 300 psi**
Package includes 3/4 motorized ball valve with 90 degree actuator (16-892-01), 3/4 flow throttling valve (12-055-01), and 1/2" flow throttling valve (12-046-01).

16-896-10 **Up to 425 psi**
Package includes 3/4" motorized ball valve with 360 degree actuator (16-892-04) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).

Available option:

-2 **230 VAC service**
Note: $65.40 adder is only for models 16-896-04, -06, -08 and -10.

NOTE: **Materials of construction: Solenoid Valves are bronze body with stainless steel pilot and valves; Motorized Ball Valves are carbon steel body with 316 stainless steel ball and stem; Throttling Valves are carbon steel body and valve; and Orfice Unions are carbon steel union with stainless steel plates.**

Diverter Valves

12-052-02 1" motorized 3-way valve
16-896-16* 1-1/2" motorized 3-way valve
16-896-18* 2" motorized 3-way valve

*Consult factory for lead time.

Solenoid Valves - SVB Series

0 psi differential, 100 psi, 115 VAC, brass bodies, PTFE, NC, 2 way

12-048-00 1/2"
12-056-00 3/4"

VALVES-BOILER APPLICATIONS

Motorized Ball Valves

Part No.	
16-892-00	1/2" motorized ball valve (10-75 Worcester Actuator)
16-892-01	3/4" motorized ball valve (10-75 Worcester Actuator)
16-892-02	1/2" motorized ball valve (10-36 Worcester Actuator)
16-892-04	3/4" motorized ball valve (10-36 Worcester Actuator)
16-892-16	1/2" high steam rated motorized ball valve (10-36 Worcester Actuator)
16-892-18	3/4" high steam rated motorized ball valve (12-75 Worcester Actuator)

Available option:

-2	230 VAC service

12-040-00	Worcester 10-75 actuator only
12-040-10	Worcester 10-36 actuator only

Motorized Ball Valve Parts

12-043-00	Worcester 1/2" steam rated ball valve only
12-051-00	Worcester 3/4" steam rated ball valve only
12-041-00	Mounting kit for 12-043-00 & 12-040-00
12-041-10	Mounting kit for 12-043-00 & 12-040-10
12-049-00	Mounting kit for 12-051-00 & 12-040-00
12-049-10	Mounting kit for 12-051-00 & 12-040-10
05-006-20	Limit switch for 10-36 actuator

Flow Control Valves

12-075-01	3/8" valve (300 psi maximum)
12-046-01	1/2" valve (300 psi maximum)
12-055-01	3/4" valve (300 psi maximum)
12-012-00-1	1" orifice union with set of (4) orifice plates
12-013-50	Set of four orifice plates

CONDUCTIVITY TESTERS

Hand Held Conductivity Testers

Model No.	
HJ6BC	0-100, 0-1000, 0-10,000 µS/cm
HJ7B	0-50, 0-500, 0-5,000 µS/cm

Calibration Solutions

Part No.	

Conductivity Solutions (500 ml bottles)

20-016-24	500 conductivity (6 pack)
20-016-26	2000 conductivity (6 pack)
20-016-28	5000 conductivity (6 pack)
20-016-00	500 conductivity (1 bottle)
20-016-02	2000 conductivity (1 bottle)
20-016-04	5000 conductivity (1 bottle)

pH Kit Solutions

20-016-36	pH 4 buffer solution - 4 oz
20-016-37	pH 4 buffer solution - 32 oz
20-016-38	pH 7 buffer solution - 4 oz
20-016-39	pH 7 buffer solution - 32 oz
20-016-40	pH 10 buffer solution - 4 oz
20-016-41	pH 10 buffer solution - 32 oz

ORP Kit Solutions

20-016-42	ORP 100 mV buffer solution - 4 oz
20-016-43	ORP 100 mV buffer solution - 32 oz
20-016-44	ORP 465 mV buffer solution - 4 oz
20-016-45	ORP 465 mV buffer solution - 32 oz

ACT / ABC PARTS

ACT / ABC Parts (101/102 only)

Part No.	
08-986-05	Power supply board assembly, ETL/CE

ACT Parts (101/102 onl)

08-986-06	Limit timer board assembly

ACT Motherboard Panel Assemblies, Complete

15-920-08	Panel assembly ACT102BC
15-920-08-1	"CE" Panel assembly ACT102ABCPV1
15-920-12	Panel assembly ACT102B
15-920-12-1	"CE" Panel assembly ACT102ABPV1
15-920-20	Panel assembly ACT102
15-920-20-1	"CE" Panel assembly ACT102APV1

ABC Mother Board Panel Assemblies, Complete

15-920-28	Panel assembly ABC102
15-920-28-1	"CE" Panel assembly ABC102P5V1

ACT Flow Assemblies, Complete

16-596-20	Flow assembly, with flow switch conductivity (no sensor)

ACT Flow Assembly Components

03-093-00	Male adaptor, 3/4"
03-096-62-E	Elbow tee, 3/4"
04-300-08	Sample valve assembly
03-096-56-E	Tee, sensor
03-096-52-E	Tee, flow, clear
03-005-05	O-ring, 1 1/2" ID, 1 3/4" OD, 1/16" Thk (tee)
03-005-04-2	O-ring, 15/16" ID, 1 1/8" OD, 3/32" Thk (sensor/ sensor holder)
06-008-00-E	Coupling Nut
03-096-71-E	Pipe Nipple, 3/4" x 3.00 long
04-300-90-1	Flow Switch
04-300-91	"CE" flow switch

CONTROLLER PARTS

Daughter Cards

Part No.	Description	Applicable Series
08-985-05	Conductivity card	100
08-985-50	Isolated pH card	100
08-600-48	Serial line comm. card w/o 2400 baud modem	200/300/9200
08-600-45	Serial line comm. card w/ 2400 baud modem	200/300/9200
08-600-06	Dual conductivity card	All Series except 100
08-600-16	Single conductivity card	All Series except 100
08-600-08	Dual pH/ORP card	All Series except 100
08-600-18	Single pH card	All Series except 100
08-600-23	Dual conductivity card for boilers and hi-pressure	All Series except 100
08-600-21	Single conductivity card for boilers and hi-pressure	All Series except 100
08-600-12	Dual 4-20mA output card	All Series except 100
08-600-13	Single 4-20mA output card	200/300/9200
08-600-10-1	Dual 4-20mA input card	9600/9500
08-600-19	Single ORP card	9300/9500/9600
08-600-48	Serial line comm. card w/o 14.4K baud modem	9300/9500/9601
08-600-59	Serial line comm. card w/ 14.4K baud modem	9300/9500/9602

Mother Boards

08-985-00-E	Mother board, 100 Series	100
12-042-73	Kit, 100 Series mother board w/ battery	100
12-042-74	Kit, 100 Series mother board w/ M1 option	100
12-042-75	Kit, 100 Series mother board w/ M2, M3 option	100
08-600-14-2	Mother board with 2 line display	200/9200
08-600-50	Mother board for 2 line display	200/9200
08-600-15-2	Mother board with 8 line display	300/9300/9500/9600
08-600-52	Mother board for 8 line display	300/9300/9500/9601

Power Supply / Relay Boards

12-042-76	Power supply/relay board w/ K option	100
08-985-60	Power supply/relay board w/o connectors	100
08-600-04-1	Relay board w/o dry contact option, 200 Series	200
08-600-04-2	Relay board w/o dry contact option, 200 Series	200/9200
08-600-05-1	Relay board w/o dry contact option, 200 Series	300
08-600-03-3	Relay board w/o dry contact option, 200 Series	All Series except 100
08-600-47-2	Relay board w/o dry contact option, 200 Series	All Series except 100
08-600-65-3	Relay board w/o dry contact option, 200 Series	400/9300/9500/9600

Kits, Power Supply / Relay Boards

12-042-71	Kit, Power supply/relay board complete	100
12-042-77	Kit, Relay board complete	200/9200
12-042-72	Kit, power supply board w/ cables to relay board	200/300/9200
12-042-78	Kit, Relay board complete	300
12-042-79	Kit, CE" power supply board complete	All Series except 100
12-042-83	Kit, Relay board complete	9300/9500/9600

Relays

10-001-08-E	Relay, AC/IO, module, plug-in/screw mounting	200/300/9200
10-001-12	Relay, SPDT, 10A, 12VDC coil, mech., plug-in	All Series except 100

CONTROLLER PARTS

Kits, Fuse / Spare Parts

Part No.	Description	Applicable Series
12-042-61	Kit, fuse, 1A, 250V, rectangular (pkg. of 5)	100
12-450-01	Kit, fuses (1A, 125V and 5A, 125V) and jumpers	100
12-450-04	Kit, fuses (5A 250V slo-blo) and jumpers	100
12-042-62	Kit, fuse, 5A, 125V, rectangular (pkg. of 5)	200/300/9200
12-042-62-1	Kit, fuse, 5A, 250V, round (pkg. of 5)	200/300/9200
12-450-00	Kit, fuses (1A, 250V and 5A, 250V) and jumpers	200/300/9200
12-450-02	Kit, fuses, (1/4A, 250V and 5A, 125V) and jumpers	300/9300/9500/9600
12-042-62-2	Kit, fuse, 5A, 250V, slo-blo, round (pkg. of 5)	All Series except 100
12-042-85	Kit, fuse, 1A, 250V, slo-blo, glass (pkg. of 5)	All Series except 100
12-450-03	Kit, fuses (1A & 5A, 250V, slo-blo) and jumpers	All Series except 100
12-450-05	Kit, CE" fuses (1.6A & 5A, 250V slo-blo) and jumpers	All Series except 100
12-450-06	Kit, fuse, 63mA, 250V, slo-blo (pkg. of 4)	9300/9500/9600

Complete Flow Assemblies

Standard Flow Assemblies

16-596-00	Flow assembly, with flow switch (no sensor)
16-596-02	Flow assembly, with flow switch for pH or ORP (no sensor)
16-596-04	Flow assembly, with flow switch for pH/ORP (no sensors)
16-596-08	Flow assembly, with flow switch for pH/ORP/Cond (no sensors)
16-596-12	Flow assembly, with flow switch for pH/Cond or ORP/Cond (no sensors)
16-596-22	Flow assembly, with flow switch for conductivity (no sensor)

Hi-Pressure Flow Assemblies

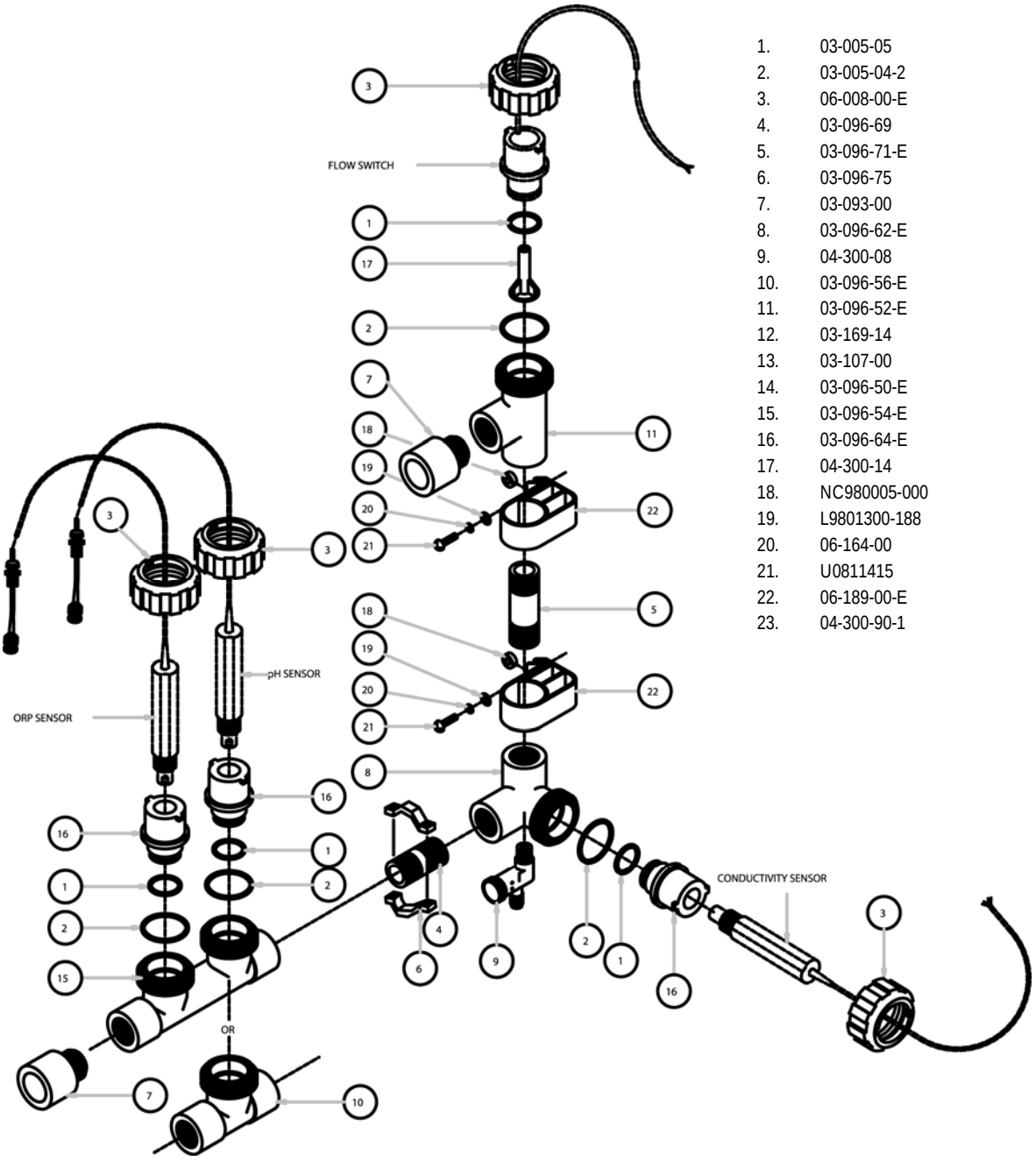
16-596-24	Flow assembly, w/o flow switch for conductivity (no sensor) "B1"
16-596-26	Flow assembly, w/o flow switch for pH (no sensor) "B2"
16-596-28	Flow assembly, w/o flow switch for pH/Cond or ORP/Cond (no sensors) "B3"
16-596-30	Flow assembly, w/o flow switch for ORP (no sensor) "B4"
16-596-32	Flow assembly, w/o flow switch for pH/ORP (no sensors) "B6"
16-596-34	Flow assembly, w/o flow switch for pH/ORP/Cond (no sensors) "B7"

"CE" Flow Assemblies (R1)

16-596-01	Flow assembly, with flow switch (no sensor)
16-596-03	Flow assembly, with flow switch for pH or ORP (no sensors)
16-596-05	Flow assembly, with flow switch for pH/ORP (no sensors)
16-596-09	Flow assembly, with flow switch for pH/ORP/Cond (no sensors)
16-596-13	Flow assembly, with flow switch for pH/Cond or ORP/Cond (no sensors)
16-596-23-1	Flow assembly, with flow switch for conductivity (no sensor)

FLOW ASSEMBLY PARTS

Flow Assembly Diagram



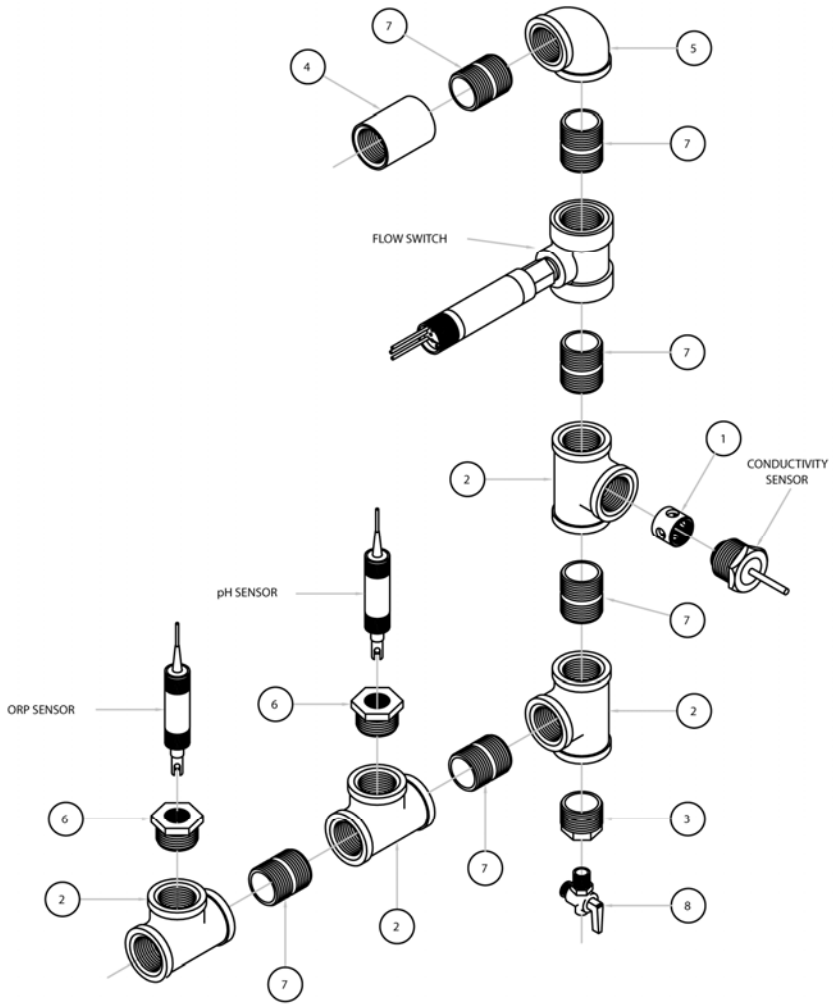
1. 03-005-05
2. 03-005-04-2
3. 06-008-00-E
4. 03-096-69
5. 03-096-71-E
6. 03-096-75
7. 03-093-00
8. 03-096-62-E
9. 04-300-08
10. 03-096-56-E
11. 03-096-52-E
12. 03-169-14
13. 03-107-00
14. 03-096-50-E
15. 03-096-54-E
16. 03-096-64-E
17. 04-300-14
18. NC980005-000
19. L9801300-188
20. 06-164-00
21. U0811415
22. 06-189-00-E
23. 04-300-90-1

Drawing #1

FLOW ASSEMBLY PARTS

Hi-Pressure Flow Assembly Diagram

1. 03-068-00
2. 03-135-13
3. 03-135-14
4. 03-135-15
5. 03-135-16
6. 03-135-17
7. 03-135-18
8. 03-176-00
9. 12-600-90



Drawing #2

Policies and Procedures

1. Manufacturer's Equipment Warranty

a. Pulsafeeder warrants all pumps and controllers of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from date of shipment from the factory. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

b. The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any other unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

c. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

2. Pulsafeeder's Parts and Accessory Warranty

a. Pulsafeeder, Inc. warrants parts and accessories provided to be free of defects in material or workmanship. Unless otherwise noted below, liability under this policy extends for 90 days from date of shipment from the factory when sold as service parts. (Replaceable elastomeric parts are expendable and are not covered by any warranty either expressed or implied.)

b. This policy is extended to a full 12 months from the date of installation or 18 months from shipment from the factory whichever comes first on the following accessories;
Intelliscan
Digital Glycol Feeders
Analog Timers
Water Meters
Flow Controllers

c. MicroTrac and MicroVision toroidal probes are warranted for 24 months from date of shipment from the factory when purchased in conjunction with the controller.
All other electrodes/probes and sensors are considered maintenance items and such are warranted for six (6) months from the date of shipment when purchased in conjunction with the controller.
Any electrodes/probes and sensors purchased as spare parts are warranted for 90 days from date of shipment.

d. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

e. The manufacturer disclaims all liability for damages to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

f. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

3. Process for All Returned Goods

a. Please contact our Customer Service Department to request a RMA (Return Material Authorization) number prior to returning any goods. The following information will be required:
Billing and ship-to address
Model number and serial number
Contact name and phone number
Reason for return
Purchase order (where applicable)
A packing slip will be provided to the shipper and MUST accompany the product being returned. Packages received without our proper packing list will be refused by the receiver.

b. All material must be returned freight prepaid.

c. All material must be properly packaged to prevent damage in shipment.

d. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

e. RMA for returning product for credit is effective for 90 days from the date of issue. After 90 days if the product has not been returned to Pulsafeeder the RMA number will be cancelled, and a new request must be made by the customer to continue with the return procedure.

4. Non-Warranty Return Procedure

a. If you are experiencing a concern with your Pulsafeeder product, first consult the distributor, dealer or Regional Sales Manager or the operation and maintenance manual for assistance. If service of your non-warranty unit is necessary, you must request a return material authorization. A RMA form will be issued and must be used as the packing list attached to the outside of the box. Please send the unit freight prepaid with the RMA number visibly displayed on the outside of the carton. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

b. The charges listed in the following table will apply.

Product	Repair Cost
Pumps and Pump Accessories – within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Controllers and Controller Accessories within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Any item older than 5 years from date of sale	With purchase order, $50 bench fee to evaluate. The $50 bench fee may be applied towards repair cost of unit or towards a new controller

c. Extended warranty on repair goods will be offered only when the repairs were made by the factory on non-warranty units.
i. Microprocessor Controls – 1 year from date of shipment
ii. Electronic Controls – 6 months from date of shipment (excluding electronic parts)
iii. Standard metering pumps – 3 months from date of shipment

5. Credit for Return of New, Unused Equipment

a. No equipment will be accepted beyond six months after date of shipment from factory for credit.
b. Only new, unused and undamaged standard equipment will be accepted for return to stock.
c. All credits are based on evaluation and acceptance of material as new and unused by Pulsafeeder. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.
d. A restocking fee of 25% will apply to returned goods. When a PO is provided for a replacement item at the time of the return request the restocking fee will be 15%. Note: any product mounted on a panel or skid will be charged a 50% re-stocking fee.
e. A request for a Returned Material Authorization (RMA) number must be made prior to returning product to Pulsafeeder.
f. All equipment shall be returned with the RMA Packing List form attached to the outside of the box.
g. If any chemical, solvent or buffer has been introduced into the product it must be wiped and flushed clean of any and all substances prior to returning to Pulsafeeder.
h. All material shall be returned freight prepaid.
i. Private label products or Engineered Panel Mount Systems are not returnable.

6. Pricing Errors

a. Pulsafeeder does their very best to avoid errors in billing. You will receive a confirmation of your order within 24 hours of order entry. If upon review the customer feels there is a discrepancy, they should contact Pulsafeeder Customer Service as soon as possible to resolve.
b. Should an invoice be received that the customer believes to have incorrect pricing, they should notify Pulsafeeder Customer Service to investigate.

7. Missing Items

a. If a product is received by the customer with an item missing the customer must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. A replacement item will be sent at no charge as quickly as possible.
b. If a shipment is received by the customer with a line item missing they must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. If the customer had been billed for that item, a credit will be issued against the original Sales Order and a new Sales Order will be created for the replacement product.

8. Damaged Items

a. Should the customer receive an order that was damaged in transit, the customer must notify the carrier directly to initiate a claim on the day of delivery.
b. Should the customer receive a product with damaged components due to improper packaging they should notify Pulsafeeder Customer Service within 7 days of receipt of product by end user. A replacement item will be sent at no charge as quickly as possible.

9. Technical Support Services Available

a. Pulsafeeder's Technical Sales Support team is available *to provide all your sales and support needs. The principle mission of this group is to sell and support our customer base in a timely and effective manner. This includes the ability to provide in-field service training, assistance in start-up of our products and perform field repair of goods when required.*
b. Scope

Pulsafeeder, Inc. factory Field Service Technicians are available throughout the World for field services on all Pulsafeeder products. Services include:

i. Maintenance Training Seminars, including Classroom slide presentations and or Hands-on Training. The seminar will take approximately four to five hours, and if time permits minor repair and or adjustments may be made to the customer's pumps, controllers or accessories.
ii. Pre-start up inspections and start up testing/calibration of pumps, controllers and accessories.
iii. Field repairs of pumps controllers and accessories
iv. Diagnosing and recommending solutions to systems problems.

Fee Schedule **Field Repairs and Start-ups**	**Service Rate** [(1)]
Normal 8 hour day	$98.00/hour
Overtime (in excess of 8 hrs, each day)	$148.00/hour
Sundays, National Holiday	$195.00/hour
Travel time to job site and return	$87.00/hour
Travel expenses (air fare, hotel, car and meals)	Chargeable to customer at cost
Minimum charge	4 hours labor, plus travel time and expenses
End User Training Seminars	
Normal work day	$750.00/day plus expenses (air fare, car rental, hotel and meals at cost)
Sundays, National Holiday	$1495.00/day plus expenses (air fare, car rental, hotel and meals at cost)

[(1)] *All rates listed in this section are actual hourly and daily rates, not reference rates.*

TERMS & CONDITIONS

1 . AGREEMENT. The contract of sale resulting from Seller's documentation together with these terms and conditions ("Contract") constitutes the entire agreement between the parties hereto, except as modified in writing signed by both the Seller and Purchaser. The Seller is Pulsafeeder, Inc. and the Purchaser is identified in the Contract. Any terms in a purchase order, irrespective of their materiality, which are either different from or additional to Seller's conditions of sale, are objected to and are excluded unless the Seller expressly agrees in writing to such terms. Execution of such forms by Seller to accommodate Purchaser's procurement or accounting procedures or to evidence agreed up on change orders shall not be construed as assent to Purchaser's terms. Acceptance of the goods shipped shall constitute assent to Seller's conditions of sale. This Contract shall be binding up on Purchaser and Seller, and on their successors and assigns.

2 . PROPOSAL OR QUOTATION. A proposal shall not become binding up on Seller until it has been executed and returned by Purchaser. An oral quotation shall not be considered an offer: only a written confirmation thereof incorporating Seller's terms and conditions shall constitute an offer.

3 . CREDIT. Credit terms of payment must have the approval of Seller's Credit Department and must be specified in writing on Seller's invoice or in the Contract. If Purchaser's credit is found by Seller to be unsatisfactory . Seller may rescind or terminate this Contract. If at any time during the term of this Contract Purchaser's financial responsibility becomes impaired or unsatisfactory to Seller, Seller reserves the right to stop shipment on notification to Purchaser, project owner and surety with a demand for payment in advance or at time of delivery for future deliveries or to require other security satisfactory to Seller and in the absence thereof, to cancel the unfilled portion of the Contract. Seller will notify Purchaser promptly of its decision to stop shipments and give an advance notice to the extent this is possible. In the absence of credit terms, sales are for cash.

4 . PAYMENT. Specific terms of payment for this order shall be set forth on the reverse side of this Contract or identified and appended hereto. Purchaser agrees to make payment at Seller's location specified in this Contract in lawful money of the United States. Purchaser further agrees to make all payments when due to Seller in accordance with the agreed terms of payment in this Contract without reference to Purchaser's agreement with or payments by the owner and with no right of retention.

5 . INTEREST AND COSTS. Purchaser agrees to pay interest at 1.5% per month (to the extent permitted by law) on all delinquent balances if and when assessed by Seller, and any attorney's fees or court costs arising out of and made necessary in collection of its obligation to Seller created by this Contract.

6 . TAXES. Any federal, state or local tax assessment, fee, duty or charge hereafter imposed on or measured by the products purchased hereunder shall be for Purchaser's account unless Purchaser furnishes Seller an acceptable exemption certificate from such tax, fee, duty or charge prior to shipment.

7 . FORCE MAJEURE. Seller shall make delivery in accordance with the terms of this Contract or within a reasonable time in the absence of any commitment, but Seller shall not be liable for delays or defaults in delivery caused by floods, fires, storms, or other acts of God, by war or act of public enemy (or civil disturbance), strikes, lock outs, shortages of labor or raw materials and supplies (including fuel) or production facilities, transportation service or equipment shortages or failures, action of any governmental authority or other conditions beyond Seller's reasonable control.

8 . CANCELLATION. If Purchaser desires to cancel or change any portion of this Contract, he must make such request in writing to Seller. Seller may, in its sole discretion, accept or reject any such request. If accepted, the Purchaser nonetheless must take delivery and make payment to Seller for all material manufactured and in process of manufacture at time of notice, and all special materials ordered at time of notice and for which Seller must take delivery , unless otherwise agreed by Seller in writing. All such materials must be removed from Seller's premises within 30 days after payment and payment will due at time of notice. Seller also reserves the right to make a cancellation charge in the event of cancellation by the Purchaser of an order p laced in Seller's shipping schedule and acknowledged by Seller.

9 . INSPECTION AND TESTING . Seller's standard specifications and tests apply to all orders. All charges for inspections or tests not regularly furnished are for Purchaser's account and subject to prior negotiation. All inspections shall be conducted at Seller's plant, and failure of Purchaser to avail himself of inspection privileges shall be deemed a waiver of such privileges.

1 0 . PRICES. Prices are subject to change without notice. Orders based on published prices and accepted for scheduled shipment will be invoiced at Seller's applicable price in effect on the scheduled date of shipment, unless otherwise specifically noted on the order acknowledgment. All prices will be in accordance with applicable government regulations. Orders specifying palletizing or special packaging will involve special charges.

1 1 . DELAYS. All orders are accepted subject to Seller's ability to make delivery at the time and in the quantities specified, and Seller shall not be liable for damages for failure to make partial or complete shipment or for any delay in making shipments. Purchaser shall be liable for any added expenses incurred by Seller because of Purchaser's delay in furnishing requested information to Seller, delay resulting from order changes by Purchaser, or delay in unloading shipments at delivery point.

1 2 . SHIPMENT. Seller will select method of shipment and routing when transportation charges are for account of Seller. When shipping instructions are specified by the Purchaser, all costs will be for the account of the Purchaser. The foregoing includes, but is not limited to, carriers charges for notification prior to delivery, demurrage, delay in unloading, diversion, or reconsignment.

1 3 . TITLE. Title to products transfers up on delivery to Purchaser at the F.O.B. point of delivery which will be clearly set forth in the shipment terms of this Contract. On receipt of title, Purchaser is then responsible for proper protection of product, placement, compliance with all regulations and ordinances, and will indemnify Seller against all claims for personal injuries or property damage arising from the storage, use or handling of such products.

1 4 . IN TRANSIT CLAIMS. Claims for damage or shortage in transit must be made against the carrier by the owner of the shipment according to the F.O.B. terms of the Contract. Purchaser has the responsibility to inspect shipments before or during unloading to identify any such damage or shortage and see that appropriate notation is made on the delivery tickets or an inspection report furnished by the local agent of the carrier in order to support a claim.

1 5 . CLAIMS. Notice of Claims against Seller hereunder for any reason, must be made to Seller in writing promptly after discovery and within any applicable warranty period. Failure to give such notice to Seller shall constitute a waiver by Purchaser of any right later to assert such a claim.

1 6 . RETURNS. Returned goods shall be accepted for credit only if in salable condition and only with evidence of Seller's prior written consent. Seller will assess charges for freight both ways and any costs necessary to restore such goods to the regular plant inventory . The amount of credit given will depend further up on the degree of salability of products accepted in opinion of Seller.

1 7 . PATENTS. Seller agrees to defend, and to protect Purchaser against loss or damage arising out of any legal action for patent infringement in connection with the manufacture of its products sold to Purchaser, provided Seller is notified promptly of any such action with complete information and is given an opportunity to defend.

1 8 . WARRANTY : LIMITATION OF LIAB ILITY . Seller warrants title to each individual product sold under this Contract and further warrants for a period of eighteen (18) months from ship date or one (1) year from date of installation, whichever comes first, but only to the extent and limit of the purchase price paid for such individual product, that such product conforms to the specifications set forth in the Contract and is free from defects in material and workmanship under normal service and use for which it was designed. Seller's sole obligation and Purchaser's exclusive remedy under this warranty shall be limited to one of the following, as selected by Seller: delivering to Purchaser a replacement for any product or part thereof determined by Seller to be defective, repairing such product or part, or refunding the purchase price (or an equitable portion thereof) paid for such product or part by Purchaser. SELLER MAKES NO WARRANTY OF FITNESS OR MERCHANTABILITY, AND NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED SHALL EXIST IN CONNECTION WITH SELLER'S PRODUCTS OR ANY SALE OR USE THERE OF. Purchaser must notify Seller promptly and within the warranty period of any claim under this warranty. Seller's warranty extends only to the first purchaser of a product from Seller or Seller's authorized distributor. All goods not manufactured by Seller are warranted only to the extent of the warranties of the original manufacturer. Seller disclaims any liability arising from tort, including strict liability , and Seller further disclaims any liability (whether arising under this or any other provision of this Contract or otherwise) for any costs (including costs of removal or replacement), liabilities, lost profits, loss of good will or any other general, special, incidental or consequential damages incurred by Purchaser in connection with this Contract or any product purchased there under.

1 9 . LAW . This order shall be governed by and shall be construed by the law of the State of New York .

2 0 . GOVERNMENTAL REGULATIONS. Seller warrants that no code, law, regulation or ordinance of the United States, a state or any other governmental authority or agency or any applicable Executive Order has been violated in the manufacture or sale of the items covered by this Agreement and warrants that the equipment, supplies, and/or articles covered thereby conform with all such requirements.

2 1 . NUCLEAR FINANCIAL PROTECTION. Purchaser agrees to procure and maintain, as available to it, nuclear energy liability insurance, in a form of policy approved by the Nuclear Regulatory Commission, and protection, as available, against liability for nuclear incidents not covered by such insurance through an indemnity agreement, as provided in Section 170 of the Atomic Energy Act of 1954, as amended, or any succeeding comparable statutory provision, and the regulations thereunder. Such financial protection shall be effective prior to the time any equipment purchased from us is used or installed at or in connection with any nuclear facility and shall cover us an insured party . To the extent that such financial protection is not suitable to Purchaser. Purchaser agrees to use its best efforts to cause such financial protection to be obtained by eligible parties. We will cooperate with Purchaser and representatives of the nuclear energy insurance syndicates in complying with all underwriting requirements and with those insurance recommendations which may be mutually agreed up on. Notwithstanding any representations or warranties made by us elsewhere in these conditions of sale, we shall not be responsible for any bodily injury or property damage liability or any other public liability for any nuclear incidents, whether or not in respect of or arising in connection with use or installation of our equipment at any nuclear facility or in connection with any such facility . Purchaser hereby assumes any liability which might otherwise be imposed up on us and agrees to indemnify us and hold harmless from any such liability and costs or expenses in connection therewith.