

AMETEK B/W CONTROLS



ELECTRODE HOLDERS AND ELECTRODES

CAST IRON ELECTRODE HOLDERS

Order No.	Model No.	Application/Description	No. of Electrodes	Mounting Thread	Pressure/Temp. Ratings ¹
6012E1CIEP1	6012-E1-CI-E	ELECTRODE HOLDER	1	2" MIPT	500 psi @ 200°F
6012E2CIEP1	6012-E2-CI-E	ELECTRODE HOLDER	2	2" MIPT	500 psi @ 200°F
6012E3CIEP1	6012-E3-CI-E	ELECTRODE HOLDER	3	2" MIPT	500 psi @ 200°F

¹ For max. temp. of 400°F and 250 psi, substitute EP2 plugs for EP1 (std.)

REPLACEMENT ELECTRODES FOR HOLDERS

Order No.	Model No.	Application/Description
6012EP1	6012-EP1	Replacement electrode plug—standard for water service
6012EP2	6012-EP2	Replacement electrode plug—high temp., for steam applications up to 250 psi

ROD ELECTRODES¹

Order No.	Size	Material	Description
BRSROD-3	3/16" OD	Brass	For soft water, condensate
BRSROD-4	1/4" OD	Brass	For soft water, condensate
BRSROD-6	3/8" OD	Brass	For soft water, condensate
303SS-4	1/4" OD	303 SS	For water, sewage, mild acids and food products

¹ Must be threaded to 1/4"-20.

WIRE ELECTRODE ITEMS

Order No.	Model No.	Application/Description
6013CBR	6013-C-BR	Brass wire connector—to connect wire to plug.
6013SW	6013-SW	Electrode suspension wire, 41 strand copper with 4/64" vinyl insulation seal
6013W6	6013-W6	Shielded Electrode—2" X 9/16" D general purpose use, 303 SS electrode.

ANTUNES

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JD-2 SERIES AIR PRESSURE SWITCHES

Cast aluminum, industrial type air switch. The switch is adjustable and has set point and range indication. The output is a highly reliable, snap acting, SPDT switch. Visible on-off indicator.



Order No.	Description	Switch Rating
JD2BLUE	.07-1.7"WC Range	10A, 125V
JD2GREY	0.1-4" WC Range	10A, 125V

SMD SERIES AIR PRESSURE SWITCHES

A low cost, reliable switch for proving air flow. Industrial construction. S.P.D.T. 10 amp switch



Order No.	Description	Switch Rating
SMD1206021	Low Pressure Differential Switch, .17-12"WC	10A, 125V

SML SERIES AIR PRESSURE SWITCHES

An ultra sensitive air pressure switch with a minimum sensitivity of 0.05" WC. S.P.D.T. 10 amp switch.



Order No.	Description	Switch Rating
SML4212021	Low Pressure Differential Switch .05-9"WC	10A, 125V

AUTOMATIC SWITCH CO. (ASCO)



P SERIES PRESSURE SWITCHES

SWITCHES FOR VACUUM THROUGH 6000 PSIG WITH ADJUSTABLE SET POINTS AND FIXED OR ADJUSTABLE DEADBAND

Features:

- Set point repeatability, +1% of operating range.
- All wiring terminals, adjustments and visual scales are accessible from the front of the switch.
- Choice of open frame type, general purpose or watertight enclosure.
- Mounts in any position.
- Rugged and vibration resistant; e.g., for compressors.
- Visual adjustment scales in psig and bars.

Switch: P-Series pressure switch units incorporate the unique ASCO TRI-POINT alternating fulcrum balance plate to control the operation of one or more electrical snap-action switches. The electrical snap-action switch together with the adjusting mechanism is a fully-tested, self-contained subassembly.

Transducer: Transducer unit incorporates a diaphragm/piston type pressure sensor, and is also a fully-tested, self-contained sub assembly.

Operation: When pressure is applied to the transducer it is converted into movement of the piston. This piston movement is then used to control the operation of the electrical snap-action switch in the switch unit.

Temperature Range: -4°F (-20°C) to 122°F (50°C) For Buna "N" or Neoprene Diaphragm

Adjustable Operating Range (PSIG)	Proof Pressure	Adjustable ¹ Deadband	Minimum PSIG	Fixed ¹ Deadband	Fixed Deadband PSIG	Brass & Buna "N" Transducer ²
6-60	150	PA10A	5.4	PB10A	0.9	RE10A21
10-100	200	PA10A	9	PB10A	1.5	RF10A21
20-200	400	PA10A	18	PB10A	3	RG10A21

¹ Choose Adjustable Switch or Fixed Deadband (PSIG) Switch based upon pressure range required

² Choose Transducer from this column

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8030 SERIES LOW PRESSURE AND VACUUM 2 WAY SOLENOID VALVES

BRASS BODIES, 120/60

Provided with Buna "N" discs for tight shutoff on low-pressure service. No min. operating pressure required. Type 1 enclosure general purpose.

Order No.	NPT	Orifice Size	Cv Flow Factor	Max. Operating Pressure Differential						Rebuild Kit
				Air-Inert Gas		Water		Max. Fluid Temp.		
				AC	DC	AC	DC	AC	DC	
NORMALLY CLOSED OPERATION										
8030G17120	1/2"	7/16"	2.8	15 PSI	6 PSI	15 PSI	6 PSI	200°F	180°F	302790

Order No.	NPT	Orifice Size	Cv Flow Factor	Operating Pressure		Max. Fluid Temp.	Repair Kit
				Min.	Max		
8030G17VM120	1/2"	7/16"	2.8	0	4 psi	180°F	302791

AUTOMATIC SWITCH CO. (ASCO)



8210 SERIES PILOT OPERATED GENERAL SERVICE SOLENOID VALVES

BRASS BODIES, 120/60 (EXCEPT AS NOTED)

Pilot operated diaphragm valves. Red-Hat II molded epoxy solenoids, types 1, 2, 3, 3S, 4 and 4X combination general purpose and watertight.

Order No.	Model No.	Pipe Size	Orifice Size	Flow Factor	Maximum Operating Pressure Differential (psi)										REBUILD Kit
					Minimum	Air-Inert Gas		Water		Lt Oil @300SSU		Fluid Temp.			
						AC	DC	AC	DC	AC	DC	AC	DC		
NORMALLY CLOSED, BUNA "N" OR TEFLON SEATING															
8210B20120	8210B020	1/4"	5/16"	1.2	5	125	-	125	-	-	-	180°F	-	302270	
8210G73120	8210G073	3/8"	3/8"	1.5	- ¹	150	125	-	40	40	-	180°F	150°F	302271	
8210G93120	8210G093	3/8"	5/8"	3	0	150	150	-	40	40	-	180°F	150°F	302272	
8210G1120	8210G001	3/8"	5/8"	3	5	200	150	135	125	100	100	180°F	150°F	302273	
8210G2120	8210G002	1/2"	5/8"	4	5	200	150	135	125	100	100	180°F	150°F	302273	
8210G15120	8210G015	1/2"	7/16"	2.2	- ¹	150	125	-	40	40	-	180°F	150°F	302275	
8210G94120	8210G094	1/2"	5/8"	4	0	150	150	-	40	40	-	180°F	150°F	302272	
8210G224	8210G002	1/2"	5/8"	4	5	200	150	135	125	100	100	180°F	150°F	302273	
8210G224DC ³	8210G002	1/2"	5/8"	4	5	200	150	135	125	100	100	180°F	150°F	302373	
8210G7120	8210G007	1/2"	5/8"	4	5	300	300	300	-	-	-	175°F	-	302274	
8210G9120	8210G009	3/4"	3/4"	5	5	125	125	125	100	90	75	180°F	150°F	302277	
8210G95120	8210G095	3/4"	3/4"	5	0	150	150	-	40	40	-	180°F	150°F	302276	
8210G27120	8210G027	1"	1"	13.5	0	300	-	225	-	115	-	200°F	-	302282	
8210G9524 ⁴	8210G095	3/4"	3/4"	5	0	150	150	-	40	40	-	180°F	150°F	302276	
8210G95240 ⁵	8210G095	3/4"	3/4"	5	0	150	150	-	40	40	-	180°F	150°F	302276	
8210G26120	8210G026	3/4"	3/4"	6	0	350	300	200	200	180	180	200°F	77°F	302278	
8210G3120	8210G003	3/4"	3/4"	6.5	5	250	150	100	125	125	125	180°F	150°F	302279	
8210G4120	8210G004	1"	1"	13	5	150	150	100	125	125	125	180°F	150°F	302280	
8210G54120	8210G054	1"	1"	13	0	150	125	125	100	100	80	180°F	77°F	302283	
8210G55120	8210G055	1-1/4"	1-1/8"	15	0	150	125	125	100	100	80	180°F	77°F	302283	
8210G8120	8210G008	1-1/4"	1-1/8"	15	5	150	150	100	125	125	125	180°F	150°F	302280	
8210G56120	8210G056	1-1/2"	1-1/4"	22.5	0	150	125	125	100	100	80	180°F	77°F	302286	
8210G22120	8210G022	1-1/2"	1-1/4"	22.5	5	150	150	100	125	125	125	180°F	150°F	302284	
8210G100120	8210G100	2"	1-3/4"	43	5	150	125	90	50	50	50	180°F	150°F	304355	
NORMALLY OPEN (OPEN WHEN DE-ENERGIZED), BUNA "N" SEATING (NYLON DISC HOLDER)															
8210G33120	8210G033	3/8"	5/8"	3	0	150	150	125	125	125	80	180°F	150°F	302334	
8210G34120	8210G034	1/2"	5/8"	4	0	150	150	125	125	125	80	180°F	150°F	302334	
8210G35120	8210G035	3/4"	3/4"	5.5	0	150	150	125	125	125	80	180°F	150°F	302335	
8210G14120	8210G1014	1"	1"	13	5	150	150	125	125	125	125	180°F	180°F	302338	

¹ 5 psi on air; 1 psi on water

² 24V DC

³ 12V DC

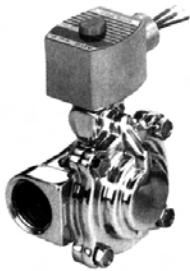
⁴ 24V AC

⁵ 240V AC

EXPLOSION PROOF VALVES

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC				REBUILD KIT
					Operating Pressure Diff.			Fluid Temp	
					Minimum	Air-Inert Gas	Water		
NORMALLY CLOSED OPERATION									
EF8210G7120	EF8210G007	1/2"	5/8"	4	5	300 PSI	300 PSI	175°F	302274
EF8210G94120	EF8210G094	1/2"	5/8"	4	0	150 PSI	150 PSI	180°F	302272
EF8210G2120	EF8210G002	1/2"	5/8"	4	5	200 PSI	150 PSI	180°F	302273
EF8210G4120	EF8210G004	1"	1"	13	5	150 PSI	150 PSI	180°F	302280

AUTOMATIC SWITCH CO. (ASCO)



8210HW, 8220, 8222 2-WAY HOT WATER/STEAM SOLENOID VALVES

BRASS BODIES, 120/60

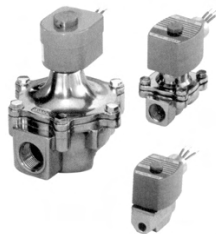
Hot water/steam, pilot operated diaphragm valves. Red-Hat II molded epoxy solenoids, types 1, 2, 3, 3S, 4 and 4X combination general purpose and watertight.

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Operating Pressure Differential				REBUILD KIT
					Max. AC			Max. DC ¹	
					Min.	Steam	Hot Water		
HOT WATER SERVICE ONLY, NORMALLY CLOSED WHEN DE-ENERGIZED, ETHYLENE PROPYLENE DIAPHRAGM, MAX. TEMPERATURE 210°F, AC; 150°F, DC									
8210G2HW120	8210G2HW	1/2"	5/8"	4	5		125	100	302305
8210G94HW120	8210G94HW	1/2"	5/8"	4	0		100	40	302306
8210G9HW120	8210G9HW	3/4"	3/4"	5	5		125	100	302308
8210G95HW120	8210G95HW	3/4"	3/4"	5	0 ²		100	40	302307
STEAM AND HOT WATER SERVICE, NORMALLY CLOSED WHEN DE-ENERGIZED									
8222G64120	8222G64	3/8"	3/8"	2.5	1	80	-	-	304030
8210G19120	8210G019	3/8"	5/8"	3	5 ²	125	150	-	304394
8220G3120	8220G3	1/2"	5/8"	4	5	50	150	-	310635
8220G21120	8220G21	1/2"	5/8"	4	5	125	150	-	312712
8220G5120	8220G5	3/4"	3/4"	5	5	50	150	-	310716
8220G23120	8220G23	3/4"	3/4"	5	5	125	150	-	312702
8220G7120	8220G7	1"	1"	13.5	5	50	150	-	304394
8220G25120	8220G25	1"	1"	13.5	5	125	150	-	304392
8220G9120	8220G09	1-1/4"	1-1/8"	15	5 ¹	50	150	-	312712
8220G27120	8220G27	1-1/4"	1-1/8"	15	5	125	150	-	304392
8220G11120	8220G11	1-1/2"	1-1/4"	22.5	5	50	150	-	304395
8220G29120	8220G29	1-1/2"	1-1/4"	22.5	5	125	150	-	304393

¹ Hot water

² 0 psi on AC construction; 1/4 psi on DC construction

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8040/8214/8215 SERIES 2-WAY ALUMINUM BODY VALVES SOLENOID VALVES, 120/60 (EXCEPT AS NOTED)

Red-Hat II molded epoxy solenoids, types 1, 2, 3, 3S, 4 and 4X combination general purpose and watertight.

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Operating Pressure Differential			Max. Fluid Temp.		Rebuild Kit	
					Minimum	Max. AC	Max. DC	BTU/Hr.	AC		DC
NORMALLY CLOSED WHEN DE-ENERGIZED											
8040 SERIES											
8040H6120	8040H006	1/8"	3/8"	1	0 PSI	15 PSI	-	53,700	125°F	-	302814
8040H7120	8040H007	1/4"	3/8"	1.1	0 PSI	15 PSI	-	59,000	125°F	-	302814
8040H724 ²	8040H007	1/4"	3/8"	1.1	0 PSI	15 PSI	-	59,000	125°F	-	302814
8040H8120	8040H008	3/8"	5/16"	1.2	0 PSI	15 PSI	-	64,400	125°F	-	302814
8215 SERIES											
8215G10120	8215G010	3/8"	3/4"	3.4	0 PSI	50 PSI	25 PSI	183,000	125°F	104°F	302350
8215G20120	8215G020	1/2"	3/4"	4.4	0 PSI	50 PSI	25 PSI	238,500	125°F	104°F	302350
8215G30120	8215G030	3/4"	3/4"	5.1	0 PSI	50 PSI	25 PSI	247,500	125°F	104°F	302350
8215B50120	8215B050	1"	1-5/8"	21	0 PSI	25 PSI	25 PSI	1,119,000	125°F	77°F	302352
8215B60120	8215B060	1-1/4"	1-5/8"	32	0 PSI	25 PSI	25 PSI	1,730,000	125°F	77°F	302352
8215B70120	8215B070	1-1/2"	1-5/8"	35	0 PSI	25 PSI	25 PSI	1,900,000	125°F	77°F	302352
8215B80120	8215B080	2"	2-3/32"	60	0 PSI	25 PSI	15 PSI	3,251,000	125°F	77°F	302353
NORMALLY OPEN WHEN DE-ENERGIZED											
8215G23120	8215G023	1/2"	3/4"	4	0 PSI	125 PSI	125 PSI	206,250	125°F	104°F	302361
8215G33120	8215G033	3/4"	3/4"	4.6	0 PSI	125 PSI	125 PSI	247,500	125°F	104°F	302361
8215C53120	8215C053	1"	1-5/8"	22	0 PSI	25 PSI	15 PSI	1,191,750	125°F	77°F	304691
8215C63120	8215C063	1-1/4"	1-5/8"	33	0 PSI	25 PSI	15 PSI	1,793,250	125°F	77°F	304691

¹ 24V DC

² 24V AC

AUTOMATIC SWITCH CO. (ASCO)



8221 SERIES 2-WAY SLOW CLOSING SOLENOID VALVES BRASS BODIES

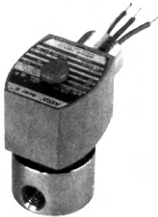
These normally closed valves are designed to eliminate water hammer problems experienced in many water (or light oil) systems. Their unique slow closing construction reduces the pressure spike that causes water hammer to a level, eliminating the need for suppressors or other controls.

Model No.	NPT	Orifice Size	Cv Flow Factor	Water			Rebuild kit	
				Min Oper Diff	Max. AC Oper.	Fluid Temp.		
NORMALLY CLOSED OPERATION								
8221G3120	8221G003	1/2"	9/16"	3.5	5	150	180°F	310387
8221G5120	8221G005	3/4"	3/4"	5.5	5	150	180°F	310388
8221G7120	8221G007	1"	1"	11.5	5	150	180°F	310420
8221G9120	8221G009	1 1/4"	1 1/8"	13	5	150	180°F	310506
8221G11120	8221G011	1 1/2"	1-1/4"	24	5	150	180°F	310421
8221G13120	8221G013	2"	1 3/4"	36	5	150	180°F	310422



8223 SERIES 2-WAY PILOT OPERATED HIGH PRESSURE SOLENOID VALVES BRASS BODIES, 120/60

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC Operating Pressure Diff.			Fluid Temp	Rebuild Kit
					Min. Op. Diff.	Air-Inert Gas	Water		
NORMALLY CLOSED OPERATION									
8223G21120	8223G021	1/4"	5/16"	1.5	10	750	750	200°F	302313
8223G27120	8223G027	3/8"	5/16"	1.5	10	1500	1500	200°F	302314
8223G3120	8223G003	1/2"	3/8"	3.2	25	1500	1500	200°F	302315



8262G, 8263G SERIES 2-WAY DIRECT ACTING GENERAL SERVICE SOLENOID VALVES BRASS BODIES, 120/60 (EXCEPT AS NOTED)

Red-Hat II molded epoxy solenoids, types 1, 2, 3, 3S, 4 and 4X combination general purpose and watertight.

Order No.	Model No.	NPT	Orifice Size	Flow Facto	Operating Pressure Differential (psi)						Max. Fluid Temp.		Rebuild Kit
					Air-Inert Gas		Water		Lt. Oil @ 300 SSU		AC	DC	
NORMALLY CLOSED WHEN DE-ENERGIZED, BUNA "N" DISC													
8262G1120	8262G001	1/8"	3/64"	0.06	750	650	750	640	530	550	180°F	120°F	302006
8262G2120	8262G002	1/8"	1/8"	0.34	155	80	180	80	140	80	180°F	120°F	302014
8262G224 ¹	8262G002	1/8"	1/8"	0.34	155	80	180	80	140	80	180°F	120°F	302014
8262G2240 ²	8262G002	1/8"	1/8"	0.34	155	80	180	80	140	80	180°F	120°F	302014
8262G13120	8262G013	1/4"	7/32"	0.85	40	17	50	20	40	21	180°F	120°F	302022
8262G90120	8262G090	1/4"	9/32"	0.96	27	15	36	16	28	16	180°F	120°F	302022
8262G210120	8262G210	1/4"	9/32"	0.88	60	18	75	15	60	18	180°F	150°F	304354
8262G212120	8262G212	1/4"	9/32"	0.88	90	25	100	20	90	22	180°F	120°F	304354
8263G300120	8263G300	1/4"	5/32"	0.52	110 PSI	-	-	-	-	-	344°F	-	302037
STEAM													
8262G20120	8262G020	1/4"	3/32"	0.17	360	340	160	150	125	125	180°F	120°F	302018
8262G21120	8262G021	1/4"	3/32"	0.17	500	-	500	-	280	-	180°F	-	302018
8262G224 ¹	8262G022	1/4"	1/8"	0.35	140	65	165	60	90	60	180°F	120°F	302018
8262G202120	8262G202	1/4"	5/32"	0.5	180	40	200	40	145	45	180°F	150°F	304354
8263G206120	8263G206	3/8"	7/32"	0.72	100	25	100	25	100	25	180°F	150°F	302001
8263G210120	8263G210	3/8"	9/32"	0.85	100	-	100	-	70	-	180°F	-	302001
NORMALLY OPEN WHEN DE-ENERGIZED, BUNA "N" DISC													
8262G31120	8262G031	1/8"	1/8"	0.21	125	80	100	60	85	50	180°F	120°F	302041
8262G260120	8262G260	1/4"	3/64"	0.06	750	500	700	500	700	500	140°F	140°F	302045
8262G262120	8262G262	1/4"	1/8"	0.04	130	80	110	60	100	150	180°F	150°F	302051
EF8262G262240	EF8262G262	1/4"	1/8"	0.35	130	80	110	60	100	60	180°F	150°F	302051

¹ 24/60 VAC

² 240/60 VAC

OKLAHOMA CITY • (405) 239-7301
(800) 289-3331 • FAX: (405) 232-5438

TULSA • (918) 249-1918
(800) 955-1918 • FAX: (918) 249-9014

AUTOMATIC SWITCH CO. (ASCO)



8262G, 8263G SERIES 2-WAY DIRECT ACTING GENERAL SERVICE SOLENOID VALVES STAINLESS STEEL BODIES, 120/60

Order No.	Model No.	NPT	Orifice Size	Flow Factor	Operating Pressure Differential (psi)						Max. Fluid Temp.		Rebuild Kit
					Air-Inert Gas		Water		Lt. Oil @ 300 SSU		AC	DC	
					AC	DC	AC	DC	AC	DC			
NORMALLY CLOSED WHEN DE-ENERGIZED, BUNA "N" DISC													
8262G220120	8262G220	1/4"	5/32"	0.5	180	40	200	40	145	45	180°F	150°F	304352
Special Order	8262G007	1/4"	1/8"	0.35	140	65	165	60	90	60	180°F	120°F	302020



8290 SERIES MULTI-PURPOSE VALVES BRONZE 2-WAY ANGLE BODY NORMALLY CLOSED

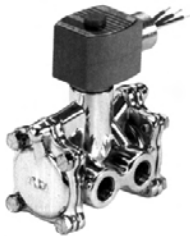
Built for demanding applications, the 8290 series valves come in a straight-through body design. They are also available in a stainless steel body (special order). Optional features (by special order) include visual/electrical position indicator or a stroke limiter. They are suitable for General Service (air, inert gas, water, oil, light slurries), Steam and Hot Water.

Order No.	Pipe Size (ins.)	Orifice Size (ins.)	On-Off	Prop.	Min.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Air or Water Pilot Pressure (psi)	
						Max. Fluids	Max. Steam		Min.	Max.
						60	150		366	150
8290A020 ¹	1½	1½	52	33	0	60	60	366	60	150
8290A024 ¹	2	2	68	46	0	40	40	366	60	150
8290B002 ¹	½	½	5.7	-	0	240	150	366	38	150
8290B005 ¹	¾	¾	11	8.3	0	240	150	366	60	150
8290B010 ¹	1	1	19	17	0	150	150	366	60	150
8290B011 ²	1	1	19	17	0	240	150	366	60	150

¹ Normally closed - Entry under the Disk; 63mm Operator

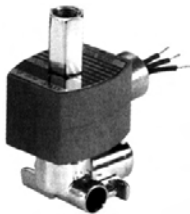
² Normally closed - Entry above the Disc for Rapid Cycling Steam Applications; 90mm Operator

4



8316 SERIES 3-WAY PILOT OPERATED VALVES BRASS BODIES-AIR AND WATER SERVICE, 120/60

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Min.	Max. AC Operating Pressure Diff.		Fluid Temp	Rebuild Kit
						Air-Inert Gas	Water		
						125	125		
NORMALLY CLOSED WHEN DE-ENERGIZED, BUNA N DISC									
8316G54120	8316G054	3/8"	5/8"	3	10	125	125	180°F	314491
8316G64120	8316G064	1/2"	5/8"	3.2	10	150	125	180°F	314491



8317 SERIES 3-WAY MIDGET "QUICK EXHAUST" SOLENOID VALVES FORGED BRASS BODY, 1/4" NPT, 120/60

Type 1, general purpose, midget solenoid valves have an oversize exhaust orifice that permits a "quick exhaust" of cylinders and diaphragms.

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC Operating Pressure Diff.			Fluid Temp	Rebuild kit
					Air-Inert Gas	Water	Oil		
					150	150	95		
NORMALLY CLOSED OPERATION									
8317G35120	8317G035	1/4"	3/32"	0.2	150	150	95	180°F	314463
NORMALLY OPEN OPERATION									
8317G53120	8317G053	1/4"	3/32"	0.15	160	160	95	180°F	314464

AUTOMATIC SWITCH CO. (ASCO)

8320 SERIES 3-WAY MINITURE SIZE SOLENOID VALVES BRASS BODIES, 120/60 (UNLESS NOTED)

For automatic control of air, inert gas, water, light oil, Freon and all other gases and liquids. Non-corrosive to brass and stainless steel. Valves are commonly used to apply pressure to and vent pressure from cylinders and diaphragms or for the selection and diversion of pressure.



Order No.	Model No.	NPT	Orifice Size	Flow Facto	Max. Operating Pressure Differential (psi)						Max. Fluid Temp.		Rebuild Kit
					Air-Inert Gas		Water		Lt. Oil @ 300 SSU		AC	DC	
					AC	DC	AC	DC	AC	DC			
UNIVERSAL OPERATION¹													
8320G1120	8320G001	1/8"	1/16"	0.09	100	65	100	65	100	65	180°F	120°F	302088
8320G172120	8320G172	1/4"	1/16"	0.09	125	75	130	75	130	75	200°F	150°F	302114
8320G172240	8320G172	1/4"	1/16"	0.09	125	75	130	75	130	75	200°F	150°F	302114
8320G174120	8320G174	1/4"	3/32"	0.12	100	60	100	60	100	60	200°F	150°F	302116
8320G176120	8320G176	1/4"	1/8"	0.25	50	25	50	25	50	25	200°F	150°F	302116
NORMALLY CLOSED OPERATION²													
Special Order	8320G015	1/8"	3/32"	0.12	100	100	100	100	100	100	180°F	120°F	302120
8320G184120	8320G184	1/4"	3/32"	0.12	150	115	150	115	150	115	200°F	150°F	302142
8320G18424DC ⁵	8320G184	1/4"	3/32"	0.12	150	115	150	115	150	115	200°F	150°F	302142
NORMALLY OPEN OPERATION³													
8320G136120	8320G136	1/8"	3/64"	0.06	200	200	200	200	200	200	180°F	120°F	302156
8320G192120	8320G192	1/4"	1/16"	0.09	250	160	250	160	250	160	200°F	150°F	302183
EXPLOSION PROOF⁴													
8320A24120	8320A24	1/4"	1/8"	0.25	40	40	40	40	40	40	180°F	120°F	302138
EF8320G172120	EF8320G172	1/4"	1/16"	0.09	125	75	130	75	130	75	200°F	150°F	302114
EF8320G2024DC ⁴	EF8320G202	1/4"	3/32"	0.12	150	115	150	115	150	115	200°F	150°F	312191
EF8320G202120	EF8320G202	1/4"	3/32"	0.01	150	115	150	115	150	115	200°F	150°F	312191

¹ Pressure at any orifice

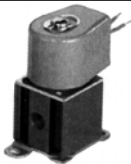
² Pressure at 2

³ Pressure at 3

⁴ Stainless Steel Body

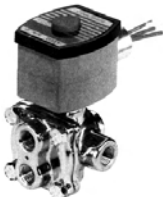
⁵ 24V DC

4



8340 SERIES 4-WAY 2-POSITION AIR ONLY SOLENOID VALVES ALUMINUM BODIES, 120V

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC		Rebuild Kit
					Air Oper. Pressure Diff.	Fluid Temp.	
SINGLE SOLENOID OPERATION							
8340G1120	8340G001	1/4"	5/64"	0.1	150 PSI	130°F	302751



8342 SERIES 4-WAY GENERAL SERVICE 2-POSITION SOLENOID VALVES BRASS BODY, 120V

Sliding, resilient seal for tight seating. No minimum operating pressure required. Type 1, general-purpose valve operates when energized and returns when de-energized.

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC			Fluid Temp	Rebuild Kit
					Operating Pressure Diff.				
					Air-Inert Gas	Water	Oil		
SINGLE SOLENOID OPERATION									
8342G1120	8342G001	1/4"	3/16"	0.7	125	100	100	160°F	306191
8342G3120	8342G003	3/8"	3/16"	0.7	125	100	100	160°F	306191

BRASS BODY, EXPLOSION PROOF

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC			Fluid Temp	Rebuild Kit
					Operating Pressure Diff.				
					Air-Inert Gas	Water	Oil		
NORMALLY CLOSED OPERATION									
EF8342G1120	EF8342G001	1/4"	3/16"	0.7	125	100	100	160°F	306192

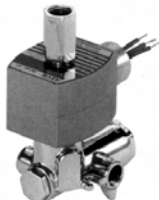
AUTOMATIC SWITCH CO. (ASCO)



8344 SERIES 4-WAY GENERAL SERVICE PILOT OPERATED 2-POSITION SOLENOID VALVES BRASS BODY, SINGLE SOLENOID OPERATION, 120V

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC			Fluid Temp	Rebuild kit
					Operating Pressure Diff.				
					Air-Inert Gas	Water	Oil		
Special Order	8344G000	1/4"	1/4"	0.8	250	250	250	180°F	302710
8344G1120	8344G001	3/8"	1/4"	0.8	250	250	250	180°F	302710

Note: A minimum operating pressure differential of 10 psi must be maintained between the pressure & exhaust ports. Supply & exhaust piping must be full area and unrestricted.



8345 SERIES 4-WAY PILOT OPERATED 2-POSITION SOLENOID VALVES BRASS BODY, 120V

Red-Hat II molded, epoxy solenoids, types 1, 2, 3, 3S, 4 and 4X combination general purpose and watertight.

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC			Fluid Temp	Rebuild Kit
					Operating Pressure Diff.				
					Air-Inert Gas	Water	Oil		
SINGLE SOLENOID OPERATION									
8345G1120	8345G001	1/4"	1/16"	0.09	150	150	150	180°F	314453
SINGLE SOLENOID AIR ONLY OPERATION									
8345H3120	8345H003	1/4"	1/16"	0.09	150	-	-	180°F	302698

BRASS BODY, EXPLOSION PROOF, 120V

Order No.	Model No.	NPT	Orifice Size	Cv Flow Factor	Max. AC			Fluid Temp.	Rebuild Kit
					Operating Pressure Diff.				
					Air-Inert Gas	Water	Oil		
SINGLE SOLENOID OPERATION									
Special Order	EF8345G001	1/4"	1/16"	0.09	150	150	150	180°F	314453

Note: A minimum operating pressure differential of 10 psi must be maintained between the pressure & exhaust ports. Supply & exhaust piping must be full area and unrestricted.

4



8353 SERIES 2-WAY AIR OPERATED DUST COLLECTOR VALVES ALUMINUM BODY

Designed for reverse-jet type dust collectors. High flow, long life, and fast opening combine to produce a superior design for dust collector systems.

Order No.	Model No.	NPT	Cv Flow Factor	Max. AC			Fluid Temp	Rebuild Kit
				Air Oper. Pressure Diff.				
8353C33	8353C033	3/4"	10.5	125 psi			185°F	96875



8353 SERIES PILOT VALVE ENCLOSURES

Protection for pre-wired ASCO remote pilot valves. Corrosion resistant, cast aluminum enclosures available with Type 4 watertight or Type 7 and 9 Explosion-proof protection. For explosion-proof enclosure, manual operation possible through exhaust port in base. Installer friendly valve layout. Enclosures may be mounted in any position.

Order No.	Catalog Number	Suffix		Order No.	Catalog Number	Suffix	
Special Order		120/60V	240/60V	Special Order		120/60V	240/60V
No of Valves	Watertight/Dusttight ¹			No of Valves	Watertight/Dusttight ¹		
3	125468-003-	1	2	8	125469-008-	1	2
4	125468-004-	1	2	9	125470-009-	1	2
5	125468-005-	1	2	10	125470-010-	1	2
6	125469-006-	1	2	11	125470-011-	1	2
7	125469-007-	1	2	12	125470-012-	1	2

¹ To order for different voltages, add suffix to catalog numbers as shown above: -01 for 120 volt, 60 Hz valves; -02 for 240 volt, 60Hz valves.

AUTOMATIC SWITCH CO. (ASCO)



SERIES 112 FILTERS AND REGULATORS

Filters and regulators are essential whenever pneumatic equipment is used. Filters come in a variety of micron ratings to clean the air of moisture and particulate coming out of your compressor.

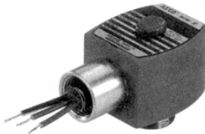
Bowl Capacity: Total 3.65 oz. Useful 1.28 oz.
 Min. Ambient Temp. °F 32 Max. Ambient Temp. °F 125

Order No. ²	Pipe Size (ins.)	Max. Flow @ 90 psi (SCFM)	Max. Inlet Pressure (psi) @ 125°F	Pressure Control Range (psi)	Filter/Regulator Description
34203084 ¹	3/8	105.9	150	7 - 145	Semi Automatic Drain without pressure gauge
34203085 ¹	1/2	105.9	150	7 - 145	Semi Automatic Drain without pressure gauge
34203089 ¹	1/4	63.5	150	7 - 145	Semi Automatic Drain with pressure gauge
34203138 ¹	1/4	63.5	150	7 - 145	Automatic Drain with pressure gauge

¹ Stock models are 25 micron filtration

²Asco has many other filter/regulators available with varied specifications to fit your application. They are available by Special Order.

ASCO REPLACEMENT COILS



Order No.	Model No.	Description	Order No.	Model No.	Description
274762D	27476-002-D	COIL 240/60AM	238214058D	238214-058-D	COIL 240/60 FT EF (6.1 WATT)
274763D	27476-003-D	COIL 480/60 AM	238610005D	238610-005-D	COIL 24/60 FT (10.1 WATT)
649821D	064982-001-D	COIL 120/60 FB	238610032D	238610-032-D	COIL 120/60 FT (10.1 WATT)
649824D	064982-004-D	COIL 120/60 FT	238610052D	238610-052-D	COIL 208/60 FT (10.1 WATT)
649827D	064982-027-D	COIL 24/60 FB (16.7 WATT)	238610058D	238610-058-D	COIL 240/60 FT (10.1 WATT)
992161D	099216-001-D	COIL 120/60 FT	238610088D	238610-088-D	COIL 480/60 FT (10.1 WATT)
992162D	099216-002-D	COIL 240/60 FT	238610105D	238610-105-D	COIL 24/60 FB (17.1 WATT)
992166D	099216-006-D	COIL 240/60 FB	238610132D	238610-132-D	COIL 120/60 FB (17.1 WATT)
992571D	099257-001-D	COIL 120/60 FT	238610158D	238610-158-D	COIL 240/60 FB (17.1 WATT)
972572D	099257-002-D	COIL 240/60 FT	238610188D	238610-188-D	COIL 480/60 FB (17.1 WATT)
992574D	099257-004-D	COIL 24/60 FT	238614005D	238614-005-D	COIL 24/60 FT EF (10.1 WATT)
992575D	099257-005-D	COIL 120/60 FB	238614032D	238614-032-D	COIL 120/60 EF FT (10.1 WATT)
2160992D	216099-002-D	COIL 24/60 BP	238614058D	238614-058-D	COIL 240/60 FT EF (10.1 WATT)
2160993D	216099-003-D	COIL 120/60 BP	238614088D	238614-088-D	COIL 480/60 FT EF (10.1 WATT)
2160994D	216099-004-D	COIL 240/60 BP	238710004D	238710-004-D	COIL 12VDC FT (11.6 WATT)
238210005D	238210-005-D	COIL 24/60 FT (6.1 WATT)	238710006D	238710-006-D	COIL 24VDC FT (11.6 WATT)
238210032D	238210-032-D	COIL 120/60 FT (6.1 WATT)	238810005D	238810-005-D	COIL 24/60 HT (10.1 WATT)
238210058D	238210-058-D	COIL 240/60 FT (6.1 WATT)	238810032D	238810-032-D	COIL 120/60 HT (10.1 WATT)
238210088D	238210-088-D	COIL 480/60 FT (6.1 WATT)	238810058D	238810-058-D	COIL 240/60 HT (10.1 WATT)
238210132D	238210-132-D	COIL 120/60 FB (9.1 WATT)	272610005D	272610-005-D	COIL 24/60 FT (16.1 WATT)
238210158D	238210-158-D	COIL 240/60 FB (9.1 WATT)	272610032D	272610-032-D	COIL 120/60 FT (16.1 WATT)
238214005D	238214-005-D	COIL 24/60 FT EF (6.1 WATT)	272614058D	272614-058-D	COIL 240/60 EF FT (16.1 WATT)
238214032D	238214-032-D	COIL 120/60 FT EF (6.1 WATT)	272614132D	272614-132-D	COIL 120/60 EF FB (20.1 WATT)

4

ASCO REBUILD KITS

Rebuild Kits give you the following benefits:

- Restore valves to like-new condition; ALL parts subject to wear are contained in the ASCO Rebuild Kit.
- Cost is significantly less than a replacement valve.
- Service life of the valve is extended.
- Easy to rebuild; exploded views and detailed instructions are included.
- Complete rebuilding can normally be done without removing the valve from the system.
- Downtime is greatly reduced.
- Kits are complete and easy to stock.
- Easy to order; Rebuild Kit number appears on the valve nameplate.

Order No.	Model No.	Fits Valve(s)	Order No.	Model No.	Fits Valve(s)	Order No.	Model No.	Fits Valve(s)
K302001	K302001	8263A304	K302280	K302280	8210G4,8	K304355	K304355	8210G100,101
K302014	K302014	8262G2,11,14,16	K302283	K302283	8210B54,55	K304392	K304392	8220G25
K302084	K302084	8320G130	K302284	K302284	8210G22	K304394	K304394	8220G7
K302088	K302088	8320G1	K302286	K302286	8210B56	K304395	K304395	8220G11
K302114	K302114	8320G172	K302305	K302305	8210G1HW	K306191	K306191	8342C1,3
K302272	K302272	8210G94	K302307	K302307	8210G9HW	K306192	K306192	8342C2
K302273	K302273	8210G1,2	K302308	K302308	8210G95HW	K310420	K310420	8221G7
K302274	K302274	8210G6,7	K302334	K302334	8210G33,34	K312702	K312702	8220G23
K302276	K302276	8210G95	K302335	K302335	8210G35	K312712	K312712	8220G19
K302277	K302277	8210G9	K302352	K302352	8215B50,60,70	K314453	K314453	8345G1
K302279	K302279	8210G3	K302723	K302723	8344G80,82	96875	K096875	8353C33

OKLAHOMA CITY • (405) 239-7301
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 (800) 955-1918 • FAX: (918) 249-9014

ASCO GENERAL CONTROLS



Series AH2D Hydramotor with V710 valve body.

AH SERIES HYDRAMOTOR® GAS ACTUATORS

Features include: 2-way, normally closed, globe type valve; quick return valve spring; tight shutoff (22 lbs. force); adj. damper arm; positive valve stem indication; and NEMA 1, 2, 3, 3S, 4, 12 and 13 combination general purpose, watertight, dust tight and drip tight enclosure. For boilers, furnaces, ovens, and all types of industrial and commercial burners.

SPECIFICATIONS

Actuator

Type: Electrohydraulic, spring return, push type.

Output force: 200 lbs.

Stroke: 1 1/4" max.

Max. power requirement: 220 VA

Closing time: 1 sec. max.

Damper arm: Field adj for direct or reverse action; 2 7/8" length, 2 1/2" stroke.

Damper load (max.): 20 lbs. @ 20-150°F, 10 lbs. @ -40 to 20°F

Valve

Type: 2-way, normally closed, globe type

Construction: Aluminum body, Buna N seat

Closeoff pressure: 25 psi max.

Pressure taps: Standard—two 1/4" NPT downstream, two 1/4" upstream

Order No.	Description and Features	Voltage (Vac @ 50/60 Hz only)	Timing
ON-OFF, SLOW OPENING (7-24 SEC.)			
AH2D102A	ACTUATOR	120 VAC	14-26 SEC
ON-OFF, FAST OPENING (7-12 SEC.)			
AH2D112A	ACTUATOR	120 VAC	6-14 SEC
AH2D112S	ACTUATOR (PROOF OF CLOSURE). USE ONLY WITH V710 VALVE WITH V22 OPTION	120 VAC	6-14 SEC



H SERIES HYDRAMOTOR® REPLACEMENT ACTUATORS FOR HYDRAMOTOR® HIGH FLOW GAS VALVES

Order No.	Description	Use With
H10A620B5F1	ACTUATOR LESS PROOF OF CLOSURE	120 VAC, USE WITH H117, H118
H10A620B5F1F26	ACTUATOR WITH PROOF OF CLOSURE	120 VAC, H117, H118 ¹

¹ For proof of closure, both actuator and valve body must have this option.

V710 SERIES GAS VALVE BODIES

Features include standard quick opening trim with proof of closure, quick opening with valve seal overtravel trim

SPECIFICATIONS

Pressure Taps: Two 1/4" NPT downstream, two 1/4" NPT upstream.

Fluid: Fuel gas

Valve parts in contact with fluid: body - 3/4" to 3" NPT, die-cast aluminum

Bonnet: die-cast aluminum

Seals: Nitrile

Springs: zinc-plated music wire

Stem bushing: Delrin

Valve stem: 303 S.S.

Retaining pin: 303 S.S.

Retaining ring: 17-7 S.S.

Pipe plugs: zinc-plated steel

Seal ring: Teflon (models with overtravel)

Closeoff pressure: 25 psi maximum

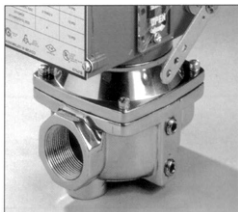
Order No.	Model No.	Operating Pressure Differential (psi)		Pipe Size	Description and Features	Capacity ¹ Btu/hr
		Min.	Max.			
V710JAS	V710JAS	0	10	2"	STANDARD QUICK OPENING TRIM	3,620,000
Special Order	V710JASV22	0	10	2"	STANDARD QUICK OPENING TRIM WITH PROOF OF CLOSURE	3,620,000
V710KAS	V710KAS	0	10	2 1/2"	STANDARD QUICK OPENING TRIM	4,250,000
V710KASV22	V710KASV22	0	10	2 1/2"	STANDARD QUICK OPENING TRIM WITH PROOF OF CLOSURE	4,250,000
V710LAS	V710LAS	0	10	3"	STANDARD QUICK OPENING TRIM	5,230,000
Special Order	V710LASV22	0	10	3"	STANDARD QUICK OPENING TRIM WITH PROOF OF CLOSURE	5,230,000

¹ 1" W. C. drop @ 2" w.c. inlet pressure, 1,000 Btu/Cu. Ft. or more, 0.64 spec. grav. gas

VALVE PARTS AND ACCESSORIES

Order No.	Model No.	Description	Use With
S156202A	S156202A	HYDRAMOTOR OIL MIL-H5606, PT	AH actuators
A898611	218929	CAP RETAINER M6	Solenoid valves
A902411	218931	CAP RETAINER M12	Solenoid valves
K258850	258850	CAP RETAINER	Solenoid valves
1034131	218930	CAP RETAINER MXX	Solenoid valves

4



PCA® PORTABLE COMBUSTION ANALYZERS



The PCA is the perfect tool for furnace and boiler service technicians who need to determine carbon monoxide (CO) safety and combustion efficiency in combustion applications. Residential and commercial furnaces, hot water heaters and boilers are just a few typical applications. The PCA directly measures and displays flue gas O₂, primary and stack temperatures, draft, differential pressure, NO_x and CO. Comes with carrying case, instruction manual and batteries.

Order No.	Order No.	Description
Special Order	24-8043	PCA25 COMB ANALYZER O ₂ / CO / DRAFT

REPLACEMENT PARTS

Order No.	Order No.	Description
Special Order	07-1598	FILTER ELEMENT FOR PCA PROBE
Special Order	24-1229	PRINTER FOR PCA
B240788	24-0788	REPLACEMENT OXYGEN SENSOR

SERVICE TOOLS AND METERS



RRS3300
Stinger 2000



QV2 Pump



QV6 Pump



Model # MSG420



Model # MSG250

Order No.	Model No.	Description
REFRIGERANT RECOVERY EQUIPMENT		

Special Order	2000-3300	Stinger 2000 Refrigeration Recovery System, with oil-less reciprocating compressor, 115/1/60, self purge 550" hi pressure limit, 8 amp hi-torque power rating
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METERS AND THERMOMETERS

Special Order	2060-0000	Clamp Meter, 3 function: volts/amps/ohms
TH1800	2002-1800	Humidity/Temperature Meter, temp. range -4/140F, humidity range 10%/95% RH
TH8000	2080-0000	Infrared Thermometer, -4F/752F, with laser pointer, 8:1 optic ratio
Special Order	2002-0100	Digital Pocket Thermometer, -58F/302F, 1- 1/4" dial, 5" stem

VACUUM PUMPS/MANIFOLDS/HOSES/GAUGES

Special Order	2002-0002	Quick Vac Rotary Vane Vacuum Pump, 2 CFM air displacement, 2-stage, integral check valve and gas ballast valve, 0.55 HP motor, 115/1/60, includes pump oil and 1/4" intake fitting.
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Special Order	2002-0006	Quick Vac Rotary Vane Vacuum Pump, 6.3 CFM air displacement, 2-stage, integral check valve and gas ballast valve, 0.76 HP motor, 115/1/60, includes pump oil and 1/4" and 3/8" intake fitting.
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MS040	2002-4000	Manifold Set with sight glass R-12/22/1334A., 3 hoses (red/blue/yellow), 60", brass manifold body, hanger hook, hose holder, 2 hand wheels, 1/4" flare fittings, gauge press, 0/250# and 0/500#, hose press 500# maximum W.P. and 2500# burst.
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BV3	2002-0003	Ball Valve Hose Set R-12/22/134A, 3 hoses (red/blue/yellow) 60", 1/4" flare fitting, hose press, 500# maximum W.P., 2500# burst
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MSG250	2002-0250	Refrigerant Gauge (blue), 2 - 1/2" dial, 1/8" connection, 250# (temp/PSI/metric range scale)
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MSG550	2002-0550	Refrigerant Gauge (red), 2 - 1/2" dial, 1/8" connection, 500# (temp/PSI/metric range scale)
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REFRIGERATION AND HAND TOOLS

HT780	2002-0780	Tubing Cutter, 1/8" to 7/8" O.D.
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HT212	2002-2120	PVC Pipe Cutter up to 1 - 5/8"
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HT666	2002-6700	Tubing Bended 3 - IN - 1, for 1/4", 5/16", 3/8" O.D. tubing
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HTVCRT	2002-0125	Double Ended Valve Core Removal Tool
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HT195	2002-7100	Flaring Tool, 3/16 to 5/8" O.D.
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HT95	2002-7200	Swaging Punch, 1/4 to 5/8" O.D.
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4

SNIFIT® CO ANALYZER



Snifit® carbon monoxide (CO) analyzers can help you accurately measure CO concentration levels in room air. This continuous operating instrument quickly and accurately measures levels of CO between 0 and 1,999 ppm.

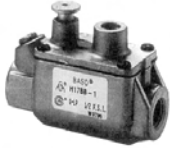
Order No.	Order No.	Description
B197060	19-7060	SNIFIT 50 CO ANALYZER

BACHARACH

DETECTOR REPLACEMENT PARTS

Order No.	Order No.	Description
B105057	105057	CTN (3-3 OZ BTL) FYRITE CO2 LQD
Special Order	19-5002	CTN (12) MONOXOR CO DETEC TUBES

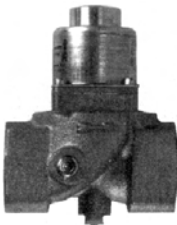
BASO GAS PRODUCTS



H-17 SERIES AUTOMATIC PILOT VALVES FOR SMALL APPLIANCES 100% SHUTOFF--CUTS GAS TO BOTH PILOT AND MAIN FUEL LINE

Order No.	Inlet & Outlet		Pilot Tap	Nat. Gas Capacity		Thermocouple
	Female NPT			BTU/hr @ 1" P.D.		
H17CB3	3/8"		1/8" Plugged	125,000		K15D, K19 or K20

Note: For use in ambients up to 300°F



BASOTROL® AUTOMATIC GAS VALVE

The H91 Series are 2-wire, electrically operated shutoff valves that automatically open and close on a demand signal from a thermostat or other controlling device. These valves can be used for all gas-fired appliances with a maximum operation pressure of 1/2 psi.

Order No.	Model No.	Inlet and Outlet	Natural Gas Capacity BTU/hr at 1 inch P.D.	VAC		Electrical Connection
				60 Hz	Amp Rating	
H91WG1	H91WG-1	1/4" cc	42,000	25	0.3	1/4" male spade

4



L62GB-3

L62 SERIES BASO PILOT SWITCHES MANUAL OR AUTOMATIC RESET--SPST OR SPDT

Order No.	Model No.	Reset	100% Shutoff	Switch Action	Thermocouple		Replaces
					Lead		
L62GB3C ^{2,3}	L62GB-3C	Manual	Yes	spst	K15D, K19, or K20		L62EA

² Replaces: Honeywell C591A, ITT Genral A100G543.

³ Includes Universal mounting bracket.

Electrical Ratings:

L62GB3C: 1A @ 24 Vac, 8A @ 125 Vac, 4A @ 250 Vac, 125 VA pilot duty @ 120-240 Vac

B/W CONTROLS



1500 SERIES LIQUID LEVEL CONTROL INDUCTION RELAY

Uses the liquid as an electrical conductor to complete a secondary circuit using electrodes. Selection of the voltage on the secondary coil must match the electrical conductivity of the fluid controlled. A complete system consists of a relay, holder (normally containing electrode plugs), and electrodes (either brass or stainless steel 1/4" solid rod, or wire suspended electrode-wire + suspension electrode(s) + wire connector, to attach to plug). Contact arrangement can be added or changed in the field from NO to NC or NC to NO. All contacts rated 25A @ 120/240 VAC.

Order No.	Model No.	Application/Description	Relay Enclosure	Voltage AC		Sec. Voltage is Suitable for Following Fluids
				Primary	Secondary	
1500GL1S7N1X	1500-G-L1-S7	RELAY NEMA 1/ 120V/ PR1/ 220V SEC	NEMA 1	110-120 Vac	220 vac	Sewage; Most water except very soft.
1500GL1S8N1X	1500-G-L1-S8	RELAY NEMA 1/ 120V/ PR1/ 360V SEC	NEMA 1	110 - 120 Vac	360 Vac	Very soft water; Sugar syrup



ELECTRODE HOLDERS AND ELECTRODES

CAST IRON ELECTRODE HOLDERS

Order No.	Application/Description	No. of Electrodes	Mounting Thread	Pressure/Temp. Ratings ¹
6012E2CIEP1	ELECTRODE HOLDER	2	2" MIPT	500 psi @ 200°F.
6012E3CIEP1	ELECTRODE HOLDER	2	2" MIPT	500 psi @ 200°F.

¹For max. temp. of 400°F. And 250 psi, substitute EP2 plugs for EP1 (std.)

REPLACEMENT ELECTRODES FOR HOLDERS

Order No.	Application/Description
6012EP1	Replacement electrode plug-standard for water service
6012EP2	Replacement electrode plug-high temp., for steam applications up to 250 psi

ROD ELECTRODES¹

Order No.	Size	Material	Description
BRSOD-4	1/4" OD	Brass	For soft water, condensate
303SS	1/4" OD	303 SS	For water, sewage, mild acids and food products

¹Must be threaded to 1/4"-20

WIRE ELECTRODE ITEMS

Order No.	Application/Description
6013CBR	Brass wire connector-to connect wire to plug
6013SW	Electrode suspension wire, 41 strand copper with 4/64" vinyl insulation seal
6013W6	Shielded Electrode-2" X 9/16" D general purpose use, 303 SS electrode

BLUE WHITE

4



F-400N FLOWMETER

Machined of high quality acrylic rod stock, and carefully polished to a clear-as-glass finish. Easy to read scales are screen printed on the meter body. Adaptors are reinforced with aluminum stress rings for added strength, and O-ring seals are Viton. Applications include: Water and wastewater treatment equipment; D.I. and ultrapure water systems; and photo and x-ray processing equipment.

SPECIFICATIONS

Accuracy: +/- 5%

Temp. limits: 150°F

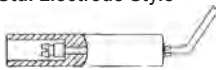
Material of construction (meter body): Machined Acrylic

Press. limits: 150 psi @ 70° F

Order No.	GPM	Float Material	Adapter Size
F41000LN16	2-20 GPM	#316 SS	1" FPT



Std. Electrode Style



OEM (special dimension) Style

STANDARD AND OEM ELECTRODE ASSEMBLIES

Most standard electrodes have a 3" tip with one bend at a 45 degree angle. OEM electrodes have special dimensions. Many other electrodes are made. Call with dimensions and manufacturer of burner name.

Order No.		Insulator Only	Application/Description	Length of Insulator	Dia. of Insulator	Type of Tip	Length of Straight Tip	
Complete Assembly	Model No.							
STANDARD ELECTRODES								
Spec. Order	02040-102-4	12040	Electrode Assy., Exposed Term.	4"	9/16"	Heavy 1/8" dia.	3"	
Spec. Order	02080-102-8	12080	Electrode Assy., Exposed Term.	8"	9/18"	Heavy 1/8" dia.	3"	
Spec. Order	03060-103-6	13060	Electrode Assy., Exposed Term.	6"	9/16"	Heavy 1/8" dia.	3"	
	05030	05030-105-3	15030	Electrode Assy., Exposed Term.	3"	9/16"	Light 3/32" dia.	3"
	05040	05040-105-4	15040	Electrode Assy., Exposed Term.	4"	9/16"	Light 3/32" dia.	3"
OEM ELECTRODES								
	21672	21672/CG52	Electrode Assy., Gordon-Piatt	5-3/8"	9/16"	Straight	7-11/16" Past In.	
	22315	22315/CK15	Electrode Assy., Kewanee	5"	9/16"	Small Hook	1-11/16" Past In.	
	25222	25222/CM47	Electrode Assy., Honeywell w/Q179	2"	-	45 Deg. Bend	1" Past Insul.	
	25226	25226/CM-64	Electrode Assy., Honeywell	2"	-	90 Deg. Bend	1-3/16" Past In.	
	26894	26894/CP-48	Electrode Assy. Powerflame	5"	9/16"	90 Deg. Bend	4" Past Insul.	
	26897	26897/CP-41	Electrode Assy. Powerflame	5"	9/16"	90 Deg. Bend	7/8" Past In.	

CRIMPING/CUTTING TOOLS

Tool with cutting chain especially designed with the service man in mind. Designed for cutting insulators and gauge glass in the field.

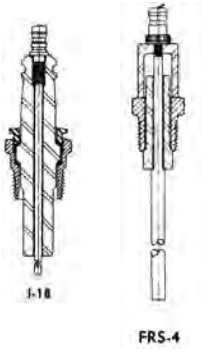
Plastic coated handles for comfort grip

Small enough to carry in your pocket.

As simple to use as a pair of pliers.

Order No.	Application/Description
40420	Pop and squeeze porcelain and glass cutter

IGNITERS AND FLAME RODS



Crown's igniters and flame rods are used in gas and oil burners, air heaters, nitrogen gas generators, infrared heaters, incinerators, process ovens, industrial dryers, portable oil heaters, and grain, cotton and peanut dryers. Crown's igniters are from 3" to 33" long, with temperature ranges from -50°F to 2450°F.

- Nickel alloy center and ground wires
- Alumina or Steatite insulator
- Black oxide shell
- Other electrode and shell materials and finishes are available

Order No.	Model No.	Old Model #	Overall Length	Thread Size	Electrode Diameter	Note
CA100	I-2	40008	8.00"	1/2" x 14 NPT	0.125	-
CA101	I-2-1	40009	15.50"	1/2" x 14 NPT	0.125	-
CA140	I-6	40018	8.00"	1/2" x 14 NPT	.12	-
CA200	I-18	40030	12.43"	1/2" x 14 NPT	0.12	-
CA470	I-3	40010	3.98"	14 mm x 1.25 mm	-	.06 gap
CA477	I-64-3	40070	6.24"	1/2" x 14 NPT	.125	.09 gap Nickel electrode
CA500	I-101		2.92"	10 mm x 1.0 mm	-	.06 gap
CA505	I-31	40048	3.68"	14 mm x 1.25 mm	-	.07 gap
CA506	I-31-1	40050	4.17"	14 mm x 1.25 mm	-	.07 gap Nickel electrode
CA391	FRS-2-12	40162	14.63"	1/2" NPT	.19 KANTHAL	-
CA392	FRS-2-18	40164	20.63"	1/2" NPT	.19 KANTHAL	-
CA434	FRS-4-6	40150	7.97"	1/4" NPT	.19 KANTHAL	-
CA436	FRS-4-12	40152	13.97"	1/4" NPT	.19 KANTHAL	-

ELECTRODE ADJUSTING TOOLS



Set of 2. Made of steel with a plated finish. Used for bending and adjusting electrode and igniter tips. One end accommodates 1/8" tips and the other 3/32" tips. Pocket size, lightweight, easy to use.

Order No.	Model No.	Application/Description
40430	40430-ITB-26	Pack of 2 electrode tip bending tools

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IGNITION TERMINALS & MISC.



CAGE
50000

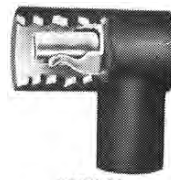
Order No.	Model No.	Model No.	Application/Description
25150	25150	MIDCO CM52	MIDCO PILOT FLAME ROD
45292	45292	220031-0010	ELECTRODE GASKET FOR G-P
50000	50000-50	IT-200	TERMINAL IGN CAGE IT-200
55011	55011-10	SIT-210A	TERMINAL ANGLE NYLON CAP W/STUD
55021	55021-10	SIT-210B	RAJAH CONNECTOR STUD FOR C7005 HONEYWELL FLAME ROD
55211	55211-50	SIT-212A	TERMINAL ANGLE STYLE W/ NYLON CAP
55221	55221-50	SIT-212B	RAJAH CONN IGN Q179A,B,C,D
55231	55231-50	SIT-212B	TERMINAL STRAIGHT NYLON CAP



STUD/
ANGLE NYLON CAP
55011



BASE STUD/
SOLDERLESS
BRASS FERRULE
55021



SPRING/
ANGLE NYLON CAP
55211



SPRING/SOLDERLESS
BRASS FERRULE
55221

CROWN ENGINEERING



500' Reel 41662

IGNITION CABLE

Applications include: Ovens, furnaces, boilers, transformer cable leads, ignition leads, and wire connections not to exceed specifications. Sold by foot or reel.

Order No.	Model No.	Description	Max. Temp.	Max Volt.	O.D.	Wire Ga.	Certifications
41662	41662	Wire with High Temp Silicone Insul.	250C/482F	25,000 VAC	.274"	18	U.L. Style 3257

DONGAN



IGNITION TRANSFORMERS

Standard replacement ignition transformers.

Order No.	Description	Primary	Secondary
A06SA6	20 ma, 175 va, W/BASE	120/60	6,000V
A10SQ10	22 ma, 250 va, L/BASE	120/60	10,000V
LW3	XFMR BASE		

DRAINVIEW



4

DRAINVIEW MOISTURE REMOVAL SYSTEM

M-30 METER GUARD

Compressed air filters designed to remove oil aerosols, smoke condensed moisture and sub-micronic solid particles from compressed air & vacuum lines. Uses M-723 oil removal element roll.

Order No.	Description	Pipe Size	Air Flow @ 10 psi	
			Pressure Drop	Max. Pressure
M30	M-30 METER GUARD	1/4" NPT	20cfm	125 psi
M723	REP ELEMENT FOR M30			

2020 FILTER GUARD

Used in conjunction (as a secondary oil removal element) with the M-30 Meter Guard. Oil carryover will condense on glass bowl or darken white surface of filter element.

Order No.	Description	Pipe Size	Air Flow @ 10 psi	
			Pressure Drop	Max. Pressure
2020	2020 FILTER GUARD	1/4" NPT	20-30 cfm	150 psi
220	220 REP ELEMENT FOR B2020			

NE-87-W AUTO DRAIN/FILTER

Automatic condensate drain for compressed air.

Order No.	Description	Pipe Size	Condensate flow @	
			60 psi	Max. Pressure
NE87W	AUTO DRAIN/FILTER	3/8" NPT	7.5 -10 GPH	150 psi



MICRO-M SERIES

The Fireye MicroM Flame Safeguard controls are compact, modular burner management systems designed to provide automatic ignition and continuous flame motoring for commercial sized heat and process burners firing any type of fuel. The MicroM is designed to be backward compatible with existing M-Series controls. The MicroM, through the use of micro-controller technology, incorporates "smart" diagnostic LED's, optional alphanumeric display (ED510), remote reset capability, and serial communications via MODBUS or E500 Communication Interface. These options are available through plug-in option boards to the chassis. The optional ED510 display can be utilized to access burner hours and cycles, system hours and the last 6 lockouts with burner cycle time stamp and programmer configuration. The optional MODBUS communications capability allows the integration of the MicroM control into upper level energy management/data acquisition systems.

A complete MicroM system consists of the appropriate flame scanner/detector, plug-in amplifier and programmer modules connected into a standard chassis and wiring base. Interchangeable programmer and amplifier and modules allow complete versatility when Selecting control function, timing and flame scanning method. Functions such as relight, two-stage capability, purge timing and pilot cutoff are determined by the programmer module. Type of flame scanner (UV, UV-self check, infrared, flame rod, photocell, and cadmium cell) and Flame Failure Response Time (FFRT) are determined by the amplifier module. All amplifiers are available with flame failure response times of 0.8 seconds or 3 seconds nominal (4 seconds max.), and each provide a set of test jacks with a range of 0-10 VDC for the measurement of flame signal intensity.

Some programmer modules (MEP200 and MEP500 series) have dipswitches for selecting purge timing, pilot trial-for-ignition (PTFI) timing, recycle or non-recycle operation, prove air flow open at start, and post purge. Smart LED indicators on all of the programmer modules indicate the current operating status of the control and, during a safety lockout, display the fault as a coded sequence, simplifying the troubleshooting of a shutdown. A "run-check" switch is provided on the MEP500 series programmers to assist in testing the size, position, and stability of the pilot. The MicroM control incorporates a safety checking circuit that is operative on each start. If flame (real or simulate) is detected prior to a start or during purge, the fuel valves will not be energized and the control will lockout.

BACKWARD COMPATIBLE WITH M-SERIES AND M-II SERIES

MICRO-M CHASSIS TYPES (COMMON FOR ALL CONTROLS, INCLUDES DUST COVER:

ORDER NO.	MODEL NO.	DESCRIPTION
MEC120	MEC120	120 VAC INPUT WITH STANDARD PLUG-IN BOARD.
Special Order	MEC120C	120 VAC INPUT WITH E500 COMMUNICATION INTERFACE AND MODBUS CAPABILITY.
Special Order	MEC120D	120 VAC INPUT WITH ALPHA-NUMERIC DISPLAY INTERFACE TO ED510
Special Order	MEC120R	120 VAC INPUT WITH REMOTE RESET CAPABILITY
Special Order	MEC120RC	120 VAC INPUT WITH REMOTE RESET CAPABILITY, ALPHA-NUMERIC DISPLAY INTERFACE TO ED510, INTERFACE TO E500 COMMUNICATION INTERFACE AND MODBUS CAPABILITY

PROGRAMMER MODELS FOR MICRO-M

ORDER NO.	MODEL NO.	DESCRIPTION
MEP100	MEP100	RELITE OPERATION, 10 SEC PTFI.
Special Order	MEP101	RELITE OPERATION, ALLOW FLAME SIGNAL DURING "OFF CYCLE"
Special Order	MEP102	NON-RECYCLE ON FLAME FAIL, 5 SECOND PTFI
Special Order	MEP103	FIXED 10 SECOND PTFI, 10 SECOND MTFI, RE-TRY ONCE ON PILOT FAILURE, POST PURGE
Special Order	MEP104	NON-RECYCLE ON FLAME FAIL, 10 SECOND PTFI
Special Order	MEP100P	RELITE OPERATION, 10 SEC PTFI, 15 SECOND POST PURGE
MEP230	MEP230	SELECTABLE PURGE TIMING, PTFI TIMING, POST PURGE, AFS CHECK.
Special Order	MEP230H	SAME AS MEP230 WITH 8 SECOND PILOT STABILIZATION
Special Order	MEP234	SELECTABLE AIR FLOW PROVEN ON START, SELECTABLE PURGE TIMING, SELECTABLE PTFI TIMING, 10 SECOND PILOT PROVING, SELECTABLE MTFI, SELECTABLE POST PURGE, NON-RECYCLE FLAME FAIL.
MEP560	MEP560	SAME AS MEP230H EXCEPT WITH 10 SECOND MAIN TRIAL FOR IGNITION, RUN-CHECK SWITCH.
Special Order	MEP561	SAME AS MEP561 WITHOUT PILOT STABILIZATION
Special Order	MEP562	SAME AS MEP560, LOCKOUT ON LOSS OF AIRFLOW, NON-RECYCLE OPERATION ONLY

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MICRO-M SERIES (Con't.)

AMPLIFIER MODELS FOR MICRO-M

ORDER NO.	MODEL NO.	DESCRIPTION
Special Order	MEUV1	UV AMPLIFIER, .8 SECOND FFRT.
	MEUV4	UV AMPLIFIER, 3 SECOND FFRT.
Special Order	MEUVS1	UV SELF-CHECK AMPLIFIER, 0.8 SECOND FFRT.
Special Order	MEUVS4	UV SELF-CHECK AMPLIFIER, 3 SECOND FFRT.
Special Order	MERT1	FLAME ROD/PHOTOCELL AMPLIFIER, 0.8 SECOND FFRT.
	MERT4	FLAME ROD/PHOTOCELL AMPLIFIER, 3 SECOND FFRT.
Special Order	MEIR1	INFRARED AMPLIFIER, 0.8 SECOND FFRT.
Special Order	MEIR4	INFRARED AMPLIFIER, 3 SECOND FFRT.
Special Order	MECD1	CADMIUM SULFIDE AMPLIFIER, 0.8 SECOND FFRT.
Special Order	MECD4	CADMIUM SULFIDE AMPLIFIER, 3 SECOND FFRT.

OPTIONAL PLUG-IN BOARDS MODULES

ORDER NO.	MODEL NO.	DESCRIPTION
Special Order	MED1	STANDARD LOCAL RESET SWITCH.
Special Order	MED2	SAME AS MED1 WITH DISPLAY OUTPUT
Special Order	MED3	SAME AS MED1 WITH REMOTE RESET
Special Order	MED4	SAME AS MED1 WITH DISPLAY OUTPUT AND REMOTE RESET
Special Order	MED5	SAME AS MED1 WITH DISPLAY OUTPUT AND COMMUNICATIONS
	MED6	STANDARD LOCAL RESET SWITCH, DISPLAY OUTPUT, REMOTE RESET AND COMMUNICATIONS.
Special Order	MED7	SAME AS MED1 WITH COMMUNICATIONS

WIRING BASE (COMMON FOR ALL CONTROLS)

F613060	61-3060	CLOSED WIRING BASE, SURFACE MOUNTING
F615042	61-5042	OPEN WIRING BASE, CABINET MOUNTING

ACCESSORIES

Special Order	57AV7-1000	TESTER
SMDK	SMDK	SERVICEMAN'S DISPLAY KIT USED FOR DIAGNOSING MICRO-M SYSTEM. CONSISTS OF ED510 EQUIPPED WITH BACK PLATE, MED DAUGHTER BOARD AND ED580-4.

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M-SERIES TO M-SERIES II TO MICROM CROSS REFERENCE LISTING

M-SERIES Part Number	M-SERIES II REPLACEMENT MODULES				MicroM REPLACEMENT MODULES			
	Chassis	Amplifier	Programmer	Programmer Dipswitch #8	Chassis	Amplifier	Programmer	Programmer Dipswitch #6
UVM1D	MC120	MAUV1T	MP100	N/A	MEC120	MEUV1	MEP100	N/A
UVM1F	MC120	MAUVI	MP100	N/A	MEC120	MEUV4	MEP100	N/A
TFM1D	MC120	MART1T	MP100	See Note #1	MEC120	MERT1	MEP100	N/A
TFM1F	MC120	MART1	MP100	See Note #1	MEC120	MERT4	MEP100	N/A
UVM2	MC120	MAUV1	MP230	OFF	MEC120	MEUV4	MEP230	C
TFM2	MC120	MART1	MP230	OFF	MEC120	MERT4	MEP230	C
UVM3	MC120	MAUV1	MP230	ON	MEC120	MEUV4	MEP230	O
TFM3	MC120	MART1	MP230	ON	MEC120	MERT4	MEP230	O
UVM3H	MC120	MAUV1	MP230H	ON	MEC120	MEUV4	MEP230H	O
TFM3H	MC120	MART1	MP230H	ON	MEC120	MERT4	MEP230H	O
UVM5	MC120	MAUV1	MP560	ON	MEC120	MEUV4	MEP560	O
UVM6	MC120	MAUV1	MP560	See Note #2	MEC120	MEUV4	MEP560	C
- N/A — Not Applicable - Programmer Dipswitches apply to MP230H, and MP560 only. - Dipswitch #8 sets Recycle / Non-Recycle Operation. - MP560 Programmer Module has "Check-Run" Switch. - Note #1: For Standing Pilot, clip out red jumper on MP100. - Note #2: Dipswitch #8 - ON when red jumper of UVM6 is clipped.				- N/A — Not Applicable - Programmer Dipswitches apply to ME200, and ME500 Series Programmers - Dipswitch #6 sets Recycle / Non-Recycle Operation. (O = Non-Recycle, C = Recycle) - MEP500 Series Programmer Module has "Check-Run" Switch.				



M-SERIES II MODULAR FLAME SAFEGUARD CONTROLS COMPACT MODULAR BURNER MANAGEMENT SYSTEMS

Provides automatic ignition and continuous flame monitoring for commercial sizes of heating and process burners that use gas and/or light oil fuels. The programmer module determines the operational characteristics of the control (e.g.: relight, purge timing, etc.). The amplifier modules provide flame scanning capabilities using any of the Fireye standard ultraviolet scanners (self-check scanners not applicable), flame rods, and photocells.

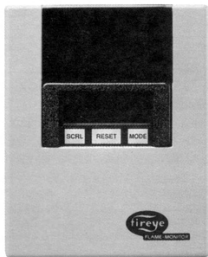
DIRECT REPLACEMENT FOR OLDER M-SERIES

Order No.	Model No.	Description
CHASSIS		
MC120	MC120	CHASSIS AND COVER
PROGRAMMER MODULES		
MP100	MP100	PROGRAMMER, RELIGHT
MP230	MP230	PROGRAMMER FIREYE MP230

Note: All above replaced by Micro-M Series, other than individual parts it may be more cost effective to replace.

Order No.	Model No.	Description	Type	Flame Failure Response Time	Use With Scanner/Flame Detector
AMPLIFIER MODULES					
MART1	MART1	FLAME RECT AMP 2-4 SEC FFRT			
Special Order	MART1T	FLAME RECT AMP .8 SEC FFRT			
MAUV1	MAUV1	UV AMP 2-4 SEC FFRT			
MAUV1T	MAUV1T	UV AMP .8 SEC FFRT			

Note: For a complete system, choose one of each of the following: Chassis, Programmer Module, Amplifier Module, UV Scanner or Flame Detector, Wiring Base (61-3060 or 61-5042).



FLAME-MONITOR BURNER MANAGEMENT CONTROLS MICROPROCESSOR BASED WITH MESSAGE CENTER AND SELF-DIAGNOSTICS

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The Flame-Monitor Series provides the proper burner sequencing, ignition and flame monitoring protection on automatically ignited oil, gas and combination fuel burners. On a safety shutdown, the display module will advise the operator the control is in "Lockout" and indicate the cause as well as the position in the operating sequence that it occurred.

Interchangeable programmer and flame amplifier modules allow complete versatility in selecting control function. The Flame-Monitor control uses the same wiring base as the Fireye D-Series and C-Series Controls and is directly interchangeable with most models without rewiring.

The Flame-Monitor control can be used with ultraviolet, AUTOCHECK[®] infrared, photocell, flame rod or self-check ultraviolet flame scanners by choosing the proper amplifier module. Special features include: remote reset, remote display, expanded annunciation of safety lockouts, programmability of safety interlock messages, and remote data communications capability. A 220 volt version of the E110 control is also available with any agency approvals. (P/N E120)

The complete FLAME-MONITOR control consists of:

- * **E110 Chassis**
- * **ED510 Display Module**
- * **EP Programmer or EPD Programmer**
(EPD programmers do not require ED510 display).
- * **Amplifier** * **Scanner** * **Wiring Base**

Order No.	Model No.	Description
E110	E110	CHASSIS, INCLUDES: EB700 CHASSIS AND MOUNTING SCREW (#48-1836) AND EC600 DUST COVER
6013862	60-1386-2	WIRING BASE (SURFACE MOUNT) FOR C, D AND E CONTROLS
6014662	60-1466-2	WIRING BASE (CABINET MOUNT) FOR C, D AND E CONTROLS



ED510 DISPLAY MODULE

The ED510 Display Module is designed to operate with the Flame-Monitor Burner Management Control System using the EP and EPD style programmer modules. The ED510 display is optional for EPD programmers, but is required for the EP style programmers.

The ED510 display module provides the following features and capabilities:

- * LCD backlit display with two lines of sixteen characters each.
- * Continuous display of current burner operating status, including first out annunciation in the event of a lockout condition.
- * Three key, tactile dome keypad provides historical information of the burner, last six lockout conditions (with burner cycle and burner hour time stamp), assign messages associated with the operation of the E300 expansion module, and diagnostic messages.
- * Design which mounts directly onto the front face of the EP style programmers.
- * RJ style connector for connection to the EP and EPD style programmers.
- * Remote display capability with the EP and EPD style programmers using standard DIN sized opening and Remote mounting kit.

Order No.	Model No.	Description
ED510	ED510	2 LINE X 16 CHARACTER LCD DISPLAY WITH KEYPAD
Special Order	ED580-1	ED510 DISPLAY CABLE WIRE RJ45 CONNECTOR- 1-1/4 INCH
Special Order	ED580-2	ED510 REMOTE DISPLAY CABLE WIRE RJ45 CONNECTOR- 2 FEET
Special Order	ED580-4	ED510 REMOTE DISPLAY CABLE WIRE RJ45 CONNECTOR- 4 FEET
ED510-8	ED580-8	ED510 REMOTE DISPLAY CABLE WIRE RJ45 CONNECTOR- 8 FEET
Special Order	129-145-1	REMOTE DISPLAY (DE510) MOUNTING KIT WITH 4 FT. CABLE.
Special Order	129-145-2	REMOTE DISPLAY (DE510) MOUNTING KIT WITH 8 FT. CABLE
Special Order	129-145-3	REMOTE DISPLAY (DE510) MOUNTING KIT WITH 2 FT. CABLE
Special Order	ED610	ADAPTER FOR MOUNTING ED510 DISPLAY FURTHER THAN 8 FEET AWAY FROM CONTROL

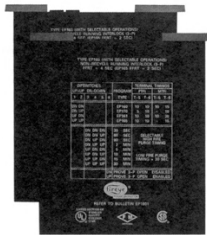
EP PROGRAMMER MODULES

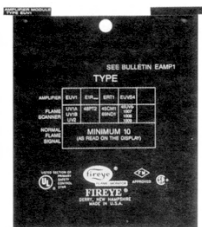
The Fireye EP Programmer modules are used with the Flame-Monitor Burner Management Control System (P/N's E110 and E100). They provide start-up programming, safe start check and flame monitoring supervision. They ensure open damper high fire purge interlock (EP100 series only), proof of low fire position and fuel end switch safety checks. A running interlock circuit on the flame monitor system constantly monitors the limit switches, air flow switches and fuel pressure switches through the programmer. The EP programmer modules will de-energize all fuel valve circuits with 4 seconds (maximum) following a flame failure (2 seconds for the EP165, EP166, EP2265), or at the end of the pilot-trial-for-ignition period if no flame is detected. A modulator (firing rate motor) circuit is provided on the EP100 and EP200 series programmers. The EP300 series programmers do not provide a check-run switch to stop the control in its firing sequence at any time (except MTFI) to aid in set-up, start-up and check out the burner and its associated interlocks.

The EP programmers offer the following selectable functions: increases purge timing, require their flow switch (terminals 3-P) to be open at the start of the operating cycle, recycle or non-recycle operation (EP300 series only), and intermittent or interrupted operation of terminal 6 (EP300 series only). The EP programmers include an RJ45 style connector to interface with the ED510 display module (mounted local or remote) and two RJ style connectors to connect to an E500 communication interface wired in a multi-drop configuration. The EP programmers store the burner cycle and on-time history, as well as lockout history (with burner cycle and burner hour time stamp).

Order No.	Model No.	Description
EP160	EP160	30 SEC. PURGE, 10 & 15 SEC. TFI, 4 SEC. FFRT, NON-RECYCLE MODULATION
Special Order	EP161	30 SEC. PURGE, 10 & 30 SEC. TFI, 4 SEC. FFRT, NON-RECYCLE MODULATION
Special Order	EP165	30 SEC. PURGE, 10 SEC. TFI, 2 SEC. FFRT, PILOT STABILIZATION, NON-RECYCLE MODULATION
Special Order	EP170	30 SEC. PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, EARLY SPARK TERMINATION, NON-RECYCLE, MODULATION
EP260	EP260	30 SEC. PURGE, 10 & 15 SEC. TFI, 4 SEC. FFRT, RECYCLE MODULATION
Special Order	EP261	30 SEC. PURGE, 10 & 30 SEC. TFI, 4 SEC. FFRT, RECYCLE MODULATION
Special Order	EP265	30 SEC. PURGE, 10 & 15 SEC. TFI, 2 SEC. FFRT, PILOT STABILIZATION, RECYCLE, MODULATION
Special Order	EP270	30 SEC. PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, EARLY SPARK TERMINATION, RECYCLE, MODULATION
EP380	EP380	30 SEC. PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, RECYCLE, NO MODULATION
Special Order	EP381	15 SEC. PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, RECYCLE, NO MODULATION
Special Order	EP382	0 SEC. PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, RECYCLE, NO MODULATION
Special Order	EP390	90 SEC PURGE, 5 & 10 SEC. TFI, 4 SEC. FFRT, RECYCLE, NO MODULATION

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FLAME AMPLIFIERS

The Fireye Flame Amplifier modules are used in conjunction with the appropriate flame scanner to provide flame scanning capability in the flame monitor system. Fireye offers ultraviolet amplifiers (EUV1), self-check ultraviolet amplifiers (EUVS4), flame rectification amplifiers for use with flame rods and photo cells (ERT1), and auto-check infrared amplifiers: E1R1 (standard model), E1R2 (high sensitivity - consult factory before use), and E1R3 (for solid fuels). Self-checking ultra-violet scanners and amplifiers should be used in applications where burner firing operation is continuous or where the burner is on for long periods of time (e.g. 24 hours) without cycling. The flame amplifier must be used with the appropriate flame scanners as shown below. When replacing any flame scanner or amplifier, the burner should be cycled on and off several times to ensure proper operation.

Order No.	Model No.	Description	Use With
Special Order	ERT1	RECTIFICATION AMPLIFIER	45CM1, 69ND1
EUV1	EUV1	STANDARD UV AMPLIFIER	UV1A, UV2, UV8A
Special Order	EUVS4	SELF CHECK UV AMPLIFIER	45UV5-1007,-1008,-1009
E1R1	E1R1	INFRARED AMPLIFIER	48PT2
Special Order	E1R2	INFRARED AMPLIFIER (HIGH SENSITIVITY). CONSULT FACTORY BEFORE USE	48PT2
Special Order	E1R3	INFRARED AMPLIFIER (FOR SOLID FUELS)	48PT2

FLAME SCANNERS

ULTRAVIOLET SCANNERS NON SELF-CHECKING



45UV3

ORDER NO.	MODEL NO.	DESCRIPTION	USE WITH
UV1A3	UV1A3	1/2" NPT Connector, 3 ft. flex conduit.	Flame-Monitor, FlameWorx, MB, C-Series, D-Series, M-Series, MII Series,
UV1A6	UV1A6	1/2" NPT Connector, 6 ft. flex conduit.	MicroM Series w/non-self-check amp.
Special Order	UV1A50	1/2" NPT Connector, 50 ft. flex conduit.	
Special Order	UV2	3/8" NPT Connector, 3 ft. flex conduit.	
Special Order	UV2C	3/8" NPT Connector, 3 ft. No armor flex.	

ULTRAVIOLET SCANNERS

ORDER NO.	MODEL NO.	DESCRIPTION	USE WITH
Special Order	45UV3-1050	UV Scanner standard 3/4" mount w/4-314-1UV tube.	Flame-Monitor, FlameWorx, MB, C-Series, D-Series, M-Series, MII Series
45UV51000	45UV5-1000	UV Self-check Scanner 1" NPT	
45UV51005	45UV5-1005 ¹	UV self-check Scanner 8' lead.	P-Series
Special Order	45UV5-1006 ¹	UV self-check Scanner 8' lead.	D-Series 72DUVS1
Special Order	45UV5-1008 ¹	UV self-check Scanner, 1 in. British Threads. 120VAC shutter.	72DUVS4 amp or EUVS4
45UV5-1009	45UV5-1009 ¹	UV self-check Scanner 8' lead, 1 " NPT threads. 120VAC shutter.	EUVS4, 72DUVS4 or 72DUVS1T



45UV5



UV1A



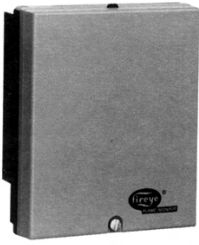
48PT2

48PT2 INFRARED SCANNER

ORDER NO.	MODEL NO.	DESCRIPTION	USE WITH
48PT2-1003	48PT2-1003	Infrared scanner 8', straight hd., D-Series, FLAME-MONITOR, MicroM	
Special Order	48PT2-1007	Infrared scanner 4', straight hd., D-Series, FLAME-MONITOR, MicroM	
48PT2-9003	48PT2-9003	Infrared scanner 8', 90° hd., D-Series, FLAME-MONITOR, MicroM	
Special Order	48PT2-9007	Infrared scanner, 4', 90° hd., D-Series, FLAME-MONITOR, MicroM	Flame Monitor, FlameWorx, C-Series, D-Series, MicroM Series with infrared amplifier.
Special Order	48PT2-9007W	Infrared scanner, 4', 90° hd., water repellant D-Series, FLAME-MONITOR, MicroM	
Special Order	48PT2-1016	Infrared scanner 16-1/2", straight hd., D-Series, FLAME-MONITOR, MicroM	
Special Order	48PT2-1030	Infrared scanner 30', straight hd., D-Series, FLAME-MONITOR, MicroM	

¹ Self-checking ultraviolet scanner is for continuously fired applications where recycling is infrequent or absent. The self-checking circuit checks the electronics and the UV tube for proper operation every four seconds during the firing period. Suitable for fuel gases and oil. Replaceable UV tube (4-314-1) and shutter mechanism (61-2914). Mounting 1" NPT or BSP pipe thread with 8 ft. lead wires. Must be installed with metal shielding over the scanner leads. Explosion-proof housings are available for models 45UV5-1007 and 45UV5-1009.

FIREYE



E300 EXPANSION MODULES

The Fireye® E300 Expansion Module provides increased interlock supervision capability of the Flame-Monitor™ control system. By wiring any of 16 interlock switches into the Expansion Module, the Flame-Monitor will automatically act as a "first out" annunciator for these interlocks. The user can select the lockout message associated with each set of terminals of the E300 from a library of messages using the ED510 display module. The user can also customize the lockout alarm messages by using an IBM compatible PC, E300 software, EC485 converter, and ED512 cable.

SPECIFICATIONS

Supply Voltage: 120 Vac @ 50/60 Hz Humidity: 85% RH non-condensing

Response time: 100 millisecond

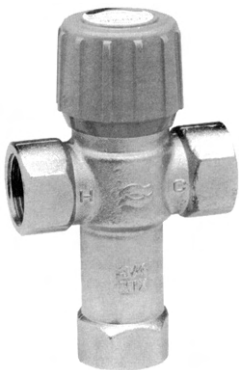
Order No.	Model No.	Description
E300	E300	EXPANSION MODULE F/FLAME MONITOR
Special Order	E350-3	EXPANSION MODULE CABLE, 3 FT.
E3506	E350-6	EXPANSION MODULE CABLE, 6 FT.
F601950	60-1950	WIRING BASE F/E300 EXP. MODULE
Special Order	EC485	RS232/RS485 CONVERTER FOR PROGRAMMING CUSTOM MESSAGES
Special Order	ED512-2, -4, -8	RJ12 CONNECTOR CABLE CONNECTORS ON EACH END
Special Order	E700	SOFTWARE FOR PROGRAMMING CUSTOMIZED MESSAGES

PARTS AND ACCESSORIES FOR FLAME SAFEGUARD CONTROLS

Order No.	Model No.	Description	Use With
1291451	129-145-1	REMOTE DISPLAY MOUNTING KIT WITH 4 ED510 FT. CABLE	
23176	23176	REPLACABLE FUSE (LITTLEFUSE 22508, 2AG 8 AMP.)	M-SERIES II PROGRAMMER MODULES
23197	23-197	REPLACABLE FUSE (WICKMAN #19373-071-K, 10 AMP.)	MICRO-M MEC120
F351271	35-127-1	HEAT INSULATOR 1" NPT	45UV5
42631	4-263-1	FIRETRON CELL	48PT2-SCANNERS
6013862	60-1386-2	WIRING BASE (CLOSED)	C/D/E SERIES CONTROLLERS
6014662	60-1466-2	WIRING BASE (OPEN)	C/D/E SERIES CONTROLLERS
6016643	60-1664-3	SWIVEL MOUNT ADAPTER 1" NPT	45UV/45RM/45FS SCANNERS
F613060	60-3060	WIRING BASE (CLOSED) SURFACE MOUNTING	ALL M SERIES
F615042	61-5042	WIRING BASE (OPEN) CABINET MOUNTING	ALL M SERIES

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HONEYWELL



ANTI-SCALD VALVES

For domestic applications accurately adjusts, maintains, and limits the hot water temperature to a desired setting selected by the user. Applications include: Domestic water, space heating, radiant floor heating, hydro heat, combo systems, heat pump systems, solar hot water, nursing homes, greenhouses, public facilities, industrial applications, photo processing.

Order No.	Model No.	Size	Temp.	Connection
AM100CUT	AM 100C UT	1/2"	80/120°F	THREAD
AM101CUT	AM 101C UT	3/4"	80/120°F	THREAD
AM102CUT	AM 102C UT	1"	90/120°F	THREAD