

SEAT ADJUSTMENT FROM THIS SIDE

NOTES:

1. VALVES CONFORM TO AWWA STANDARD C-504, LATEST EDITION.
2. SEE DRAWINGS VM-2030-M AND, VM-2078-M FOR STANDARD MATERIALS OF CONSTRUCTION.

Revised 9-25-07

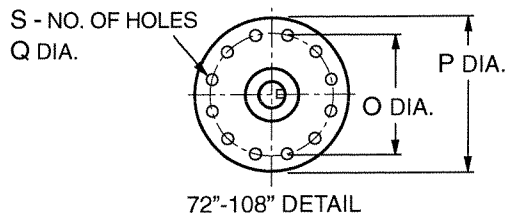
30 - 108 INCH BUTTERFLY VALVE CONSTRUCTION

DATE 6-9-99

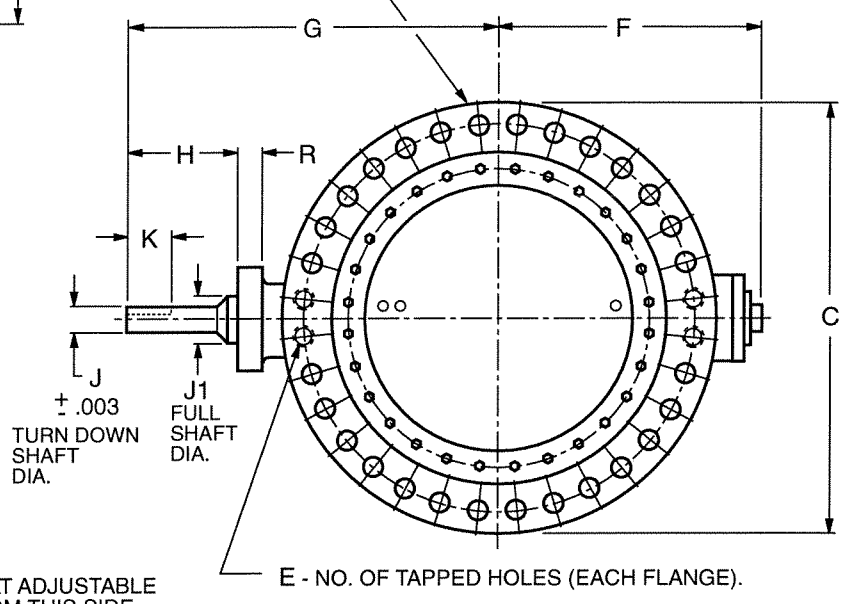
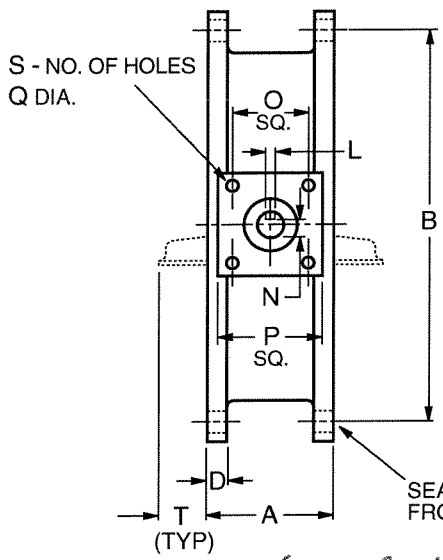
DRWG. NO.

VM-2030

VALMATIC® VALVE AND MANUFACTURING CORP.



FLANGES CONFORM TO ANSI B16.1 CLASS 125 & 250 ^{250#} / 125# Drilling



Notes for 250# / 125#
 valves per holes tapped

UPGRADE Flange & Bolt #'s to Pattern 125# DRILLING

COLD WORKING PRESSURE 150 PSI (150B) 250 PSI (250B)

FLANGE DIMENSIONS, INCHES

VALVE SIZE	AWWA C504 CLASS	A	B	C	D	NO. OF BOLTS	E Qty.	E Tap	E Deep	F	G	H	J	J1	K	L	N	O	P	Q	R	S	T	SHPG WT. lb.
30	150B	12.00	36.00	38.75	2.12	28	4	1 1/4-7	2.00	27.38	29.50	5.50	3.750	3.75	4.44	.875	3.261	8.485	10.50	1.25 1 1/8 TAP X 2.25 dp	2.25	4	8.88	1710
	250B	13.75	39.25	43.00	3.00	28	4	1 3/4-5	3.00	30.38	32.12	6.38	3.750 ± .003	4.50	4.44	.875	3.261	8.485	10.50	1.25 1 1/8 TAP X 1.88 dp	2.25	4	8.00	2100
36	150B	12.00	42.75	46.00	2.38	32	4	1 1/2-6	2.38	29.50	32.12	5.38	3.750	4.50	4.44	.875	3.261	8.485	10.50	1.25 1 1/8 TAP X 1.88 dp	2.25	4	11.88	2470
	250B	14.00	46.00	50.00	3.38	32	4	2-4 1/2	3.38	33.69	33.69	6.94	3.750 ± .003	4.50	4.44	.875	3.261	8.485	10.50	1.25 1 1/8 TAP X 1.88 dp	2.25	4	10.88	3050
42	150B	12.00	49.50	53.00	2.62	36	4	1 1/2-6	2.50	35.25	36.88	6.12	5.000	5.00	4.75	1.25	4.296	8.485	10.50	1.25 1 1/8 TAP X 1.88 dp	2.25	4	14.75	4020
	250B	14.18	52.75	57.00	3.69	36	4	2-4 1/2	3.12	35.25	36.88	6.12	5.000 ± .005	5.00	4.75	1.25	4.296	8.485	10.50	1.25 1 1/8 TAP X 1.88 dp	2.25	4	13.69	4750
48	150B	15.00	56.00	59.50	2.75	44	4	1 1/2-6	2.50	39.31	44.12	9.12	5.750	5.75	6.75	1.50	4.900	11.844	15.00	1.63 1 1/2 TAP X 2.50 dp	2.50	4	16.25	6420
	250B	17.50	60.75	65.00	4.00	40	4	2-4 1/2	4.00	39.31	44.12	9.12	5.750 ± .008	5.75	6.75	1.50	4.900	11.844	15.00	1.63 1 1/2 TAP X 2.50 dp	2.50	4	15.00	7600
54	150B 250B	15.00	62.75	66.25	3.00	44	8	1 3/4-5	2.63	44.25	48.06	9.12	6.750 ± .008	6.75	6.75	1.75	5.760	11.844	15.00	1.63	2.50	4	19.25	8500
60	150B 250B	15.00	69.25	73.00	3.12	52	8	1 3/4-5	2.63	48.25	51.94	9.12	6.750 ± .003	7.25	6.75	1.75	5.760	11.844	15.00	1.63	2.50	4	22.25	12100
66	150B 250B	18.00	76.00	80.00	3.38	52	8	1 3/4-5	2.63	53.31	58.25	9.12	6.750 ± .003	7.75	6.75	1.75	5.760	11.844	15.00	1.63	2.50	4	23.69	14050
72	150B 250B	18.00	82.50	86.50	3.50	60	8	1 3/4-5	2.38	59.00	62.75	10.75	8.000 ± .005	8.50	8.75	2.00	6.873	23.00	26.25	1.38	2.50	8	26.69	15200
78	150B	18.00	89.00	93.00	2.75	64	8	2-4 1/2	2.50	54.50	64.63	12.50	7.250 ± .008	7.25	9.00	1.750	6.268	23.00	26.25	1.38	2.50	8	29.00	11,700
84	150B	19.00	95.50	99.75	2.88	64	8	2-4 1/2	2.88	58.75	67.25	11.50	7.750 ± .008	7.75	10.00	2.000	6.619	23.00	26.25	1.38	2.50	8	31.50	14,100
90	150B	20.00	102.00	106.50	3.00	68	8	2 1/4-4 1/2	3.00	62.88	73.50	14.50	8.000 ± .008	8.50	11.00	2.000	6.873	23.00	28.00	1.38	2.50	8	34.00	17,400
96	150B	21.00	108.50	113.25	3.25	68	8	2 1/4-4 1/2	3.25	68.50	75.13	12.75	10.000 ± .008	10.00	9.25	2.500	8.591	23.74	28.00	1.53	3.25	20	36.50	21,100
102	150B	24.00	114.50	120.00	3.25	72	8	2 1/2-4	3.25	71.70	81.25	14.75	10.000 ± .008	10.00	11.00	2.500	8.591	23.74	28.00	1.53	3.25	20	38.00	24,800
108	150B	24.00	120.75	126.75	3.38	72	8	2 1/2-4	3.38	75.38	84.88	15.00	10.000 ± .008	10.00	13.00	2.500	8.591	23.74	28.00	1.53	3.25	20	41.00	28,700

SEE DRAWING SS-1993 AND SS-2039 FOR INSTALLATION AND TESTING.

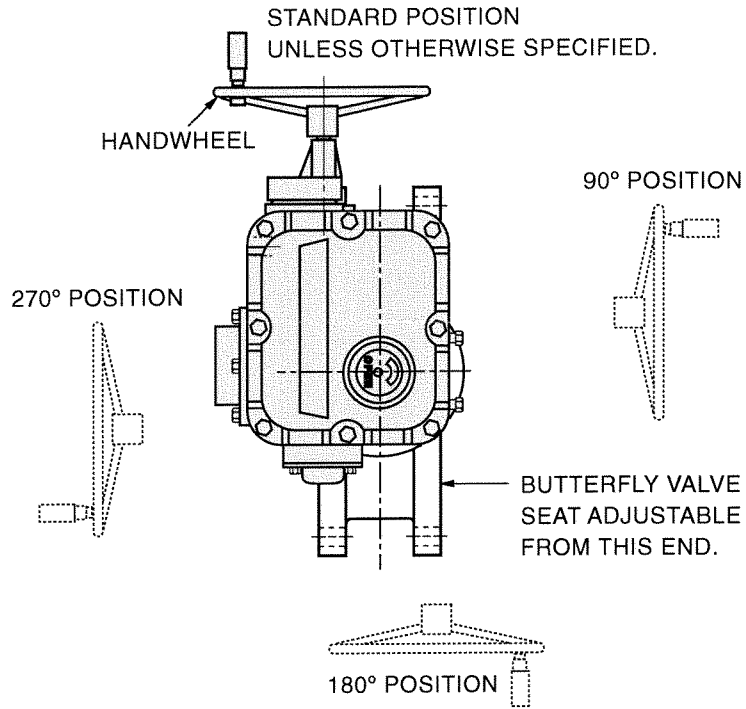
Revised 6-12-07

150B & 250B FLANGED BUTTERFLY VALVE WITH BARE STEM

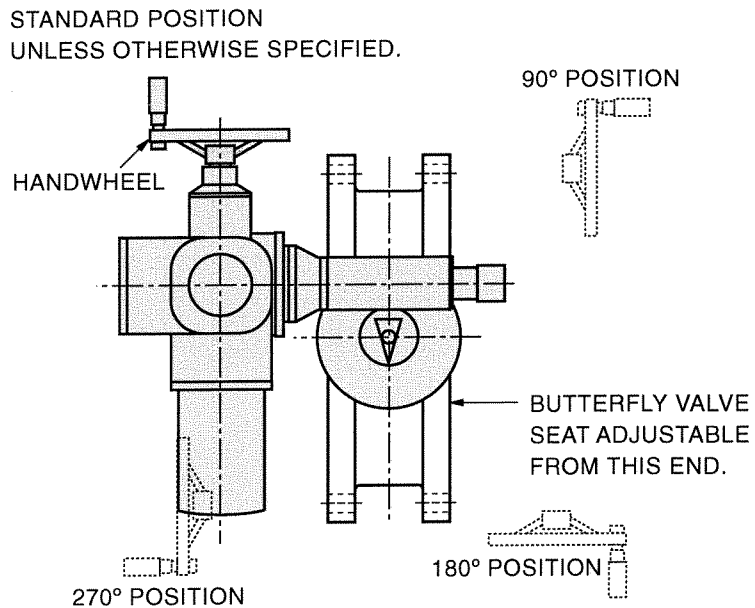
DATE 5-10-01

VAL-MATIC VALVE AND MANUFACTURING CORP.

DRWG. NO. VM-2030/BS



TYPICAL EMA WITH INTEGRAL WORM GEAR



TYPICAL EMA WITH SEPARATE WORM GEAR

BUTTERFLY VALVE ELECTRIC MOTOR ACTUATOR (EMA) MOUNTING POSITIONS

DATE 6-7-07

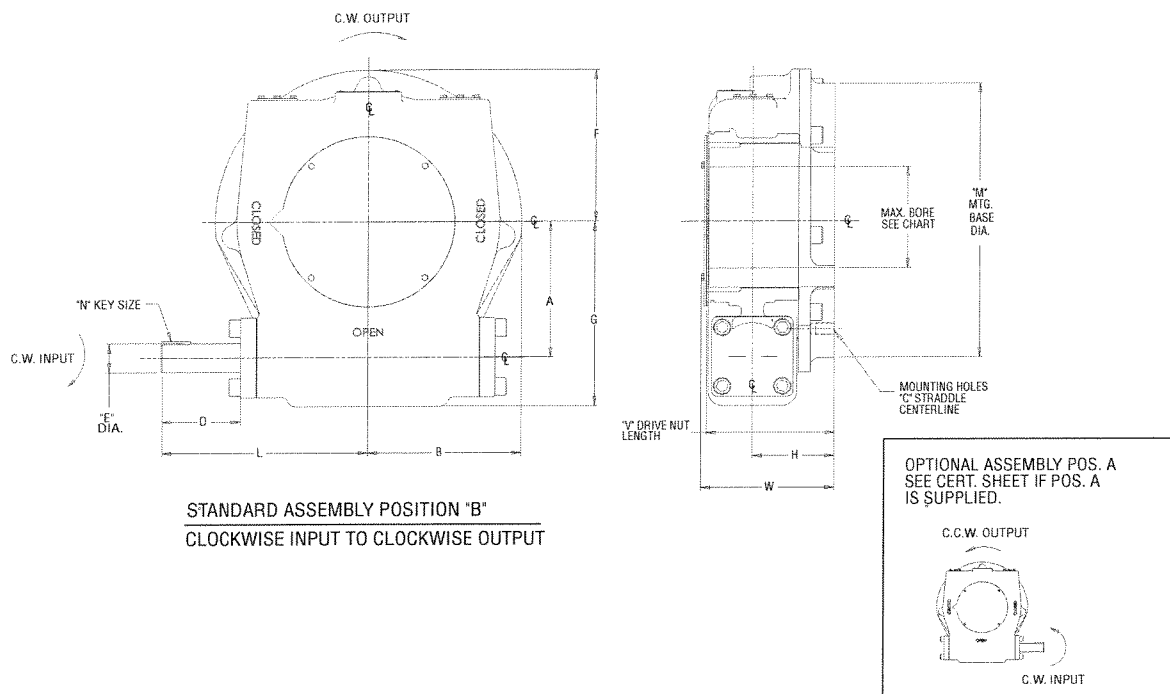
VAL-MATIC[®] VALVE AND MANUFACTURING CORP.

DRWG. NO.

VM-2000/EMA

PTA-18 through PTA/C-250 Standard Dimensions

For Commerical (PTC) and AWWA (PTA) Applications



Inches - MSS

Operator Size	Ratio	Mounting Base	A	B	C	D	E	F	G	H	L	M	N	V	W	Max. Bore	Max. Key (Square)	Max. Key (Rect.)
PTA18	65	FA14	4.1	5.2	(4) 3/4-11 X .9 DP 5.500 BC	2.9	.980/.982	4.4	6.4	3.1	7.7	7.6	8 mm X 7 mm X 45 mm	3.9	5.0	2.750	.625	.875 X .625
PTC32	65	FA16	4.1	5.2	(4) 3/4-10 X 1.12 DP 6.500 BC	2.9	.980/.982	4.4	6.4	3.1	7.7	7.6	8 mm X 7 mm X 45 mm	3.9	5.0	2.750	.625	.875 X .625
PTA32	60	FA16	6.1	6.9	(4) 3/4-10 X 1.12 DP 6.500 BC	4.3	1.377/1.379	6.1	8.4	3.9	10.6	11.1	10 mm X 8 mm X 40 mm	5.7	6.3	4.000	.875	1.000 X .750
PTA/C65	60	FA25	6.1	6.9	(8) 3/4-11 X 1 DP 10.000 BC	4.3	1.377/1.379	6.1	8.4	3.9	10.6	11.1	10 mm X 8 mm X 40 mm	5.7	6.3	4.000	.875	1.000 X .750
PTA/C120	60	FA30	7.4	8.2	(8) 3/4-10 X 1 DP 11.750 BC	4.3	1.571/1.573	8.2	10.0	4.5	11.1	15.7	12 mm X 8 mm X 41 mm	6.7	7.2	5.500	1.250	1.250 X .875
PTA/C150	60	FA35	7.4	8.2	(8) 1-8 X 1.1 DP 14.000 BC	4.3	1.571/1.573	8.2	10.0	4.5	11.1	15.7	12 mm X 8 mm X 41 mm	6.7	7.2	5.500	1.250	1.250 X .875
PTA/C250	64	FA35	11.0	11.7	(8) 1-8 X 2.0 DP 14.000 BC	8.2	2.280/2.282	11.3	14.0	5.0	17.7	16.4	18 mm x 11 mm x 63 mm	7.7	8.5	7.000	1.750	1.750 X 1.500

Millimeters - ISO

Operator Size	Ratio	Mounting Base	A	B	C	D	E	F	G	H	L	M	N	V	W	Max. Bore	Max. Key (Square)	Max. Key (Rect.)
PTA18	65	F14	105	132	(4) M16 X 2 X 25 DP 140.000 BC	74	24.90/24.95	112	163	77	195	194	8 mm X 7 mm X 45 mm	100	126	70.00	—	20 X 12
PTC32	65	F16	105	132	(4) M20 X 2.5 X 30 DP 165.000 BC	74	24.90/24.95	112	163	77	195	194	8 mm X 7 mm X 45 mm	100	126	70.00	—	20 X 12
PTA32	60	F16	156	176	(4) M20 X 2.5 X 30 DP 165.000 BC	109	34.90/34.95	156	215	99	270	281	10 mm X 8 mm X 40 mm	145	157	110.00	—	28 X 16
PTA/C65	60	F25	156	176	(8) M16 X 2 X 24 DP 254.000 BC	109	34.90/34.95	156	215	99	270	281	10 mm X 8 mm X 40 mm	145	157	110.00	—	28 X 16
PTA/C120	60	F30	187	209	(8) M20 X 2.5 X 32 DP 298.000 BC	109	39.90/39.95	209	255	115	283	400	12 mm X 8 mm X 41 mm	170	183	140.00	—	36 X 20
PTA/C150	60	F35	187	209	(8) M30 X 3.5 X 34 DP 356.000 BC	109	39.90/39.95	209	255	115	283	400	12 mm X 8 mm X 41 mm	170	183	140.00	—	36 X 20
PTA/C250	64	F35	280	298	(8) M30 X 3.5 X 50 DP 356.000 BC	208	57.94/57.97	285	354	126	448	417	18 mm X 11 mm X 65 mm	196	215	178.00	—	45 X 25

General Specifications

Operator/SGA	Ratio	Efficiencies	Output Torque Rating		Input Torque for Output Torque Rating		One-Time Input Torque (motorized)	
		Start & Run	ft-lb	N m	ft-lb	N m	ft-lb	N m
PTA/C-12	42	0.27	880	1,193	78	105	150	203
PTA/C-14	60	0.27	1,600	2,170	99	134	195	264
PTA-18	65	0.30	1,800	2,441	92	125	190	257
PTA-32	60	0.35	3,200	4,339	152	207	619	838
PTA-32/S3.1	186	0.34	3,200	4,339	51	69	208	282
PTC-32	65	0.29	3,200	4,339	170	230	338	458
PTC-32/S3.5	227.5	0.26	3,200	4,339	54	73	110	149
PTA-65	60	0.35	8,000	10,848	381	517	680	838
PTA-65/S3.1	186	0.34	8,000	10,848	127	172	208	282
PTA-65/S6.3	378	0.34	8,000	10,848	62	84	102	138
PTC-65	60	0.30	8,000	10,848	444	603	722	978
PTC-65/S3.1	186	0.28	8,000	10,848	154	208	249	336
PTC-65/S6.3	378	0.28	8,000	10,848	76	103	122	165
PTA-120	60	0.30	12,000	16,270	667	904	1,530	2,075
PTA/C-120/S3.1	186	0.26	12,000	16,270	248	336	518	703
PTA/C-120/S6.3	378	0.26	12,000	16,270	122	166	283	384
PTA/C-120/S10.8	648	0.26	12,000	16,270	71	97	161	219
PTA-150	60	0.30	15,000	20,338	833	1,130	1,530	2,075
PTA/C-150/S3.1	186	0.26	15,000	20,338	310	420	518	703
PTA/C-150/S6.3	378	0.26	15,000	20,338	153	207	283	384
PTA/C-150/S10.8	648	0.26	15,000	20,338	89	121	161	219
PTA-250	64	0.36	36,000	48,816	1,563	2,118	2,604	3,531
PTA/C-250/S6	384	0.33	36,000	48,816	284	385	473	641
PTA/C-250/S18	1,152	0.31	36,000	48,816	101	137	168	227
PTA/C-500/S2.15	116	0.35	61,000	82,716	1,594	2,160	2,609	3,538
PTA/C-500/S4.25	229	0.35	61,000	82,716	807	1,094	1,320	1,789
PTA/C-500/S10.62	573	0.34	61,000	82,716	323	437	528	716
PTA/C-500/S20.9	1,124	0.34	61,000	82,716	175	237	284	385
PTA/C-1000/S6	348	0.35	135,000	183,060	1,176	1,594	1,741	2,360
PTA/C-1000/S24	1,392	0.34	135,000	183,060	313	424	463	627

Approximate Weights

Operator/SGA	Standard Operator	
	lb.	kg
PTA/C-12	27	13
PTA/C-14	38	17
PTA-18	61	28
PTA-32	166	76
PTA-32/S3.1	203	93
PTC-32	61	28
PTC-32/S3.5	98	45
PTA-65	166	76
PTA-65/S3.1	203	93
PTA-65/S6.3	203	93
PTC-65	166	76
PTC-65/S3.1	203	93
PTC-65/S6.3	203	93
PTA-120	275	124
PTA/C-120/S3.1	312	142
PTA/C-120/S6.3	312	142
PTA/C-120/S10.8	312	142
PTA-150	275	124
PTA/C-150/S3.1	312	142
PTA/C-150/S6.3	312	142
PTA/C-150/S10.8	312	142
PTA-250	600	273
PTA/C-250/S6	670	305
PTA/C-250/S18	670	305
PTA/C-500/S2.15	1,400	636
PTA/C-500/S4.25	1,400	636
PTA/C-500/S10.62	1,430	650
PTA/C-500/S20.9	1,430	650
PTA/C-1000/S6	2,625	1,193
PTA/C-1000/S24	2,600	1,182

NOTES: (SEE INSTALLATION & OPERATION MANUAL FOR DETAILS)

1. FUSES

F1 (PRIMARY) 600V AC, 1A, 100KA INT RATING
 F2 (PRIMARY) FAST ACTING, 10.3 x 38.1mm TUBE
 F3 (SECONDARY) 0.1A, 250V, TIME DELAY
 F4 FOR SSAR PROTECTION FROM MOTOR CIRCUIT FAILURE
 F5 FOR WINDING/MOTOR OVERLOAD PROTECTION,
 NOT FOR SHORT CIRCUIT PROTECTION
 PROVIDED BY OTHERS.

2. REMOTE INPUTS

SIGNAL THRESHOLD - MINIMUM "ON" 19.2V AC/DC
 MAXIMUM "OFF" 5.0V AC/DC
 MAX LOAD - 10 mA / 110V AC
 REQUIRED CONTROL SIGNAL DURATION 2.550ms MIN.
 INPUTS 0, 1, 2 ARE FIELD CONFIGURABLE FOR
 USE AS OPEN INHIBIT, CLOSE INHIBIT OR ESD
 IN ADDITION, INPUT 2 MAY BE CONFIGURED
 FOR USE REMOTE SELECTION INDICATION.
 DEFAULT INPUT CONFIGURATION:
 INPUT 0 - ESD
 INPUT 1 - OPEN INHIBIT
 INPUT 2 - CLOSE INHIBIT

3. REMOTE INPUT JUMPERS

JUMPER CAN BE USER WIERED TO CONNECT DIG COMMONS
 #1, 2 & 3 (AS NEEDED). THE 3 REMOTE WIRING GROUPS
 ARE ELECTRICALLY ISOLATED INTERNALLY. SINGLE OR
 MULTIPLE POWER SOURCES MAY BE SELECTED TO INDIVIDUALLY
 ENERGIZE EACH OF THE POLARITIES ARE CORRECT ONLY A SINGLE
 POWER SOURCE MAY POWER ANY ONE GROUP

4. AUXILIARY INPUTS

BACK-UP UPS POWER MAY BE CONNECTED, 24VDC
 TERMINALS 5 & 6 AND 7 MAX CURRENT DRAW 1 AMP
 12 VDC TO TERMINALS 8 AND 9, MAX. CURRENT DRAW
 2 AMPS. THIS POWERS ALL CONTROLS FOR LOCAL
 INDICATION AND CONTROL NOT BE POWERED
 CUSTOMER MUST SUPPLY FUSE AS REQUIRED
 BY LOCAL ELECTRICAL CODES.

5. MAXIMUM EXTERNAL LOAD

TERMINALS 21 AND 22 (24V DC)
 TERMINALS 5W MAX EXT. LOAD
 TERMINALS 20W MAX EXT. LOAD

6. STATUS FEEDBACK OUTPUT SWITCHES

THE ACTUATOR STATUS CONTACTS ARE NORMALLY
 OPEN OR NORMALLY CLOSED CONTACTS,
 OR AS BUNKER CONTACTS, TO INDICATE
 ONE OF THE FUNCTIONS LISTED BELOW.

7. CONTACT RATINGS

R1-R4 Rm 5.0 AMPS @ 250 VAC OR 30 VDC (RESISTIVE)
 EXACT END POSITION INDICATION
 ON TORQUE-SEALED VALVES THE LCD AND "R"
 CONTACTS, CONFIGURED AS END OF TRAVEL LIMITS,
 AUTOMATICALLY PROVIDE EXACT END OF POSITION
 INDICATION.

8. EXACT END POSITION INDICATION

THE DEFAULT WIRING CONFIGURATION FOR THE
 "R" OUTPUTS ARE SHOWN IN THE TABLE BELOW
 REPRESENT A FULLY CLOSED VALVE.

9. DEFAULT IRL SETTINGS

OUTPUT SWITCH CONTACT DEVELOPMENT

OUTPUT SWITCH	VALVE POSITION	FUNCTION
R1	CLOSE	OPEN
R2	OPEN	CLOSE LIMIT
R3	CLOSE	CLOSE LIMIT
R4	OPEN	OPEN LIMIT

LEGEND
 - - - - - OPEN CONTACT
 - - - - - CLOSED CONTACT

TABLE 1 - TRANSFORMER TAPPING OPTIONS

TAP	APPL. VOLTAGES	TYPE	TAPS	APPL. VOLTAGES	TYPE	TAPS	APPL. VOLTAGES
1	100V	110V	225V	226V/230V/240V	3	212V	220V
	115V	120V	235V	236V		225V	230V
	120V	125V	240V	240V/242V/244V		230V	235V
	220V	225V	440V/442V/444V			440V	445V
	220V	225V	440V/442V/444V			440V	445V

10. OPTIONAL RELAY BOARD

SET JUMPER J1 TO POSITION 1-2 ON OPTIONAL RELAY BOARD.
 CONNECT 12-PIN CONNECTOR WITH YELLOW WIRES TO
 ADAPTER HARNESS (64-825-0066-3) THEN TO J3
 AND ATT EXTERNAL LOAD

11. APPL AND ATT EXTERNAL LOAD

0-10 PPS OUTPUT SIGNAL - 600 OHMS MAXIMUM
 ANALOG INPUT SIGNAL LOAD - 350 OHMS
 SET JUMPER J1 & J2 TO POSITION 1-2 ON
 OPTIONAL ANALOG BOARD.
 THE 3-PIN CONNECTOR WITH BLUE WIRES SHOULD
 BE CONNECTED TO J3.

12. INPUT LOADS

IMPEDANCE = 150 OHM
 CAPACITANCE = 0.1µF ±30%

COMMAND PRIORITY

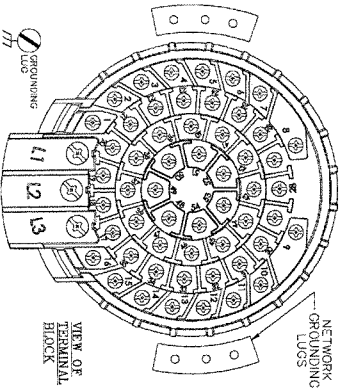
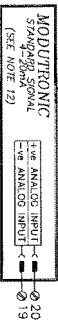
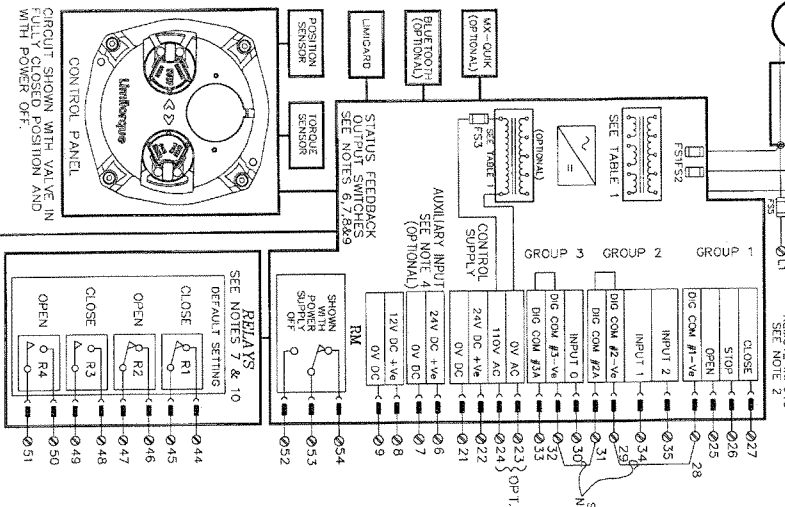
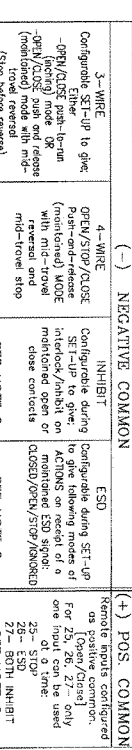
MODUTRONIC COMMANDS WILL OVERRIDE 3 WIRE / 4 WIRE COMMANDS. INHIBIT AND ESD
 COMMANDS WILL HAVE PRECEDENCE OVER MODUTRONIC AND 3-WIRE/ 4-WIRE COMMANDS

(-) NEGATIVE COMMON

Configurable during SET-UP to give:
 OPEN/STOP/CLOSE
 Push-in/release
 Interlock/INHIBIT mode
 with mid-travel
 mid-travel stop

(+) POS. COMMON

Configurable during SET-UP to give:
 Remote inputs configured
 as positive common.
 For 25, 26, 27 - only
 one input can be used
 25-0 ESD
 26-0 ESD
 27-0 BOTH INHIBIT



REVISION

NO.	DESCRIPTION	DATE	APPROVED	DATE
1	ISSUED	12/26/07		
2	REVISION	12/26/07		
3	REVISION	12/13/07		

DATE: RAC 11/26/07
 DATE: CROGED
 DATE: DKA 12/13/07
 DATE: APPROVED
 DATE: DKA 12/13/07

DATE: 18-499-0137-3
 DATE: 18-499-0137-3
 DATE: 18-499-0137-3

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 DATE: 18-499-0137-3

Limitorque actuator systems
 MX-A WIRING DIAGRAM
 WITH OPTIONAL EQUIPMENT
 SSAR - SOLID STATE MOTOR RELAY
 MOD - MODUTRONIC

DATE: 18-499-0137-3
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