
Supplemental Instructions

Models:

W30A2D W36A2D W42A2D W48A2D W60A2D

This model provides a unique dehumidification circuit for periods of low outdoor ambient temperature and high indoor humidity conditions.

Refer to Specification Sheet S3461 for the standard features of the base units and this manual for electrical data.

Dehumidification Circuit

The dehumidification circuit incorporates an independent heat exchanger coil in the supply air stream. This coil reheats the supply air after it passes over the cooling coil without requiring the electric resistance heater to be used for reheat purposes. This results in very high mechanical dehumidification capability from the air conditioner on demand without using electric resistance reheat.

The dehumidification refrigerant reheat circuit is controlled by a dehumidification valve directing the refrigerant gas to the normal condenser during periods when standard air conditioning is required. During periods of time of low ambient temperature (approximately 65° to 75° outdoor) and high indoor humidity, a humidistat senses the need for mechanical dehumidification. It then energizes both the compressor circuit and the dehumidification valve, thus directing the hot refrigerant discharge gas into a separate desuperheating condenser circuit, which reheats the conditioned air before it is delivered to the room. The refrigerant gas is then routed from the desuperheating condenser to the system condenser for

further heat transfer. When the humidistat is satisfied, the system automatically switches back to normal A/C mode and either continues to operate or turns off based on the signal from the wall thermostat. The result is separate humidity control at minimum operating cost.

Dehumidification Sequence of Operation

Dehumidification is controlled through the thermostat (if capable) or through a separate humidistat. On a call for dehumidification mode of operation, the compressor and dehumidification valve of the unit are energized through circuit R - D to provide dehumidification. Dehumidification will continue until the humidistat is satisfied.

Any time there is a call for circuit R - Y, the dehumidification mode will cancel and the system will return to cooling operation.



Climate Control Solutions

Bard Manufacturing Company, Inc.
Bryan, Ohio 43506
www.bardhvac.com

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W30A2D Application Performance Data										
Indoor Conditions		Outdoor Conditions	System Capacity				Pounds of Water/Hour	Evaporator Airflow	Approximate Supply Air	Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB/WB	A/C vs. Dehum
65/63	90	65	32,500	14,000	18,500	0.43	17.45	1000	52.7 / 52.5	A/C
65/63	90	65		(-2,100)	15,500	0	14.62	1000	66.9 / 58.8	Dehum
75/62.5	50	75	30,100	24,400	5,700	0.81	5.38	1000	53.5 / 52.4	A/C
75/62.5	50	75	8,800	2,900	5,900	0.33	5.57	1000	72.5 / 59.6	Dehum
75/65.5	60	75	31,700	21,200	10,500	0.67	9.91	1000	56.1 / 55.3	A/C
75/65.5	60	75	10,500	1,000	9,500	0.1	8.96	1000	74.1 / 62.4	Dehum
75/68	70	75	33,300	18,300	15,000	0.55	14.15	1000	58.6 / 57.9	A/C
75/68	70	75		(-600)	12,600	0	11.89	1000	75.6 / 64.7	Dehum
78/64	47	95	27,100	23,600	3,500	0.87	3.30	1000	56.8 / 55.0	A/C
78/64	47	95		(-4,700)	4,700	0	4.43	1000	82.2 / 63.9	Dehum
80/67	50	95	29,000	22,900	6,100	0.79	5.75	1000	59.3 / 57.9	A/C
80/67	50	95		(-4,800)	6,500	0	6.13	1000	84.2 / 66.6	Dehum

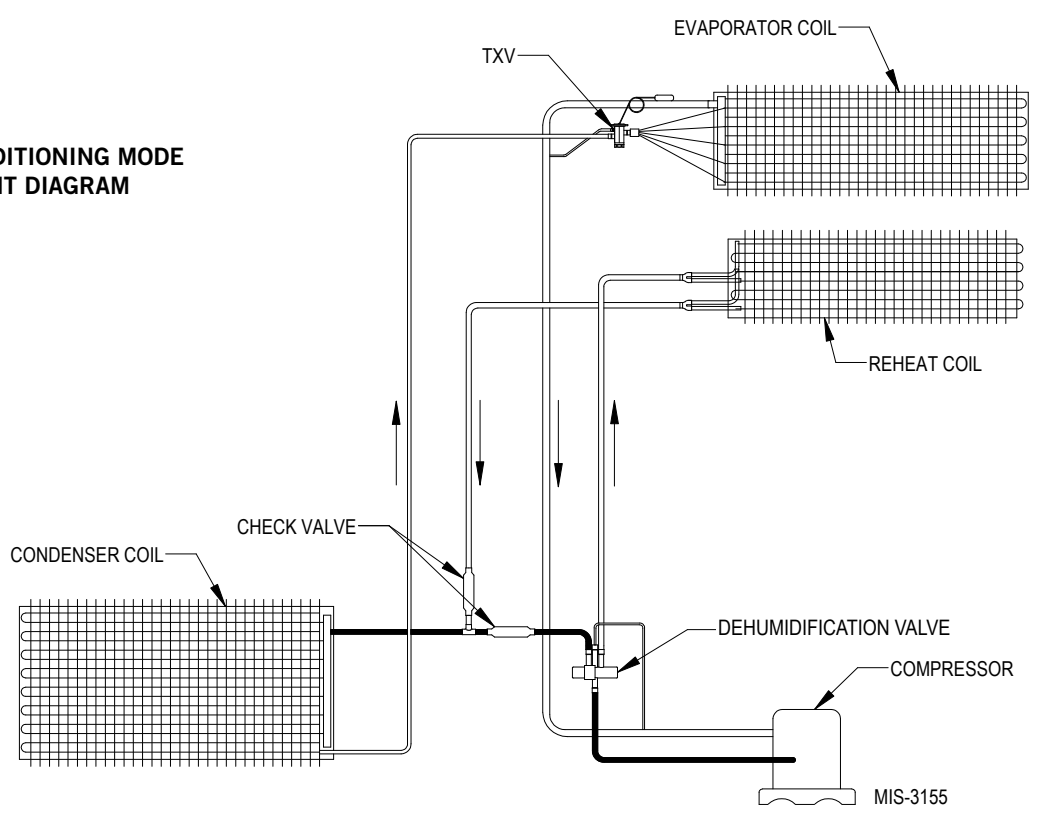
W36A2D Application Performance Data										
Indoor Conditions		Outdoor Conditions	System Capacity				Pounds of Water/Hour	Evaporator Airflow	Approximate Supply Air	Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB/WB	A/C vs. Dehum
65/63	90	65	38,800	16,900	21,900	0.44	20.66	1100	51.0 / 50.8	A/C
65/63	90	65		(-3,200)	21,000	0	19.81	1100	67.6 / 58.2	Dehum
75/62.5	50	75	36,500	27,800	8,700	0.76	8.21	1100	52.5 / 55.0	A/C
75/62.5	50	75	11,200	3,200	8,000	0.29	7.55	1100	72.4 / 59.4	Dehum
75/65.5	60	75	37,900	24,100	13,800	0.64	13.02	1100	55.3 / 54.5	A/C
75/65.5	60	75	13,200	1,000	12,200	0.08	11.51	1100	74.2 / 61.8	Dehum
75/68	70	75	40,600	21,500	19,100	0.53	18.02	1100	57.6 / 59.8	A/C
75/68	70	75		(-1,300)	16,700	0	15.75	1100	76.1 / 64.2	Dehum
78/64	47	95	32,500	27,500	5,000	0.85	4.72	1100	55.2 / 54.0	A/C
78/64	47	95		(-4,400)	5,800	0	5.47	1100	81.7 / 63.6	Dehum
80/67	50	95	34,400	26,000	8,400	0.76	7.92	1100	58.0 / 56.9	A/C
80/67	50	95		(-3,900)	7,900	0	7.45	1100	83.2 / 66.0	Dehum

W42A2D Application Performance Data										
Indoor Conditions		Outdoor Conditions	System Capacity				Pounds of Water/Hour	Evaporator Airflow	Approximate Supply Air	Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB/WB	A/C vs. Dehum
65/63	90	65	46,200	19,900	26,300	0.43	24.81	1400	52.3 / 51.7	A/C
65/63	90	65		(-1,800)	23,400	0	22.08	1400	66.4 / 58.0	Dehum
75/62.5	50	75	43,200	33,600	9,600	0.78	9.06	1400	53.2 / 51.7	A/C
75/62.5	50	75	15,800	6,200	9,600	0.39	9.06	1400	71.0 / 58.8	Dehum
75/65.5	60	75	45,800	29,400	16,400	0.64	15.47	1400	56.1 / 54.9	A/C
75/65.5	60	75	18,000	3,100	14,900	0.17	14.06	1400	73.1 / 61.6	Dehum
75/68	70	75	47,400	25,100	22,300	0.53	21.04	1400	58.6 / 57.6	A/C
75/68	70	75	19,800	400	19,400	0.02	18.30	1400	74.8 / 63.9	Dehum
78/64	47	95	38,500	32,700	5,800	0.85	5.47	1400	56.9 / 54.7	A/C
78/64	47	95		(-2,200)	5,600	0	5.28	1400	79.5 / 63.1	Dehum
80/67	50	95	40,000	30,400	9,600	0.76	9.06	1400	59.4 / 57.6	A/C
80/67	50	95		(-2,000)	8,600	0	8.11	1400	81.2 / 65.6	Dehum

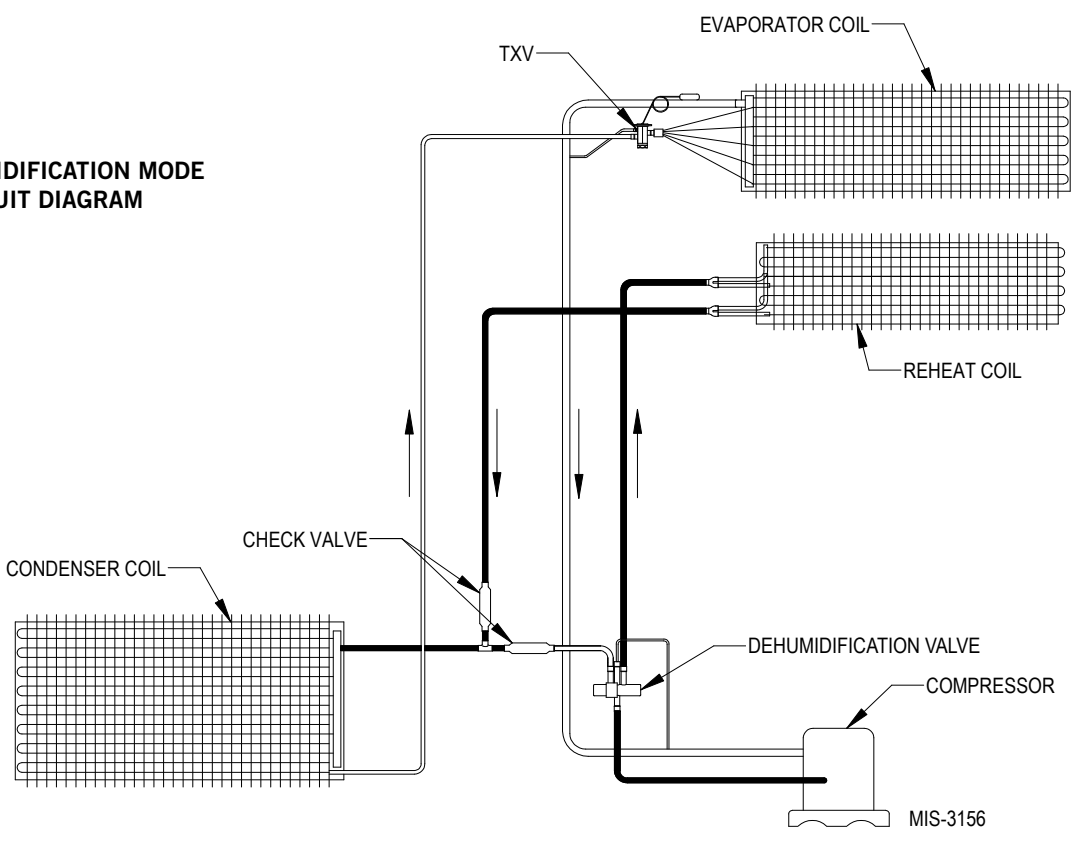
W48A2D Application Performance Data										
Indoor Conditions		Outdoor Conditions	System Capacity				Pounds of Water/Hour	Evaporator Airflow	Approximate Supply Air	Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB/WB	A/C vs. Dehum
65/63	90	65	55,500	23,200	32,300	0.42	30.47	1550	51.5 / 50.8	A/C
65/63	90	65		(-2,800)	30,900	0	29.15	1550	66.7 / 57.3	Dehum
75/62.5	50	75	50,800	38,200	12,600	0.75	11.89	1550	52.8 / 51.1	A/C
75/62.5	50	75	19,900	7,200	12,700	0.36	11.98	1550	70.7 / 58.4	Dehum
75/65.5	60	75	53,700	33,300	20,400	0.62	19.25	1550	55.5 / 54.1	A/C
75/65.5	60	75	23,200	3,300	19,900	0.14	18.77	1550	73.0 / 61.1	Dehum
75/68	70	75	56,300	29,200	27,100	0.52	25.57	1550	57.8 / 56.7	A/C
75/68	70	75	25,700	300	25,400	0.01	23.96	1550	74.9 / 63.3	Dehum
78/64	47	95	45,800	37,400	8,400	0.82	7.92	1550	56.0 / 54.0	A/C
78/64	47	95		(-1,800)	8,000	0	7.55	1550	79.0 / 62.9	Dehum
80/67	50	95	47,500	35,300	12,200	0.74	11.47	1550	59.1 / 57.2	A/C
80/67	50	95		(-2,200)	11,800	0	11.13	1550	81.3 / 65.2	Dehum

W60A2D Application Performance Data										
Indoor Conditions		Outdoor Conditions	System Capacity				Pounds of Water/Hour	Evaporator Airflow	Approximate Supply Air	Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB/WB	A/C vs. Dehum
65/63	90	65	62,900	26,400	36,500	0.42	34.43	1700	51.0 / 50.4	A/C
65/63	90	65		(-3,100)	35,000	0	33.02	1700	66.5 / 57.1	Dehum
75/62.5	50	75	57,800	43,000	14,800	0.74	13.96	1700	51.8 / 50.4	A/C
75/62.5	50	75	22,900	8,500	14,400	0.37	13.58	1700	70.5 / 58.2	Dehum
75/65.5	60	75	61,300	37,500	23,800	0.61	22.45	1700	54.7 / 53.6	A/C
75/65.5	60	75	26,700	4,000	22,700	0.15	21.42	1700	72.8 / 60.8	Dehum
75/68	70	75	64,800	32,600	32,200	0.5	30.38	1700	57.3 / 56.3	A/C
75/68	70	75	29,800	400	29,400	0.01	27.74	1700	74.8 / 62.9	Dehum
78/64	47	95	51,800	41,900	9,900	0.81	9.34	1700	55.4 / 53.6	A/C
78/64	47	95		(-1,000)	9,200	0	8.68	1700	78.5 / 62.6	Dehum
80/67	50	95	54,000	39,800	14,200	0.74	13.40	1700	58.3 / 56.7	A/C
80/67	50	95		(-1,700)	13,200	0	12.45	1700	81.0 / 65.0	Dehum

**AIR CONDITIONING MODE
CIRCUIT DIAGRAM**



**DEHUMIDIFICATION MODE
CIRCUIT DIAGRAM**



DEHUMIDIFICATION RELAY LOGIC BOARD

24V Terminal Block Connections		G	Y	D	W1	A	W2	Outputs From Board		
Inputs to Board		G	Y	D	W2	A1		G1	TWV	YO
Cooling Mode	Unoccupied	X	X					X		X
Cooling Mode	Occupied	X	X			X		X		X
Cooling Mode ①	w / Dehum	X	X	X				X		X
1st Stage Heating	Unoccupied				X			X		
1st Stage Heating	Occupied				X	X		X		
1st Stage Heating	w / Dehum			X				X	X	X
2nd Stage Heating	Unoccupied				X		X	X		
2nd Stage Heating	Occupied				X	X	X	X		
2nd Stage Heating	w / Dehum			X	X		X	X	X	X
Dehumidification	Unoccupied			X				②	②	②
Dehumidification	Occupied			X		X		X	X	X

① Cooling takes precedence over dehumidification. A cooling call cancels dehumidification.

② If jumper on RLB is set to "1-2 full-time dehumidification", outputs will energize. This is the factory default setting. If jumper is set to "2-3 occupied dehumidification only", outputs will be off.

Electrical Specifications

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Dual Circuit								
			③ Minimum Circuit Ampacity	① Maximum External Fuse or Ckt. Brkr.	② Field Power Wire Size	② Ground Wire	③ Minimum Circuit Ampacity		① Maximum External Fuse or Ckt. Breaker		② Field Power Wire Size		② Ground Wire Size		
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	
W30A2DA00,A0Z A05 A08 A10	230/208-1	1	24	35	8	10									
		1	32	35	8	10									
		1	47	50	8	10									
		1	58	60	6	10									
W30A2DB00,B0Z B06 B09	230/208-3	1	18	20	12	12									
		1	24	25	10	10									
		1	33	35	8	10									
W30A2DC00,C0Z C06 C09	460-3	1	11	15	14	14									
		1	12	15	14	14									
		1	17	20	12	12									
W36A2DA00,A0Z A05 A08 A10	230/208-1	1	29	35	8	10									
		1	32	35	8	10									
		1	47	50	8	10									
		1	58	60	6	10									
W36A2DB00,B0Z B06 B09	230/208-3	1	23	30	10	10									
		1	24	30	10	10									
		1	33	35	8	10									
W36A2DC00,C0Z C06 C09	460-3	1	11	15	14	14									
		1	12	15	14	14									
		1	16	20	12	12									
W42A2DA00,A0Z A05 A10	230/208-1	1	32	50	8	10									
		1	32	50	8	10									
		1	58	60	6	10									
		1	58	60	6	10									
W42A2DB00,B0Z B09 B18	230/208-3	1	24	35	8	10									
		1	33	35	8	10									
		1	60	60	6	10									
W42A2DC00,C0Z C09	460-3	1	12	15	14	14									
		1	17	20	12	12									
W48A2DA00,A0Z A05 A10	230/208-1	1	39	50	8	10									
		1	39	50	8	10									
		1	58	60	6	10									
W48A2DB00,B0Z B09 B15 B18	230/208-3	1	27	40	8	10									
		1	33	40	8	10									
		1	51	60	6	10									
		1	60	60	6	10									
W48A2DC00,C0Z C09	460-3	1	13	20	12	12									
		1	17	20	12	12									
W60A2DA00,A0Z A05 A10	230/208-1	1	42	60	8	10									
		1	42	60	8	10									
		1	60	60	6	10									
W60A2DB00,B0Z B09 B15 B18	230/208-3	1	28	40	8	10									
		1	35	40	8	10									
		1	53	60	6	10									
		2	N/A	N/A	N/A	N/A	35	28	40	30	8	10	10	10	
W60A2DC00,C0Z C09	460-3	1	15	20	12	12									
		1	18	20	12	12									

① Maximum size of the time delay fuse or circuit breaker for protection of field wiring conductors.

② Based on 75C copper wire. All wiring must conform to the National Electrical Code and all local codes.

③ These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electrical code (latest version), Article 310 for power conductor sizing.

Caution: When more than one field power circuit is run through one conduit, the conductors must be derated. Pay special attention to note 8 of Table 310 regarding Ampacity Adjustment Factors when more than three (3) current carrying conductors are in a raceway.

IMPORTANT: While this electrical data is presented as a guide, it is important to electrically connect properly sized fuses and conductor wires in accordance with the National Electrical Code and all local codes.