
Supplemental Instructions

Models:

W24HAD W30HAD W36HAD W42HAD W48HAD W60HAD

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

Refer to Specification Sheet S3523 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 - Y1, the dehumidification mode will cancel and the system will return to cooling or heat pump operation.

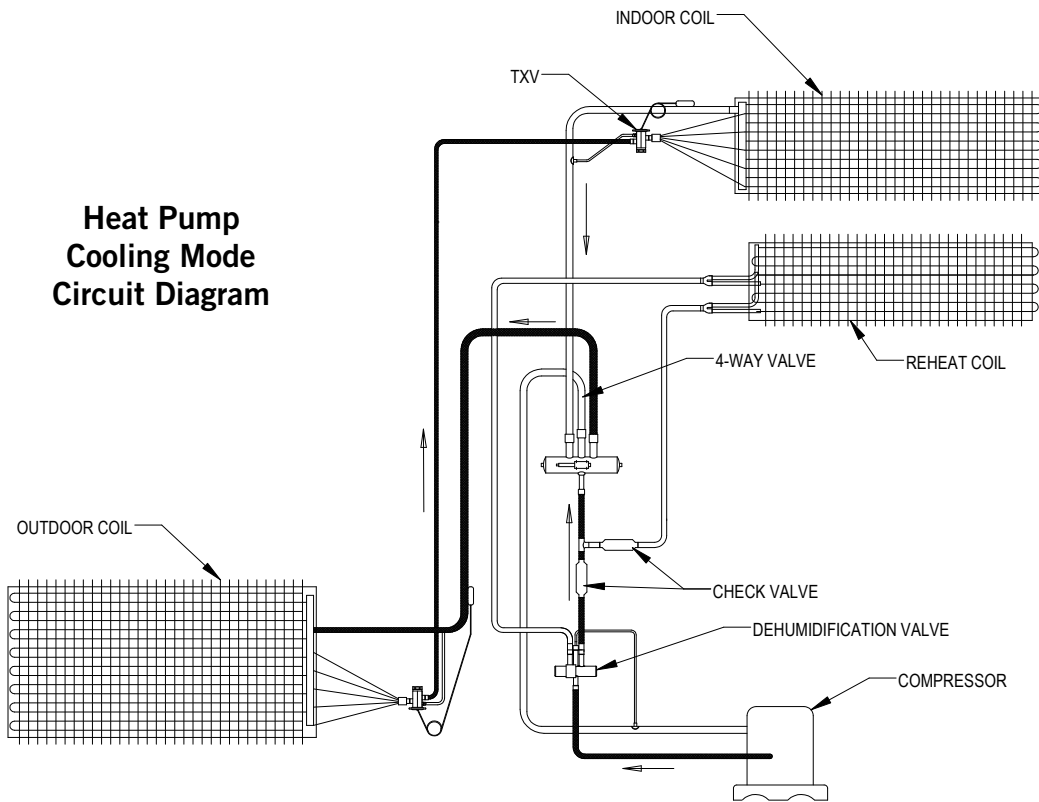


Climate Control Solutions

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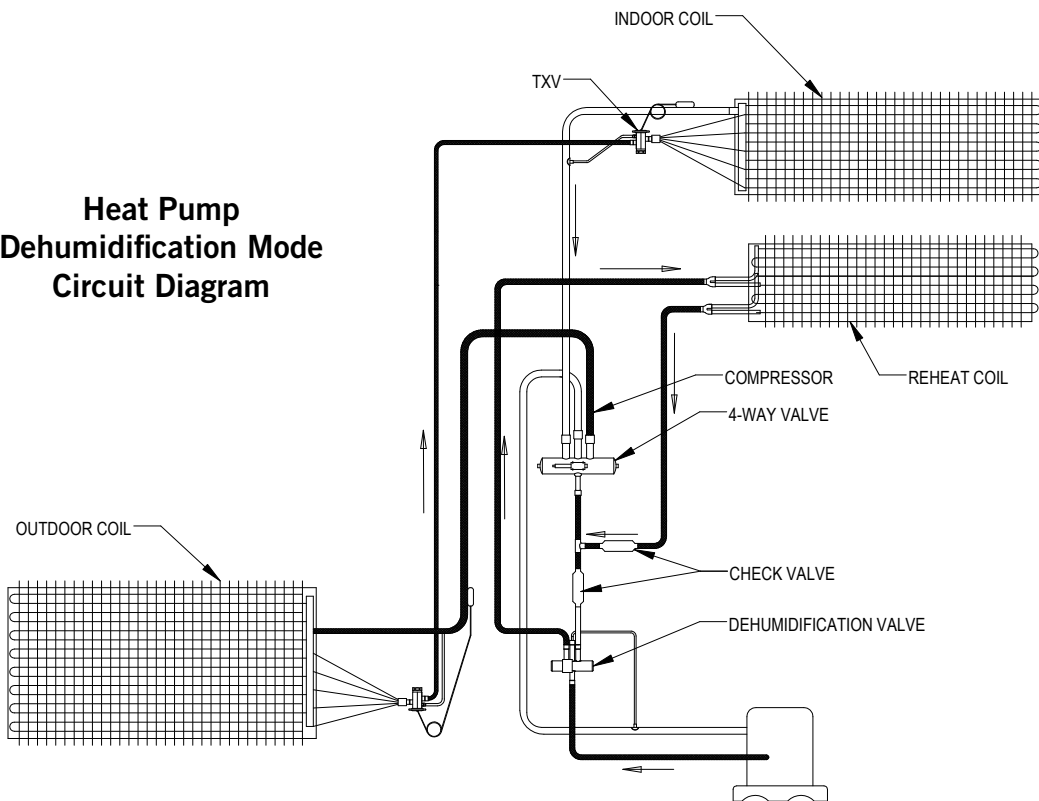
Manual: 7960-745A
Supersedes: 7960-745
Date: 8-16-17

**Heat Pump
Cooling Mode
Circuit Diagram**



MIS-3805

**Heat Pump
Dehumidification Mode
Circuit Diagram**



MIS-3806

W24HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	28,492	12,479	16,013	0.44	15.11	804	51.3	50.8	A/C
65/63	90	65		-132	14,994	0	14.15	803	65.57	57.08	Dehum
75/62.5	50	75	27,155	20,388	6767	0.75	6.38	803	52.05	50.78	A/C
75/62.5	50	75	11,827	5509	6318	0.47	5.96	803	68.93	57.76	Dehum
75/65.5	60	75	28,959	18,124	10,835	0.63	10.22	803	54.78	53.8	A/C
75/65.5	60	75	13,766	3682	10,084	0.27	9.51	802	71.15	60.33	Dehum
75/68	70	75	30,797	16,133	14,664	0.52	13.83	803	57.04	56.24	A/C
75/68	70	75	15,200	1958	13,242	0.13	12.49	803	73.22	62.61	Dehum
78/64	47	95	24,612	20,207	4405	0.82	4.16	803	55.2	53.74	A/C
78/64	47	95	4759	952	3807	0.2	3.59	802	77.04	62.2	Dehum
80/67	50	95	27,086	19,806	7280	0.73	6.87	803	57.8	56.48	A/C
80/67	50	95	7351	1095	6256	0.15	5.9	806	78.97	64.42	Dehum

W30HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	34,930	14,755	20,175	0.42	19.03	994	51.53	1.09	A/C
65/63	90	65		-2230	15,058	0	14.21	1011	67	59.18	Dehum
75/62.5	50	75	33,843	25,298	8545	0.75	8.06	1004	52.07	50.69	A/C
75/62.5	50	75	9393	3215	6178	0.34	5.83	1017	72.07	59.61	Dehum
75/65.5	60	75	35,544	22,122	13,422	0.62	12.66	1006	55.01	53.98	A/C
75/65.5	60	75	11,918	1329	10,589	0.11	9.99	996	73.73	62.03	Dehum
75/68	70	75	37,302	19,501	17,801	0.52	16.79	999	57.27	56.52	A/C
75/68	70	75		-715	12820.84	0	12.1	1012	75.58	64.77	Dehum
78/64	47	95	31,332	25,212	6120	0.8	5.77	1007	55.19	53.52	A/C
78/64	47	95		-4907	2978	2.54	2.81	1005	82.46	64.62	Dehum
80/67	50	95	31,650	23,518	8132	0.74	7.67	1005	58.69	56.97	A/C
80/67	50	95		-4279	5886	0	5.55	1008	83.86	66.5	Dehum

W36HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	37,924	16,373	21,551	0.43	20.33	1100	51.74	51.27	A/C
65/63	90	65		-1062	20,299	0	19.15	1100	66.23	57.52	Dehum
75/62.5	50	75	35,576	27,206	8370	0.76	7.9	1100	52.67	51.31	A/C
75/62.5	50	75	13,323	5621	7702	0.42	7.27	1100	70.51	58.65	Dehum
75/65.5	60	75	37,713	24,000	13,713	0.64	12.94	1100	55.46	54.44	A/C
75/65.5	60	75	15,877	3346	12,531	0.21	11.82	1100	72.52	61.21	Dehum
75/68	70	75	39,679	21,349	18,330	0.54	17.29	1100	57.81	57.01	A/C
75/68	70	75	17,875	1280	16,595	0.07	15.66	1100	74.35	63.44	Dehum
78/64	47	95	32,354	26,718	5636	0.83	5.32	1100	56	54.27	A/C
78/64	47	95		-2751	3954	0	3.73	1100	80.35	63.71	Dehum
80/67	50	95	34,030	25,755	8275	0.76	7.81	1100	58.92	57.42	A/C
80/67	50	95		-2505	5979	0	5.64	1100	82.25	66.14	Dehum

W42HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	43,100	18,900	24,200	0.44	22.83	1400	53.1	52.7	A/C
65/63	90	65	21,300	300	21,000	0.01	19.81	1400	65.2	58.2	Dehum
75/62.5	50	75	43,300	32,900	10,400	0.76	9.81	1400	53.7	51.9	A/C
75/62.5	50	75	17,100	8500	8600	0.5	8.11	1400	69.6	58.6	Dehum
75/65.5	60	75	45,200	28,800	16,400	0.64	15.47	1400	56.6	55.2	A/C
75/65.5	60	75	19,100	5500	13,600	0.29	12.83	1400	71.7	61.5	Dehum
75/68	70	75	46,500	25,200	21,300	0.54	20.09	1400	59.1	58	A/C
75/68	70	75	20,700	3000	17,700	0.14	16.7	1400	73.4	63.9	Dehum
78/64	47	95	39,700	32,800	6900	0.83	6.51	1400	56.7	54.7	A/C
78/64	47	95		-200	5200	0	4.91	1400	78.2	63	Dehum
80/67	50	95	40,600	30,700	9900	0.76	9.34	1400	59.8	58	A/C
80/67	50	95	9000	500	8500	0.06	8.02	1400	79.4	65.2	Dehum

W48HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	51,200	22,300	28,900	0.44	27.26	1550	51.9	51.7	A/C
65/63	90	65		-3100	23,800	0	22.45	1550	66.8	58.9	Dehum
75/62.5	50	75	47,800	37,900	9900	0.79	9.34	1550	52.8	51.6	A/C
75/62.5	50	75	13,900	6500	7400	0.47	6.98	1550	71.1	59.6	Dehum
75/65.5	60	75	50,600	33,200	17,400	0.66	16.42	1550	55.6	54.8	A/C
75/65.5	60	75	16,300	3000	13,300	0.18	12.55	1550	73.2	62.3	Dehum
75/68	70	75	53,500	28,900	24,600	0.54	23.21	1550	58.2	57.6	A/C
75/68	70	75		-200	18,700	0	17.64	1550	75.1	64.6	Dehum
78/64	47	95	46,300	38,400	7900	0.83	7.45	1550	55.4	54	A/C
78/64	47	95		-3900	4000	0	3.77	1550	80.2	64.1	Dehum
80/67	50	95	47,000	35,400	11,600	0.75	10.94	1550	58.2	56.9	A/C
80/67	50	95		-3700	6800	0	6.42	1550	82.1	66.4	Dehum

W60HAD Application Performance Data

ID Conditions		OD Conditions	System Capacity				Pounds of H ² O/Hour	Evaporator Airflow	Supply Air		Mode
DB/WB	% RH	DB	Total	Sensible	Latent	S/T	Lbs.	CFM	DB	WB	A/C vs. Dehum
65/63	90	65	64,100	28,700	35,400	0.45	33.4	1700	50.1	49.8	A/C
65/63	90	65		-500	31,200	0	29.43	1700	65.7	57.2	Dehum
75/62.5	50	75	60,400	45,100	15,300	0.75	14.43	1700	50.9	49.9	A/C
75/62.5	50	75	20,700	8600	12,100	0.42	11.42	1700	70.5	58.6	Dehum
75/65.5	60	75	64,000	40,200	23,800	0.63	22.45	1700	53.8	53	A/C
75/65.5	60	75	24,800	5500	19,300	0.22	18.21	1650	72.3	61.1	Dehum
75/68	70	75	66,700	35,800	30,900	0.54	29.15	1700	56.3	55.7	A/C
75/68	70	75	28,000	2500	25,500	0.09	24.06	1700	74.1	63.4	Dehum
78/64	47	95	54,600	44,400	10,200	0.81	9.62	1700	54.4	53.3	A/C
78/64	47	95		-3300	6200	0	5.85	1700	79.9	63.5	Dehum
80/67	50	95	58,000	42,700	15,300	0.74	14.43	1700	57.4	56.3	A/C
80/67	50	95		-2900	10,100	0	9.53	1700	81.7	65.9	Dehum

DEHUMIDIFICATION RELAY LOGIC BOARD

Energize on Unit Terminal Strip	Mode	Occupied/ Unoccupied	Inputs to the Board						Outputs from the Board								
			RAT	Y	B	W2	A1	D	G	G1	BK	RV	TWV	W	YO	A2	
Y1, G	1st Cooling	Unoccupied		X					X	X	X					X	
Y1, G, A	1st Cooling	Occupied		X			X		X	X						X	X
Y1, G, A, D	1st Cooling w/Dehum	Occupied		X				X	X	X						X	X
Y1, G, D	1st Cooling w/Dehum	Unoccupied		X				X	X	X						X	
Y1, G, B/W1	1st Heat Pump	Unoccupied		X	X				X	X	X					X	
Y1, G, B/W1, A	1st Heat Pump	Occupied		X	X		X		X	X	X					X	X
Y1, G, B/W1, A, D	1st Heat Pump w/Dehum	Occupied		X	X		X	X	X	X	X			X	X	X	X
Y1, G, B/W1, D	1st Heat Pump w/Dehum	Unoccupied		X	X				X	X	X					X	
Y1, G, B/W1, W2	2nd Heat Pump w/Strips	Unoccupied		X	X	X			X	X	X				X	X	
Y1, G, B/W1, W2, A	2nd Heat Pump w/Strips	Occupied		X	X	X	X		X	X	X				X	X	X
Y1, G, B/W1, W2, A, D	2nd Heat Pump w/Strips and Dehum	Occupied		X	X	X	X	X	X	X	X				X	X	X
Y1, G, B/W1, W2, D	2nd Heat Pump w/Strips and Dehum	Unoccupied		X	X	X	X		X	X	X				X	X	
D	Dehum	Unoccupied													X		
D, A	Dehum	Occupied					X	X	X	X	X				X	X	X

Electrical Specifications – Dehumidification Models

MODEL	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Dual Circuit							
			① Minimum Circuit Ampacity	② Maximum External Fuse or Ckt. Brkr.	③ Field Power Wire Size	④ Ground Wire	① Minimum Circuit Ampacity		② Maximum External Fuse or Ckt. Breaker		③ Field Power Wire Size		④ Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
W24HADA00, AOZ A04 A08	230/208-1	1	21	30	10	10								
		1	42	45	8	10								
		1 or 2	62	70	6	8	42	25	45	25	8	10	10	10
W24HADB00, BOZ B06	230/208-3	1	15	20	12	12								
		1	33	35	8	10								
W24HADC00, COZ C06	460-3	1	9	15	14	14								
		1	18	20	12	12								
W30HADA00, AOZ A05 A10	230/208-1	1	25	35	8	10								
		1	51	60	6	10								
		1 or 2	77	80	4	8	51	26	60	30	6	10	10	10
W30HADB00, BOZ B06 B09	230/208-3	1	18	25	10	10								
		1	36	40	8	10								
		1	45	50	8	10								
W30HADC00, COZ C06 C09	460-3	1	11	15	14	14								
		1	20	20	12	12								
		1	24	25	10	10								
W36HADA00, AOZ A05 A10	230/208-1	1	29	40	8	10								
		1	55	60	6	10								
		1 or 2	81	90	4	8	55	26	60	30	6	10	10	10
W36HADB00, BOZ B06 B09	230/208-3	1	23	30	10	10								
		1	41	50	8	10								
		1	51	60	6	10								
W36HADC00, COZ C06 C09	460-3	1	11	15	14	14								
		1	20	25	10	10								
		1	24	25	10	10								
W42HADA00, AOZ A05 A10	230/208-1	1	31	45	8	10								
		1	57	60	6	10								
		1 or 2	83	90	4	8	31	52	45	60	8	6	10	10
W42HADB00, BOZ B06 B09	230/208-3	1	26	35	8	10								
		1	44	50	8	10								
		1	53	60	6	10								
W42HADC00, COZ C06 C09	460-3	1	12	15	14	14								
		1	21	25	10	10								
		1	26	30	10	10								
W48HADA00, AOZ A05 A10	230/208-1	1	38	50	8	10								
		1 or 2	64	80	6	8	38	26	50	30	8	10	10	10
		1 or 2	90	100	3	8	38	52	50	60	8	6	10	10
W48HADB00, BOZ B06 B09	230/208-3	1	27	40	8	10								
		1	45	50	8	10								
		1	54	60	6	10								
W48HADC00, COZ C06 C09	460-3	1	13	15	14	14								
		1	22	25	10	10								
		1	27	30	10	10								
W60HADA00, AOZ A05 A10	230/208-1	1	47	60	8	10								
		1 or 2	73	90	4	8	47	26	60	30	8	10	10	10
		1 or 2	99	110	3	6	47	52	60	60	8	6	10	10
W60HADB00, BOZ B09	230/208-3	1	33	40	8	10								
		1	60	60	6	10								
W60HADC00, COZ C09	460-3	1	17	25	10	10								
		1	30	35	8	10								

① 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.

② Maximum size of the time delay fuse or circuit breaker for protection of field wiring conductors.

③ Based on 75°C copper wire. All wiring must conform to the National Electrical Code and all local codes.

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.