
Dehumidification Performance Data

Models

| | | | | | |
|---------|---------|---------|---------|---------|---------|
| W24G3DA | W30G3DA | W36G3DA | W42G3DA | W48G3DA | W60G3DA |
| W24G3DB | W30G3DB | W36G3DB | W42G3DB | W48G3DB | W60G3DB |
| W24G3DC | W30G3DC | W36G3DC | W42G3DC | W48G3DC | W60G3DC |

This model provides a unique dehumidification circuit for periods of high indoor humidity conditions. Additionally, an “energy recovery ventilator” may be provided to allow for outside ventilation air requirements by eliminating excessive sensible and latent loads as a result of the increased ventilation requirement.

Refer to Specification Sheet S3500 for the standard features of the base unit. Electrical data for the dehumidification models is identical to the electrical data for the standard W**G models.

Dehumidification Circuit

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

The dehumidification refrigerant reheat circuit is controlled by a 3-way 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 3-way 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. A drain back orifice inserted

between the reheat coil return line and suction line will prevent liquid from accumulating in the reheat coil when it is inactive. This drain does not affect the normal operation of the system. A check valve is located in the reheat coil return line. It has a soft spring to hold the ball on the seat. This will make the method of checking the ball freedom with a magnet difficult. Refer to Page 2 for the location of the check valve and drain back orifice. 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.

Sequence of Dehumidification Operation

Dehumidification is controlled through a humidistat and is independent of temperature control. On a call for dehumidification mode of operation, the compressor and 3-way valve of the unit are energized through circuit R – 3 to provide dehumidification. Dehumidification will continue until the humidistat is satisfied.

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

Any time there is a call for heating mode of operation through circuit R – W2, the dehumidification mode will cancel and the system will return to heating operation.

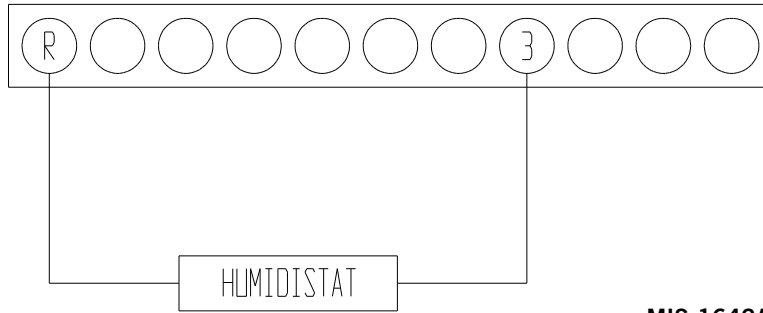
The indoor coil is equipped with a “freeze stat”. When the sensed indoor coil temperature falls below 27°, the compressor will be de-energized. Restart is dependent of the freeze stat reaching 50° to reset, and the time-out on the compressor control module.



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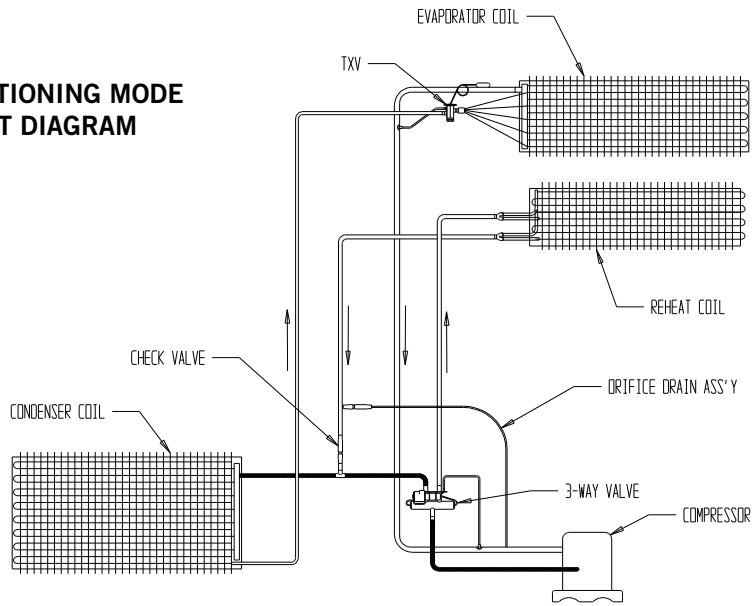
Manual: 7960-722A
Supersedes: 7960-722
Date: 4-18-16

UNIT 24V TERMINAL BLOCK



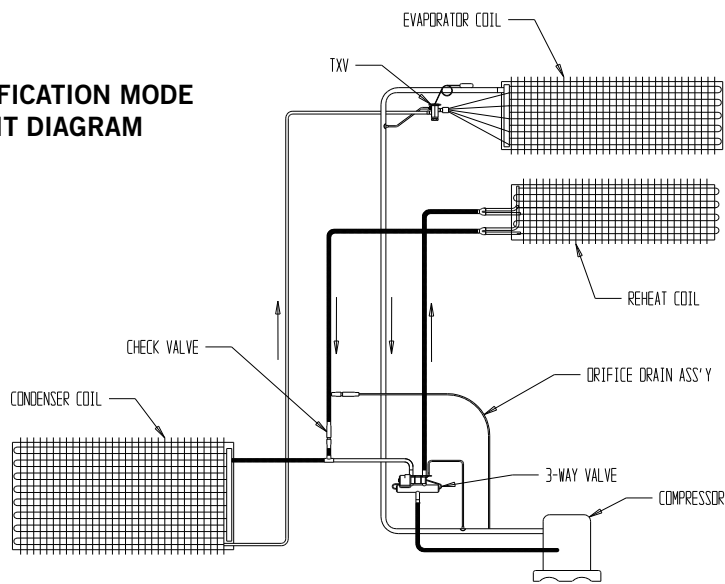
MIS-1642A

**AIR CONDITIONING MODE
CIRCUIT DIAGRAM**



MIS-1200A

**DEHUMIDIFICATION MODE
CIRCUIT DIAGRAM**



MIS-1199A

| W24G3D 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 | 27,900 | 11,900 | 16,000 | .43 | 15.1 | 800 | 51.6 / 51.1 | A/C |
| 65/63 | 90 | 65 | -0- | (800) | 13,050 | -0- | 12.3 | 800 | 66.0 / 58.2 | Dehum |
| 75/62.5 | 50 | 75 | 28,750 | 19,750 | 7,000 | .69 | 6.6 | 800 | 52.5 / 50.8 | A/C |
| 75/62.5 | 50 | 75 | 9,650 | 3,700 | 5,950 | .38 | 5.6 | 800 | 70.8 / 58.5 | Dehum |
| 75/65.5 | 60 | 75 | 28,550 | 17,550 | 11,000 | .62 | 10.4 | 800 | 54.9 / 53.7 | A/C |
| 75/65.5 | 60 | 75 | 10,950 | 2,000 | 8,950 | .18 | 8.5 | 800 | 72.9 / 61.3 | Dehum |
| 75/68 | 70 | 75 | 29,650 | 15,450 | 14,200 | .52 | 13.4 | 800 | 57.4 / 56.5 | A/C |
| 75/68 | 70 | 75 | 11,850 | 350 | 11,500 | .03 | 10.8 | 800 | 74.7 / 63.8 | Dehum |
| 80/67 | 50 | 95 | 26,000 | 18,900 | 7,100 | .73 | 6.7 | 800 | 58.8 / 56.8 | A/C |
| 80/67 | 50 | 95 | -0- | (2,500) | 6,000 | -0- | 5.7 | 800 | 82.9 / 65.8 | Dehum |

| W30G3D 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 | 35,650 | 15,550 | 20,100 | .43 | 19.0 | 1000 | 51.1 / 50.8 | A/C |
| 65/63 | 90 | 65 | -0- | (950) | 16,200 | -0- | 15.3 | 1000 | 65.9 / 58.1 | Dehum |
| 75/62.5 | 50 | 75 | 33,050 | 25,300 | 7,750 | .76 | 7.3 | 1000 | 52.1 / 50.9 | A/C |
| 75/62.5 | 50 | 75 | 10,300 | 4,200 | 6,100 | .41 | 5.8 | 1000 | 71.1 / 59.2 | Dehum |
| 75/65.5 | 60 | 75 | 34,950 | 22,200 | 12,750 | .64 | 12.0 | 1000 | 54.8 / 53.9 | A/C |
| 75/65.5 | 60 | 75 | 11,900 | 2,450 | 9,450 | .21 | 8.9 | 1000 | 72.8 / 61.8 | Dehum |
| 75/68 | 70 | 75 | 36,400 | 19,550 | 16,850 | .54 | 15.9 | 1000 | 57.2 / 56.5 | A/C |
| 75/68 | 70 | 75 | 13,300 | 700 | 12,600 | .05 | 11.9 | 1000 | 74.3 / 64.1 | Dehum |
| 80/67 | 50 | 95 | 32,000 | 24,350 | 7,650 | .76 | 7.2 | 1000 | 58.0 / 56.8 | A/C |
| 80/67 | 50 | 95 | -0- | (2,200) | 6,350 | -0- | 6.0 | 1000 | 82.1 / 65.8 | Dehum |

| W36G3D 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 | 35,050 | 15,350 | 19,700 | .44 | 18.6 | 1100 | 52.1 / 52.1 | A/C |
| 65/63 | 90 | 65 | 11,600 | (2,450) | 14,050 | -0- | 13.3 | 1100 | 67.2 / 59.8 | Dehum |
| 75/62.5 | 50 | 75 | 33,800 | 26,250 | 7,550 | .78 | 7.1 | 1100 | 53.7 / 51.9 | A/C |
| 75/62.5 | 50 | 75 | 7,150 | 1,500 | 5,650 | .21 | 5.3 | 1100 | 73.9 / 62.5 | Dehum |
| 75/65.5 | 60 | 75 | 34,900 | 22,550 | 12,350 | .65 | 11.6 | 1100 | 56.6 / 55.3 | A/C |
| 75/65.5 | 60 | 75 | 8,850 | (100) | 8,950 | -0- | 8.5 | 1100 | 75.2 / 65.6 | Dehum |
| 75/68 | 70 | 75 | 36,100 | 19,600 | 16,500 | .54 | 15.5 | 1100 | 58.8 / 58.0 | A/C |
| 75/68 | 70 | 75 | 10,250 | (1,350) | 11,600 | -0- | 11.0 | 1100 | 76.2 / 65.3 | Dehum |
| 80/67 | 50 | 95 | 34,500 | 26,600 | 7,900 | .77 | 7.5 | 1100 | 57.9 / 57.1 | A/C |
| 80/67 | 50 | 95 | 300 | (5,500) | 5,800 | -0- | 5.5 | 1100 | 84.7 / 67.0 | Dehum |

| W42G3D 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 | 46,800 | 20,700 | 26,100 | .44 | 24.6 | 1400 | 52.0 / 51.6 | A/C |
| 65/63 | 90 | 65 | 23,450 | (900) | 24,350 | -0- | 23.0 | 1400 | 65.6 / 57.4 | Dehum |
| 75/62.5 | 50 | 75 | 44,050 | 34,700 | 9,350 | .79 | 8.8 | 1400 | 52.6 / 51.6 | A/C |
| 75/62.5 | 50 | 75 | 17,650 | 9,750 | 7,900 | .55 | 7.5 | 1400 | 68.8 / 58.5 | Dehum |
| 75/65.5 | 60 | 75 | 46,500 | 30,350 | 16,150 | .65 | 15.2 | 1400 | 55.5 / 54.8 | A/C |
| 75/65.5 | 60 | 75 | 20,550 | 6,200 | 14,350 | .30 | 13.5 | 1400 | 71.2 / 61.1 | Dehum |
| 75/68 | 70 | 75 | 49,000 | 26,850 | 22,150 | .55 | 20.9 | 1400 | 58.0 / 57.3 | A/C |
| 75/68 | 70 | 75 | 23,100 | 3,150 | 19,950 | .14 | 18.8 | 1400 | 73.3 / 63.3 | Dehum |
| 80/67 | 50 | 95 | 42,000 | 32,400 | 9,600 | .77 | 9.1 | 1400 | 58.8 / 57.5 | A/C |
| 80/67 | 50 | 95 | 9,700 | 1,800 | 7,900 | .18 | 7.5 | 1400 | 79.0 / 65.1 | Dehum |

| W48G3D 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 | 52,550 | 22,300 | 30,250 | .42 | 28.6 | 1450 | 51.0 / 50.7 | A/C |
| 65/63 | 90 | 65 | 24,350 | (2,050) | 26,400 | -0- | 24.9 | 1450 | 66.3 / 57.8 | Dehum |
| 75/62.5 | 50 | 75 | 50,200 | 38,600 | 11,600 | .77 | 11.0 | 1450 | 50.8 / 50.3 | A/C |
| 75/62.5 | 50 | 75 | 17,800 | 8,300 | 9,500 | .46 | 9.0 | 1450 | 69.0 / 58.6 | Dehum |
| 75/65.5 | 60 | 75 | 52,750 | 33,350 | 19,400 | .63 | 18.3 | 1450 | 54.1 / 53.6 | A/C |
| 75/65.5 | 60 | 75 | 20,650 | 5,250 | 15,400 | .26 | 14.5 | 1450 | 71.6 / 61.3 | Dehum |
| 75/68 | 70 | 75 | 55,600 | 29,200 | 26,400 | .53 | 24.9 | 1450 | 56.7 / 56.3 | A/C |
| 75/68 | 70 | 75 | 23,050 | 1,650 | 21,400 | .07 | 20.2 | 1450 | 73.9 / 63.6 | Dehum |
| 80/67 | 50 | 95 | 48,000 | 36,400 | 11,600 | .76 | 10.9 | 1450 | 57.1 / 56.5 | A/C |
| 80/67 | 50 | 95 | 7,200 | 150 | 7,050 | .02 | 6.6 | 1450 | 79.9 / 65.6 | Dehum |

| W60G3D 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 | 63,400 | 28,150 | 35,250 | .44 | 33.3 | 1650 | 49.9 / 49.7 | A/C |
| 65/63 | 90 | 65 | 31,250 | 1,550 | 29,700 | .05 | 28.0 | 1650 | 66.3 / 57.0 | Dehum |
| 75/62.5 | 50 | 75 | 60,100 | 44,400 | 15,700 | .74 | 14.8 | 1650 | 50.8 / 49.6 | A/C |
| 75/62.5 | 50 | 75 | 24,200 | 10,100 | 14,100 | .42 | 13.3 | 1650 | 69.6 / 57.8 | Dehum |
| 75/65.5 | 60 | 75 | 63,600 | 39,400 | 24,200 | .62 | 22.8 | 1650 | 53.7 / 52.8 | A/C |
| 75/65.5 | 60 | 75 | 27,700 | 5,950 | 21,750 | .21 | 20.5 | 1650 | 72.1 / 60.5 | Dehum |
| 75/68 | 70 | 75 | 66,400 | 35,150 | 31,250 | .53 | 29.5 | 1650 | 56.2 / 55.6 | A/C |
| 75/68 | 70 | 75 | 30,650 | 2,300 | 28,350 | .08 | 26.7 | 1650 | 74.2 / 62.7 | Dehum |
| 80/67 | 50 | 95 | 57,000 | 41,700 | 15,300 | .73 | 14.4 | 1650 | 57.3 / 56.0 | A/C |
| 80/67 | 50 | 95 | 13,950 | 100 | 13,850 | .01 | 13.1 | 1650 | 80.2 / 64.6 | Dehum |