Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: **17-517 -EL-EEC**

Mercantile Customer: **General Printing Inc. Div. of Sun Chemical Corp.**

Electric Utility: **Duke Energy**

Program Title or Description: **VFD HVAC Fan**

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. 10-834-EL-POR

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at ee-pdr@puc.state.oh.us.

Section 1: Mercantile Customer Information

Name: **General Printing**

Principal address: **12049 Centron Place**
Cincinnati, OH 45034

Address of facility for which this energy efficiency program applies:

Same

Name and telephone number for responses to questions:

Robin Avant, (513) 287-5948

Electricity use by the customer (check the box(es) that apply):

- ✓ The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- □ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

Section 2: Application Information

A) The customer is filing this application (choose which applies):

- □ Individually, without electric utility participation.
- ✓ **Jointly with the electric utility.**

B) The electric utility is: **Duke Energy**

C) The customer is offering to commit (check any that apply):

- □ Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
- □ Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
- ✓ **Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)**

Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

□ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)).

✓ Installation of new equipment to replace equipment that needed to be replaced The customer installed new equipment on the following date(s): **August 2014**

□ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s): _____.

□ Behavioral or operational improvement.

B) Energy savings achieved/to be achieved by the energy efficiency program:

1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) – (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: **16214 kWh**

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment.

3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: **XXXXX kWh (See Attachment 1 - Appendix 2)**

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment.

4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

Annual savings: **XXXXX kWh (See Attachment 1 - Appendix 2)**

Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- ✓ **Coincident peak-demand savings from the customer's energy efficiency program.**
- □ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- □ Potential peak-demand reduction (check the one that applies):
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

Month(s) and Year(s)

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

1.12 KW (See Attachment 1 - Appendix 2)

Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

✓ **Option 1: A cash rebate reasonable arrangement.**

OR

□ Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

□ Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

✓ A cash rebate of **$750.00 (See Attachment 1 - Appendix 3).**

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

□ An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for ____ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

□ A commitment payment valued at no more than $_____. (Attach documentation and calculations showing how this payment amount was determined.)

OR

□ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

□ Total Resource Cost (TRC) Test. The calculated TRC value is: _____ (Continue to Subsection 1, then skip Subsection 2)

✓ Utility Cost Test (UCT). The calculated UCT value is **9.61 (See Attachment 1 - Appendix 4)**

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **$15133 (See Attachment 1 - Appendix 5).**

The utility's program costs were **$824(See Attachment 1 - Appendix 6).**

The utility's incentive costs/rebate costs were **$750 (See Attachment 1 - Appendix 3)**.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.

A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:

1) any confidentiality requirements associated with the agreement;
2) a description of any consequences of noncompliance with the terms of the commitment;
3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

Refer to Offer Letter following this application

A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.

Appendix 1 – Electric History

21800207 20
GENERAL PRINTING INC
12049 CENTRON PL
CINCINNATI, OH 45246

Date	Days	Actual KWH	Bill KWH	Actual Demand	Bill Demand	Net Charge	KWH/Day	KVAR	Power Factor	Load Factor	Cost Per Day
9/25/2015	30	40,887	40,887	163.8		1,804.49	1,362.90	70.4	86.1	34.7	60.15
8/26/2015	29	37,992	37,992	169.4		1,891.74	1,310.10	71.7	86.8	32.2	65.23
7/28/2015	32	41,090	41,090	167.4		1,847.57	1,284.10	60.2	90	32	57.74
6/26/2015	29	39,618	39,618	160.99		1,751.61	1,366.10	93.4	78.3	35.4	60.4
5/28/2015	30	37,136	37,136	154.6		1,841.56	1,237.90	79.4	81.4	33.4	61.39
4/28/2015	32	34,327	34,327	145.3	148.75	1,762.63	1,072.70	61.4	86	30.8	55.08
3/27/2015	29	34,538	34,538	144.2	148.75	1,792.95	1,191.00	65.3	83.4	34.4	61.83
2/26/2015	29	38,012	38,012	151.2		1,785.38	1,310.80	69.1	82.9	36.1	61.56
1/28/2015	30	37,969	37,969	151.7		2,110.94	1,265.60	58.9	87	34.8	70.36
12/29/2014	35	41,860	41,860	149.4		1,949.37	1,196.00	81.9	79.2	33.4	55.7
11/24/2014	31	38,508	38,508	147.7	148.75	1,975.57	1,242.20	46.1	91.4	35	63.73
10/24/2014	29	35,276	35,276	153.4		2,084.39	1,216.40	88.3	78.7	33	71.88
9/25/2014	30	43,978	43,978	166.6		2,151.75	1,465.90	83.2	83.1	36.7	71.73
8/26/2014	29	45,094	45,094	174.4		2,261.68	1,555.00	85.8	83.1	37.2	77.99
7/28/2014	32	45,654	45,654	169.9		2,184.19	1,426.70	87	82.4	35	68.26
6/26/2014	29	43,981	43,981	175		2,265.67	1,516.60	71.7	87.9	36.1	78.13
5/28/2014	30	40,500	40,500	165.3		2,173.08	1,350.00	102.4	76.8	34	72.44
4/28/2014	32	37,229	37,229	139.2	147.56	1,919.25	1,163.40	75.5	78.6	34.8	59.98
3/27/2014	29	38,920	38,920	145.8	147.56	1,891.95	1,342.10	98.6	70.7	38.4	65.24
2/26/2014	29	40,179	40,179	158.6		2,051.35	1,385.50	80.6	81	36.4	70.74
1/28/2014	32	40,928	40,928	142.7	147.56	1,866.93	1,279.00	58.9	84.9	37.3	58.34
12/27/2013	32	39,630	39,630	145.4	147.56	1,833.89	1,238.40	70.4	81.7	35.5	57.31
11/25/2013	32	39,771	39,771	155.4		1,956.28	1,242.80	66.6	85.8	33.3	61.13
10/24/2013	29	38,829	38,829	161		2,057.99	1,338.90	88.3	80	34.7	70.97
9/25/2013	30	41,750	41,750	168.8		2,114.70	1,391.70	83.2	82.5	34.4	70.49
8/26/2013	31	39,069	39,069	173.6		2,226.07	1,260.30	92.2	81.2	30.2	71.81

Appendix 2 – Annual kWh and kW savings

Measure	Measure Quantity	Unit of Measure	Annual kWh Gross with losses (Per Unit)	TOTAL Annual kWh Gross with losses	Saved Summer coincident kW with losses (Per Unit)	Total KW Gross with losses
VFD HVAC Fan	15	per fan hp	16214	243207	0.07	1.12

Appendix 3 – Cash Rebate

Measure	Amount
SelfDirect VFD HVAC Fan	$ 750.00

Appendix 4 – Utility Cost Test

Measure	UCT
SelfDirect VFD HVAC Fan	9.61

Appendix 5 – Avoided Supply Costs

Measure	T&D	Production	Capacity	Quantity	Total Avoided Costs
SelfDirect VFD HVAC Fan	$1,200.47	$12,911.09	$1,021.22	15	$ 15,132.77
					$ 15,132.77

Appendix 6 – Utility Program Costs

Measure	Qty	Total Costs
SelfDirect VFD HVAC Fan	15	$ 823.89
		$ 823.89

DUKE ENERGY®

Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to SelfDirect@Duke-Energy.com. You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually or having an account in multiple locations are eligible for the Mercantile Self Direct program. Indicate which applies:

- ☐ a single Duke Energy Ohio account with 700,000 kWh annual usage
- ☐ an account with multiple locations

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
21800207204	700000		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart $aver® Custom Incentive. Self Direct rebates are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program rules allow for, though do not require, certain projects that are Prescriptive in nature under the Smart $aver program to be evaluated using the Custom process in the Self Direct program. Use the list on page two as a guide to determine which Self Direct program best fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet.

Self Direct Program rules also allow for behaviorally based and/or no cost and low cost projects to receive rebates.

Please check each box to indicate completion/inclusion of the following program requirements:

☑ All sections of appropriate application(s) are completed	☑ Proof of payment.*	☑ Manufacturer's Spec sheets	☐ Energy model/calculations and detailed inputs for Custom applications

*If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

**Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application. Rebates for such projects may be small in magnitude.

Application Type	Prescriptive Measures with Optional Custom Processing	
Heating & Cooling and Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	☐ Energy Star Window/Sleeve/Room AC ☐ Central Air Unit	☐ Air Source Heat Pump Water Heater
	☐ Setback/Programmable Thermostat ☐ Guestroom Energy Management Control	☐ Window Film
Chillers & Thermal Storage	☐ Air Cooled Chiller	☐ Water Cooled Chiller
Motors, Pumps and Variable Frequency Drives (VFDs)	☐ VFD – Applied to Process Pump ☐ VFD – Applied to HVAC Pump	☑ VFD – applied to HVAC Fan
Food Service	☐ ENERGY STAR Hot Food Holding Cabinet ☐ Night Covers for Display ☐ ECM Cooler, Freezer, and Display Case Motors ☐ ENERGY STAR Solid or Glass Door Reach-in Freezer or Refrigerator	☐ Anti-Sweat Heater Control ☐ Cooking Equipment ☐ ENERGY STAR ICE MACHINE
Process Equipment	☐ Engineered Nozzle – COMPRESSED AIR ☐ Air compressor equipped with VFD	☐ Pellet Dryer Duct Insulation
Chiller Tune-ups	☐ Air cooled chiller tune-up	☐ Water cooled chiller tune-up

Please indicate above any Prescriptive energy conservation measures to be evaluated through the Custom process. Only Prescriptive measures listed above are eligible for this option. To receive a Self Direct Custom rebate, a detailed analysis of pre-project and post-project energy usage and project costs must be included in the application.

Although some Self Direct Prescriptive measures are eligible for evaluation through Custom processes, such an approach may not be most effective for certain measures.

DUKE ENERGY®

MERCANTILE SELF DIRECT Ohio Premium Motor/Pump/VFD Rebate Application

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.
Email the complete, signed application with all required documents to SelfDirect@duke-energy.com or fax to 513-629-5572.

Is this application: ☑ **NEW** (original) or ☐ **REVISED** (changes made to original application)

Building Type – Required (check one)		
☐ Data Centers	☐ Full Service Restaurant	☐ Office
☐ Education/K-12	☐ Healthcare	☐ Public Assembly
☐ Education Other	☑ Industrial	☐ Public Order/Safety
☐ Elder Care/Nursing Home	☐ Lodging	☐ Religious Worship/Church
☐ Food Sales/Grocery	☐ Retail (Small Box)	☐ Service
☐ Fast Food Restaurant	☐ Retail (Big Box)	☐ Warehouse
☐ Other:		
How did you hear about the program? (check one)		
☐ Duke Energy Representative	☐ Web Site	☐ Radio
☐ Contractor / Vendor	☐ Other _____	

Please check each box to indicate completion of the following program requirements:

☑ All sections of application	☑ Invoice with make, model number, quantity and equipment manufacturer	☑ Tax ID number for payee ☑ W-9 for payee	☑ Customer/vendor agree to Terms and Conditions

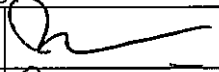
Customer Information					
Customer/Business	Sun Chemical Corporation	Contact		Bill Loveland	
Phone	480-346-5833	**Account Number**		21800207204	
Street Address (Where rebate should be mailed)		20830 N Tatum #330			
City	Phoenix	State	AZ	Zip Code	85050
Installation Street Address	12049 CENTRON PLACE				
City	Cincinnati	State	OH	Zip Code	45246
E-mail Address	bill.loveland@ems.schneider-electric.com				

Failure to provide the account number associated with the location where the installation took place will result in rejection of the application.

Vendor Information					
Vendor	Air Energy Systems	Contact			
Phone		Fax			
Street Address					
City		State		Zip Code	
E-mail Address					

If Duke Energy has questions about this application, who should we contact? ☑ **Customer** ☐ **Vendor**

Payment Information		
Who should receive rebate payment?	☑ Customer	☐ Vendor (Customer must sign below)
I hereby authorize payment of rebate directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	22-761297
	Vendor Tax ID #	

Terms and Conditions			
I have read and hereby agree to the Terms & Conditions and Program Requirements.			
Customer Signature (written signature)		Vendor Signature (written signature)	
Date	8-10-15	Date	
Title	Rebate Analyst	Title	

Rebates are subject to change and may be discontinued at the sole discretion of Duke Energy. Equipment must be installed and operable to be eligible for rebates. As Federal Energy Policy Law changes, equipment efficiency requirements are subject to change.

DUKE ENERGY®

The Equipment below is (check one): ☐ Retrofit
☐ Replacement of failed equipment or new construction is not eligible for rebates.

Variable Frequency Drives (VFDs) – Applied to HVAC Fans Only (Retrofit Application only)

VFD HVAC Applications (please check one):

☐ Supply Fan ☐ Cooling Tower Fan ☐ Return Fan

☐ Exhaust Fan

VFD**	Make/Model or Catalog #	Quantity	Rebate***	Annual Operating Hrs (Minimum of 2000)	Project Cost	Date Installed and Operable (mm/yy)	Total Rebate
1.5 HP			$50.00/HP	Hrs			
2 HP			$50.00/HP	Hrs			
3 HP			$50.00/HP	Hrs			
5 HP			$50.00/HP	Hrs			
7.5 HP			$50.00/HP	Hrs			
10 HP			$50.00/HP	Hrs			
15 HP	ACH 550	1	$50.00/HP	Hrs	5368	8/29/14	750.00
20 HP			$50.00/HP	Hrs			
25 HP			$50.00/HP	Hrs			
30 HP			$50.00/HP	Hrs			
40 HP			$50.00/HP	Hrs			
50 HP			$50.00/HP	Hrs			

*** Retrofit only – rebates are only available for new VFDs installed on existing HVAC fan systems.**
****VFDs over 50 HP and VFD's on new equipment are not eligible for prescriptive rebates, but may qualify through the custom program.**
*****Rebates are capped at 50% of project cost (equipment and external labor).**

- Installed equipment must be new. Used, rebuilt or rewound equipment is ***not*** eligible.
- Variable Frequency Drive Fans & Pumps qualifying equipment must have 2000 annual run hours or more.
- A 3% impedance reactor on the AC input to the VSD is recommended to prevent damage to the VSD due to overvoltage from power factor correction and should be properly sized by your supplier. A 5% reactor may be recommended if there is additional harmonic distortion on the AC input lines due to other plant-specific causes.
- VFDs on new equipment do not qualify under this program; but may qualify through the custom program. Please refer to the Custom website for guidance. Rebates will be paid for the installation of ***NEW*** VFDs on existing fan/pump systems and process equipment only.
- Replacement of existing VFDs does not qualify for rebates.
- VFDs installed on redundant pumps do not qualify.
- VFDs installed in newly constructed facilities do not qualify for rebates.
- VFD speed must be automatically controlled by differential pressure, flow, temperature, or other variable signal.
- Existing throttling devices including inlet vanes, bypass dampers, and throttling valves must be removed or permanently disabled.
- Incentives are capped at 50% of project cost (equipment and external labor).

AIR ENERGY SYSTEMS

Wednesday, March 05, 2014 **Job #: 1969114**

To:
BILL MAHER
AIR ENERGY SYSTEMS
4790 WEST 73RD STREET
INDIANAPOLIS, IN 46268
Phone: (317) 290-8500
Fax: (317) 290-1900
aes8500@sbcglobal.net

From:
RUPP Air Systems
17645 JUNIPER PATH
SUITE #150
LAKEVILLE, MN 55044
Local: (952) 435-0870
Toll Free: (800) 291-2452
Fax: (919) 227-5959
reg95@ruppams.com

Ship-To:
INDIANAPOLIS, IN 46268

RUPP Air Systems proposes to furnish the following equipment. Production of listed items will commence upon receipt of an approved proposal, a purchase order, an approved submittal, and approved credit.

EQUIPMENT

Fan #1 R5-IBT-1600-400-400-400-400-925 - Heater (Option 1)

R5-IBT-1600-400-400-400-400-925 Indirect Bent Tube Gas Fired Heater with 25" Blower, 4 Furnaces, Electronic Full Modulation, Constant 80% Efficiency, and 24:1 Max Turndown for NG, (20:1 Max Turndown for LP). Stainless Steel Burners and Heat Exchangers. Supply Fan handles 13500 CFM @ 0.750" wc ESP, Fan runs at 874 RPM. Heater supplies 1210140 BTUs. 83°F Temperature Rise. [Fuel: Natural Gas] Input: 1512675 BTUs. Supply Motor: 15.000 HP, 3 Phase 460 V, 60Hz, 18.2 FLA, ODP, Premium (E-Plus3) Eff. Side Discharge - Air Flow Right -> Left	x1
- Sloped Filtered Intake for Size #5 Modular Make Up Air unit. 55.81" Wide X 70.05" Long X 51.00" High. Includes 2" MV EZ Kleen Metal Mesh Filter.	x1
- 50-90°F Discharge Temp Control • Remote Panel	x1
- Gas Manifold for IBT 5-4 GM - BTU 0 - 1600001 - 7 in. w.c. - 14 in. w.c., FM Insurance Requirement, BV250-88	x1
- Gas Pressure Gauge, 0-35", 2.5" Diameter, 1/4" Thread Size, 2 Furnace Modules.	x1
- Factory Assembled IBT Condensation Drain Kit for 4 Furnace Units. Required for Winter Design Temp of 0 degrees F and lower. Kit includes drain assembly, mounting screws, zip ties, and heat tape for triple furnace unit. Field piping from unit by others.	x1
- Gas Pressure Gauge, 0 to +10 Inches Wc., 2.5" Diameter, 1/8" Thread Size, Rear Thread, For 4 Furnaces	x1
- Single Point Electrical Connection for all IBT Heaters with 2 modules. QNTY 2 750va Transformers Used. If a Non-DCV Prewire is used on the IBT Heater, the #28, #47, "MA", or "E2" Option Prewire must be selected. Do not provide supply starter in prewire.	x1

- Insulated Blower Housing Size 5 Commercial Modular	x1
- Freezestat With 10' Sensor and Low Temp Light on Remote Panel. Factory set at 35°F and 10 minutes.	x1
- VAV (Variable-Air-Volume) Wiring Package for Commercial Fans with Frequency Drive. Preset Speed or Speed Reference Variable Frequency Drive Input Field Wired	x1
- ESV113N04TXB531 - Variable Frequency Drive - 15 HP Max., 400/480 V, Three Phase, 24.0/21.0 A Max., NEMA 1 Enclosure, (Default is Shipped Loose for Field Installation) PART NEEDS PROGRAMMING	x1
- VFD factory mounted and wired on unit control panel.	x1
- Custom wiring required for job, select when any non standard options (separate pricing) were pre-approved. See line item for description.	x1
- Factory Installed Damper (selected as parts)	x1
- Option 1 Curb CRB52.75x20INS Insulated On Fan # 1 Flat Curb	x1
- Rail RAIL-52.75" x 6" x 20"H On Fan # 1	x1
- Rail RAIL-52.75" x 6" x 20"H On Fan # 1	x1
ACTCOVER ACTUATOR COVER - Used on outdoor Industrial Heaters to protect damper actuators.	x1
AFBUP-S ACTUATOR - AF Series (DCA) Spring Return, 180 in-lb torque. Running time <75 sec. (on/off) & <60 sec (spring), 8.5VA , adjustable end stop 35-95deg; Angle rotation, 1/2" to 1.05" Shaft dia, Visual position indicator, Control direction CW. Direct Replacement for AF120-S.	x1
IND4-27DD External Discharge Damper for size 4 industrial units with 27" blowers, requires AFBUP-S actuator, sold separately.	x1

MUA FAN INFORMATION – Job#1969114

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	CFM	ESP.	RPM	H.P.	ø	VOLT	FLA	WEIGHT (LBS.)	SONES
1	Option 1	RS-IBT-1600-400-400-400-400-925	925	AS-IBT-1600-400-400-400-400	13500	0.750	874	15.000	3	460	18.2	3864	54

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO.	TAG	ACTUAL AIR DENSITY?	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
1	Option 1	NO	1512675	1210140	83 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1	Option 1	1 - Inlet Pressure Gauge, 0-35", 2 Furnace Modules
		1 - Heated Drain System For 4 Furnaces. Drains Flue Condensation From Furnaces. Required For Winter Design Temp of 0 degrees F or Lower.
		1 - Manifold Pressure Gauge, 0 to 10" wc, 4 Furnaces
		1 - Single Point Electrical Connection Double Module. If a Non-DCV Prewire is used on the IBT Heater, the #28, #47, "MA", or "E2" Option Prewire must be selected. Do not provide supply starter in prewire.
		1 - Insulated Blower Section Size 5 Commercial Modular
		1 - Freezestat (10°) with Low Temp Light On Remote Panel
		1 - VAV Package w/Preset or Reference Speeds (VFD Included)
		1 - VFD factory mounted and wired in commercial control vestibule for tempered supply fan.
		1 - Custom schematic required, only use with pre-approval (see line item for description).

FAN ACCESSORIES

FAN UNIT NO.	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	Option 1				YES			

CURB ASSEMBLIES

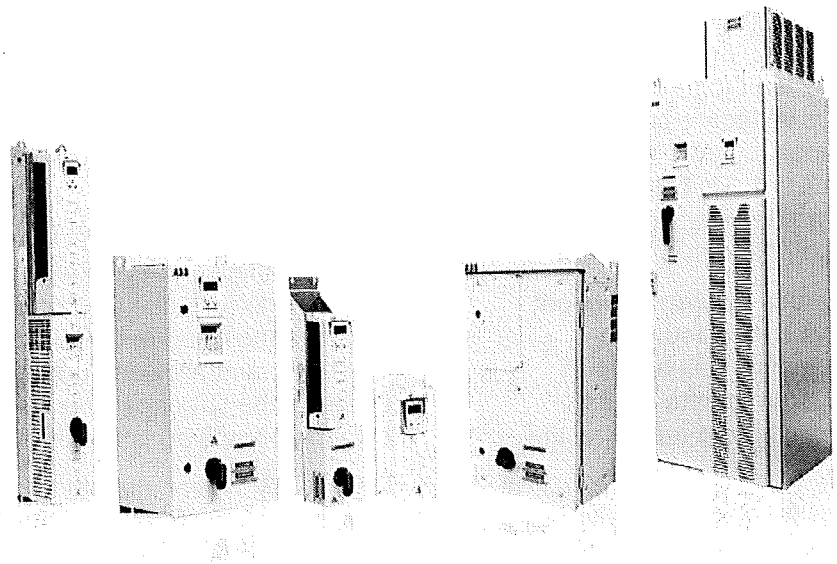
NO.	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	73 LBS	Curb	52.750"W x 52.750"L x 20.000"H Insulated
	# 1		Rail	6.000"W x 52.750"L x 20.000"HAlong Width,
	# 1		Rail	6.000"W x 52.750"L x 20.000"HAlong Width,

RUPP AIR MANAGEMENT SYSTEMS

JOB Quote #1969114	
LOCATION INDIANAPOLIS, IN	
DATE 3/5/2014	JOB # 1969114
DWG # 1	DRAWN BY CB
REV.	SCALE 3/8" = 1'-0"

ACH550

Installation, Operation and Maintenance Manual (I, O & M)
ACH550-UH HVAC Drives (1...550 HP)
ACH550-BCR/BDR/VCR/VDR E-Clipse Bypass Drives (1...400 HP)
ACH550-PCR/PDR Packaged Drives with Disconnect (1...550 HP)

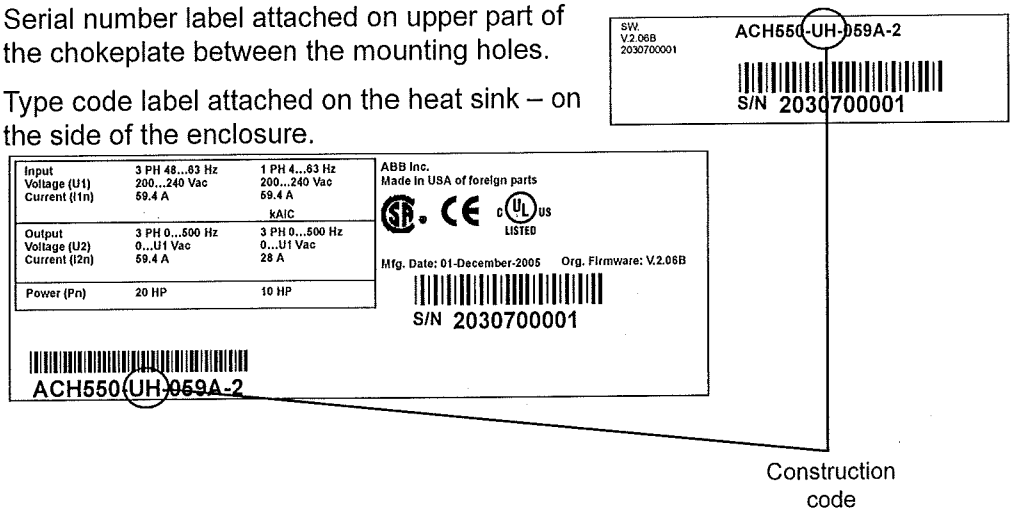


ABB

Contents

This manual is the Operation and Maintenance Manual for the ACH550 Drives. Complete technical details and programming information are available in the *ACH550 User's Manual*, publication number 3AUA0000081823.

1. To determine the type of your drive, refer to its construction code on either:
   - Serial number label attached on upper part of the chokeplate between the mounting holes.
   - Type code label attached on the heat sink – on the side of the enclosure.



2. According to the construction code, proceed to your drive's installation, operation, diagnostics and maintenance information:
   - UH – Below.
   - VCR, VDR, BCR, BDR (E-Clipse Bypass) – page *39*.
   - PCR, PDR (Packaged Drives with Disconnect) – page *79*.

ACH550-UH

Installation

Study these installation instructions carefully before proceeding. **Failure to observe the warnings and instructions may cause a malfunction or personal hazard.**

WARNING! Before you begin read *Safety* on page 2.

Note: Keep a minimum of 50 mm (2") of free space on each side and 200 mm (8") of free space above and below all units from non-heat producing sources. Double these distances from heat producing sources.

- Mounting hardware: screws or nuts and bolts, four each. The type of hardware depends on the mounting surface and the frame size:

Frame Size	Mounting Hardware		Note
R1...R4	M5	#10	
R5	M6	1/4 in	
R6	M8	5/16 in	
R7...R8	M10	7/16	Secures free standing cabinets if required.

- For installations involving frame size R7...R8: Hoist.

WARNING! Before installing the ACH550, ensure the input power supply to the drive is off.

WARNING! Metal shavings or debris in the enclosure can damage electrical equipment and create a hazardous condition. Where parts, such as conduit plates require cutting or drilling, first remove the part. If that is not practical, cover nearby electrical components to protect them from all shavings or debris.

Flange Mounting Instructions

Frame size	IP21 / UL type 1		IP54 / UL type 12	
	Kit	Code (English)	Kit	Code (English)
R1	FMK-A-R1	100000982	FMK-B-R1	100000990
R2	FMK-A-R2	100000984	FMK-B-R2	100000992
R3	FMK-A-R3	100000986	FMK-B-R3	100000994
R4	FMK-A-R4	100000988	FMK-B-R4	100000996
R5	AC8-FLNGMT-R5	ACS800-PNTG01U-EN	-	-
R6	AC8-FLNGMT-R6		-	-

2. Prepare the mounting location

1. Mark the position of the mounting holes.

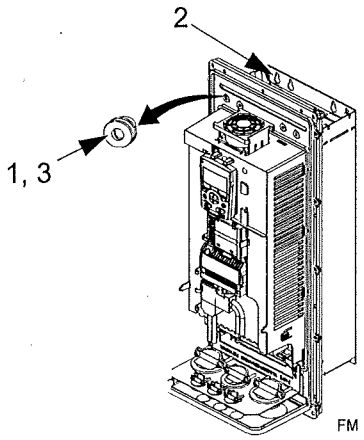
Note: Frame sizes R3 and R4 have four holes along the top. Use only two. If possible, use the two outside holes (to allow room to remove the fan for maintenance).

Note: ACH400 drives can be replaced using the original mounting holes. For R1 and R2 frame sizes, the mounting holes are identical. For R3 and R4 frame sizes, the inside mounting holes on the top of ACH550 drives match ACH400 mounts.

***R1...R6,** UL type 12*

For the UL type 12 enclosures, rubber plugs are required in the holes provided for access to the drive mounting slots.

1. As required for access, remove the rubber plugs. Push plugs out from the back of the drive.
2. R5 & R6: Align the sheet metal hood (not shown) in front of the drive's top mounting holes. (Attach as part of next step.)
3. Position the ACH550 onto the mounting screws or bolts and securely tighten in all four corners.



Note: Lift the ACH550 by its metal chassis (frame size R6 by the lifting holes on both sides at the top).

---

4. Re-install the rubber plugs.
5. Non-English speaking locations: Add a warning sticker in the appropriate language over the existing warning on the top of the module.

R7...R8

1. Use a hoist to move the cabinet into position.

Note: If the cabinet location does not provide access to the cabinet sides, be sure to re-mount side panels before positioning cabinet.

---

2. Install and tighten mounting bolts.

5. Install wiring

WARNING! Ensure the motor is compatible for use with the ACH550. The ACH550 must be installed by a competent person. If in doubt, contact your local ABB sales or service office.

Conduit kit

Wiring R1...R6 drives with the UL type 1 Enclosure requires a conduit kit with the following items:

- conduit box
- screws
- cover

The kit is included with UL type 1 Enclosures.

DUKE ENERGY
Mercantile Self Direct Program
139 East Fourth Street
Cincinnati, OH 45202

April 1, 2016

Sun Chemical
12049 Centron Place
Cincinnati, OH 45246

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Bill Loveland:

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page two, a total rebate of $750.00 has been proposed for your 15 HP Supply Fan project completed in the 2014 calendar year. **All Self Direct Rebates are contingent upon approval by the Public Utilities Commission of Ohio (PUCO).**

At your earliest convenience, please indicate if you accept this rebate by

- providing your signature on page two
- completing the PUCO-required affidavit on page three.

Please return the documents to my attention via fax at 513-629-5572 or e-mail to SelfDirect@Duke-Energy.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

At Duke Energy, we value your business and look forward to working with you on this and future energy efficiency projects. We hope you will consider our Smart $aver® incentives, when applicable. Please contact me if you have any questions.

Sincerely,

Robin Avant
Senior Program Manager
Mercantile Self Direct Rebates

cc: Bob Bandenburg

Please indicate your response to this rebate offer within 30 days of receipt.

☒ Rebate is accepted. ☐ Rebate is declined.

By accepting this rebate, Sun Chemical affirms its intention to commit and integrate the energy efficiency projects listed on the following pages into Duke Energy's peak demand reduction, demand response and/or energy efficiency programs.

Additionally, Sun Chemical also agrees to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by PUCO and to comply with any information and reporting requirements imposed by rule or as part of that approval.

Finally, Sun Chemical affirms that all application information submitted to Duke Energy pursuant to this rebate offer is true and accurate. Information in question would include, but not be limited to, project scope, equipment specifications, equipment operational details, project costs, project completion dates, and the quantity of energy conservation measures installed.

If rebate is accepted, will you use the monies to fund future energy efficiency and/or demand reduction projects?

☒ YES ☐ NO

If rebate is declined, please indicate reason (optional):

	Bill Loveland	9-1-16
Customer Signature	Printed Name	Date

Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	VFD HVAC Supply Fan – ACH 550 - Year 2014 – (Qty. 15 Horse Power)	$750.00
ECM-2		
ECM-3		
ECM-4		
ECM-5		
Total		

Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: ____-____-EL-EEC

State of Arizona : 17-517 -EL-EEC

Bill Loveland, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

   Sun Chemical

   [insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

3. I am aware of fines and penalties which may be imposed under Ohio Revised Code Sections 2921.11, 2921.31, 4903.02, 4903.03, and 4903.99 for submitting false information.

Analyst

Signature of Affiant & Title

Sworn and subscribed before me this 1st day of April, 2016 Month/Year

Barbara R. Zimmerman

Signature of official administering oath

Barbara R. Zimmerman. Notary Public

Print Name and Title

My commission expires on Jan 9, 2019

BARBARA R ZIMMERMAN
Notary Public - Arizona
Maricopa County
My Commission Expires
January 9, 2019

Form **W-9**
(Rev. November 2005)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)
Sun Chemical Corporation

Business name, if different from above

Check appropriate box: ☐ Individual/ Sole proprietor ☑ Corporation ☐ Partnership ☐ Other ▶ ..... ☐ Exempt from backup withholding

Address (number, street, and apt. or suite no.)
35 Waterview Boulevard

Requester's name and address (optional)

City, state, and ZIP code
Parsippany, NJ 07054

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
			–					

or

Employer identification number
2	2	–	2	7	6	1	2	9	7

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)

Sign Here Signature of U.S. person ▶ Raymond V Kerr Date ▶ 12/20/2014

Purpose of Form

A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee.

In 3 above, if applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

For federal tax purposes, you are considered a person if you are:

- An individual who is a citizen or resident of the United States,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States, or
- Any estate (other than a foreign estate) or trust. See Regulations sections 301.7701-6(a) and 7(a) for additional information.

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

2/22/2017 12:49:17 PM

in

Case No(s). 17-0517-EL-EEC

Summary: Application Application to Commit Energy
Efficiency/Peak Demand
Reduction Programs
(Mercantile Customers Only)-General Printing Inc. Div. of Sun Chemical Corp.- VFD HVAC
Fan electronically filed by Carys Cochern on behalf of Duke Energy