STULZ Air Technology Systems, 1572 Tilco Drive Frederick, MD 21704 Tel. 301.620.2033 Fax 301.662.5487 info@stulz-ats.com www.stulz-usa.com

Submittal

Project Name:	P49422 - SUSLA New Backup IT Room
Consulting Engineer:	
Mechanical Contractor:	
STULZ Equipment:	(1) COS-096-AR-U-EC Unit Tag: CRAHU-1 (1) SCS-MC-056-SEC Unit Tag: CRACU-1

Submitted by:	Joshua Roach
Date:	November 01, 2023
Contact Information:	jroach@mechanicalconceptsllc.com
Quote Number:	Q127352

Stulz Air Technology Systems, Inc.
Engineering Submittal Data Sheet

Unit: COS-096-AR-U-EC Qty: 1
Unit Tag: CRAHU-1

DX-Cooling:

Dx-Evaporator Coil Data:

Coil Type :	Aluminum Fin, Copper Tube
Rows :	4
Face Area (ft^2) :	9.75 ft^2

Compressor Data:

Type :	Scroll
Quantity :	1
Watts Input (ea.) :	7805 Watts
Refrigerant type :	R407C

Evaporator Blower Data:

Blower/Fan Type :	Backward Inclined Direct Driven EC
Horsepower :	4.1 hp
Quantity of Fans :	1

Return Air Filter:

Type :	Merv8 2"
Filter 1 Quantity :	2
Filter 1 Width :	31.5 in
Filter 1 Height :	21.38 in

Connection Sizes:

Liquid Line O.D. (in.) :	0.875 in
Hot Gas Line O.D. (in.) :	0.875 in
Condensate Drain O.D. (in.) :	0.5 in
Humidifier Inlet O.D. (in.) :	0.25 in

Electric Heat:

Capacity (kW) :	9 kW
No. of Stages :	1

Humidification:

Capacity (lbs/hr) :	4-15 lb/hr
Input (kW) :	5.1 kW
Std Control :	Modulating

Unit Weight:

Approximate Unit Weight (lb.) :	800 Lb
Unit Height :	76 in
Unit Width :	47.6 in
Unit Depth :	33.6 in

Manufactured By

STULZ Air Technology Systems, Inc.
Frederick, Maryland, USA
www.stulz-usa.com
Cage Code OB716
Tel: (301) 620-2033
Fax: (301) 620-1396

Quote Number: Q127352
Model Number: COS-096-AR-U-EC
Item Number: E_COS-096-D-03-008

Electrical data:
SCCR: 65 kA RMS Symmetrical
Voltage: 208 Phase: 3 Hz: 60
No. Wires: 4 (Including Ground)
MCA: 74.2
Max Fuse/ Ckt. Bkr (HACR type per NEC): 90 A

Evaporator Motor:	HP: 4.6 QTY: 1	FLA: 10.1
Condenser Motor (1):	HP: - QTY: -	FLA: -
Condenser Motor (2):	HP: - QTY: -	FLA: -
Compressor (1/1A):	RLA: 28.8	LRA: 195.0
Compressor (1B):	RLA: -	LRA: -
Compressor (2):	RLA: -	LRA: -

Refrigerant Type: R407C

Heater:	9.0 kW (Nominal)	
Humidifier:	5.1 kW (Nominal)	
Condensate Pump (1):	HP: 1/5	FLA: 2.1
Condensate Pump (2):	HP: -	FLA: -

Coil Performance [D18101] Data

Unit Model :	**COS-096**
Refrigerante :	R-407C
Number of circuits :	1

Evaporator side

Entering Air DB temperature :	72	°F
Entering Air WB temperature :	60.1	°F
Entering Air relative humidity :	50	%
Air volume :	2800	ACFM
External static pressure :	0.5	In H20
Altitude :	100	ft
Coil Face velocity :	287	Ft/min
Unit leaving air DB temperature :	50.8	°F
Unit leaving air WB temperature :	48.1	°F
Coil Air pressure drop :	0.18	In H20

Condenser side

Type of cooling :	Air	
Ambient temperature :	95	°F
Condensing temperature :	125	°F

Capacity

Gross total capacity :	90,350	BTUh
Gross sensible capacity :	68,803	BTUh
Net total capacity :	85,573	BTUh
Net sensible capacity :	64,026	BTUh
Total heat of rejection :	116,984	BTUh

Selected Options

Refrigerant	R407C Refrigerant
Air Pattern	Up Flow (U)
Coil	Coil Select Performance
Air Filtration	2", 30% (MERV 8) Dust Spot Eff.
Air Pattern Options	Top ducted discharge w/ front free return grill
Evaporator Voltage	Evap. power supp. 208-230/3/60
Non-Fused Disconnect - Evaporator Section	Non-Fused Disconnect for Evap. Sect. (Factory installed)
KAIC	65 kAIC Fusing
Blower	Backward Curved Direct Driven Electrically Commuated (EC) composite Fan
Compressor Sound Jacket	Compressor Sound Jacket/Blanket (ships loose)
Unit Color	Black
High Outdoor Ambient	95° F (amb. Design)
Minimum Outdoor Ambient	-20° F (min. temp.)
Condenser Location	Micro-Channel Outdoor Condenser - consult factory for lead times
Flooded Controls Package	External Flooded Controls
Controller	E^2 Controller – GEN2 NON-Touch Screen
Controller Height	Standard Height Controller Display
T/H Sensor Location	Factory-Mounted Return Air Sensor
Digital I/O Dry Contacts	Remote Unit Start/Stop Summary Alarm Dry-Contact Customer Alarm Input 1 Custom Alarm Output 1
Remote BMS Communications	BACnet MS/TP (PCONet Card)
Reheat	Standard 9 kW 1-stage Electric Reheat

SCR Reheat Adder	Std kW SCR (0-10Vdc) Modulating Reheat
Hot Gas Bypass	Snap Acting Hot Gas Bypass
Humidifier	4-15 lb/hr Proportional Steam Humidifier
Condensate Pump	Standard Profile, HT (Factory Installed)
Floor Stands (Black)	24"
Fire Detection	Firestat (N/O Aux contact sold separately) N/O Aux contact for Firestat (Firestat sold separately)
Smoke Detection	Smoke Detector (N/O Aux contact sold separately) N/O Aux contact for Smoke Detector (Smoke Detector sold separately)
Leak Detection	Strip Type - 20 ft N/O Aux contact for Water Detector (Water Detector sold separately)
Start-Up	STULZ Factory Startup
Start-Up Location	Louisiana
Compressor Warranty	Extended Compressor Warranty (Three Additional Years for 5 years total)
Replacement Part Labor Warranty	5-Yr LABOR - Warranty Parts Replacement

Engineering Guide Specification

Unit: COS-096-AR-U-EC

Summary

This specification describes requirements for a precision environmental control system. The CyberOne floor-mounted air conditioning system provides precision temperature and/or humidity control for computer rooms or rooms containing communications or other highly sensitive heat load equipment where continuous 24-hour, 365-days a year air conditioning is required. The units are designed with a wide range of options to handle all precision cooling applications.

Design Requirements

The environmental control system is a CyberOne factory-assembled unit. The unit is designed for corner installation requiring front access through hinged and removable front access panels. No allowance for side service access is required.

Submittals

A submittal shall be provided with the proposal and shall include: Single-line Diagram; Dimensional, electrical, and capacity data; and Piping and electrical connection drawings.

Quality Assurance

The manufacturer shall maintain a set of international standards of quality management to ensure product quality. Prior to shipment each system shall be subject to a complete operational and functional testing based on predefined procedures. The air conditioner manufacturer shall be ISO 9001:2015 certified.

Cabinet

Up-Flow

Access panels are fabricated from 14 gauge galvannealed steel. Door jambs are fabricated from 16 gauge galvannealed steel. Top and bottom cabinet frame is fabricated from 10 gauge galvannealed steel. The panels are lined with 1/2 inch (13 mm), 2 lb (.90 kg), high-density sound and thermal insulation and sealed with a self-extinguishing gasket conforming to NFPA 90A and 90B. The standard unit color is black, extra fine texture. A white finish shall optionally be provided.

Air Flow Patterns

Up-Flow

The air conditioner is configured for an up-flow air pattern with free return air through front filtered grille or ducted rear return air and conditioned supply air discharge through the top of the unit.

Air Filtration

All units are supplied with disposable air filters classified as UL 900 or UL 586. Filters are 2 inches deep (nominal). Filters are pleated with a Minimum Efficiency Reporting Value (MERV) of 8. Filters are installed in a front accessible, steel holding frame, and are accessible through the front of the unit (except for the rear return configuration). Optional: Filters rated up to MERV 11 are available.

Mechanical Components

The blower is a direct driven, single inlet, backward curved centrifugal with an electronically commutated motor for maintenance free operation. The motor shall include:

- Integrated electronic control board and direct microprocessor control signaling for fan speed control
- Soft-starting capabilities
- RS-485 BUS connection
- Integrated current limitations

Each fan is low noise, low vibration manufactured with an anti-corrosive aluminum impeller. Each fan impeller is dynamically and statically balanced in two planes to minimize vibration during operation.

Steam Generating Humidifier

The humidifier is a self-contained atmospheric steam generator. The humidifier assembly shall include an integral fill cup, fill and drain valves, disposable steam cylinder and associated piping. The humidifier is equipped with an auto adaptive control system to optimize water conductivity, control automatic drain/flush cycles, minimize energy waste and maximize cylinder life. The humidifier has a modulating output between 20% and 100% of the rated capacity. The unit shall include draw in water tempering to ensure the drain water does not exceed 140°F during operation.

Dehumidification Cycle

The system is provided with a dehumidification control mode. The chilled water valve is opened to allow chilled water flow when a dehumidification demand exists. Moisture is condensed on the cooling coil and discharged through the condensate drain. Reheat (electric) is provided to offset sensible cooling during the dehumidification cycle.

Electric Heat/Reheat

A factory mounted and wired low-watt density, plated fin-tubular design electric resistance heater is included to provide automatic sensible reheating as required during the dehumidification cycle and automatic heating mode. Electric heaters are provided with miniature thermal/magnetic circuit breakers, which shall protect each ungrounded conductor. Also included will be one automatic reset and one manual reset over-temperature safety device (pilot duty).

Electrical System

The electrical system shall conform to National Electrical Code requirements. The control circuit is 24 volts AC, wire in accordance with NEC Class II requirements. The control circuit wire shall not be smaller than 18 AWG. All wiring is neatly wrapped and routed in bundles. Each wire shall end with a service loop and be securely fastened by an approved method. Each wire in the unit is numbered for ease of service tracing. All electrically actuated components are easily accessible from the front of the unit without reaching over exposed high voltage components or rotating parts. Each high voltage circuit is individually protected by circuit breakers or manual motor starters on all three phases. The blower motor has thermal and short circuit protection. Line voltage and 24-volt control circuit wiring is routed in separate bundles. The electric box is positioned for service convenience and shall include all the contactors, starters, fuses, circuit breakers, terminal boards and control transformer required for operation of the unit and shall allow for full service access.

Main Power Service Switch

The unit is provided with a unit mounted main power service non-fused disconnect switch.

Remote Start/Stop Contacts

Included in the electrical control circuit is a 2-pin terminal connection for remote start/stop of the CyberOne EC air conditioner by remote source.

Air Control

EC Fan Speed Control

The system shall include available fan speed control package. The controller shall permit control of the fan speed from 100% rated air volumetric flow rate to a user define minimum fan speed setting. Minimum and maximum fan speed settings are user adjustable. User configured control sequences are available for fan speed energy savings control.

Microprocessor Controller

The advanced microprocessor-based controller is equipped with flexible software capable of meeting the specific needs of the application. The setpoints are default and their ranges are easily viewed and adjusted from the user interface display. The program and operating parameters are permanently stored on a non-volatile system in the event of power failure. The controller is designed to manage temperature and relative humidity (RH) levels to a user defined setpoint via control output signals to the system. Control parameters have variable outputs from 0 to 100% of the full rated capacity. The controller shall receive inputs for measurable control conditions (temperature, relative humidity, and dew point) via return air or room mounted sensors. The internal logic will then determine if the conditions require cooling, humidification or dehumidification. Control setpoints are established to maintain design conditions of the installation. The controller will respond accordingly to changes in these conditions and control the output/demand for the appropriate mode of operation until user defined conditions are achieved.

Field Configurable

The program for the controller is field configurable, allowing the operator the capability of selecting control setpoints specific to the application. Operator interface for the controller is provided via a door mounted user interface display panel. The display panel has a backlit LCD graphical display and function keys giving the user complete control and monitoring capability of the precision cooling system. The menu driven interface shall provide users the ability to scroll through and enter various menu screens.

Password Protection

Access to the Info Menu, Alarms Log, and the ability to monitor room conditions are allowed without the use of a password. Modifications to the control setpoints requires the use of a password. The controller is programmed to recognize predetermined security levels before allowing access to display screens containing critical variables. Three secured menu levels (Control, Service and Factory) will support unique passwords that must be entered to access the menu screens so only authorized personnel may perform modifications to the settings.

Restorable Parameters/Factory Defaults

Upon initial start-up the system shall operate using the setpoints programmed by the factory. The customer may enter new operating parameters in the Control menu and the system will then operate accordingly. The new setpoints may be stored as, Customer Default Setpoints. The primary setpoints entered by the factory remain stored in memory as, Factory Setpoints. The setpoints for the system may be re-adjusted in the Control menu at any time. If it becomes necessary, the customer may restore the setpoints back to the Customer Default setpoint values or to the original Factory (primary) setpoint values.

Remote BMS Interface

The E^2 series controller shall incorporate a communication interface port that can be field connected to a Building Management System via Modbus, BACnet MS/TP, SNMP, HTTP, or BACnet over ETHERNET/IP as configured by the factory. A controller interfaced to a network must be configured for BMS communication.

Alarms

Alarm conditions shall activate a red LED indicator that backlights the alarm function key. As an option, an alarm condition may also be enunciated by an audible alarm signal. An alarm is acknowledged by pressing the alarm key. This calls up alarm display screens that provides a text message detailing the alarm conditions. After an alarm condition is corrected, the alarm can be cleared by pressing the alarm key.

Large Bezel Display Panel- Touch Screen

The large bezel touch screen user interface display panel features a high-resolution backlit liquid-crystal graphical display equipped with contrast adjustment and LED illuminated function keys. The screens that appear on the user interface display panel present data that is from the controller.

The controller offers an alarm log plus four different interface menu levels to the operator: Information, Control, Service, and Factory. These menus permit the user to easily view, control, and configure operating parameters for the CyberOne EC system.

The timer shall enable set up of an operating schedule to automatically scale back or shut down the air conditioner during low demand or unoccupied periods. This is an energy saving feature that offers the ability to create an operating schedule tailored to the needs of the building.

An evening (night-setback) schedule may also be created to enable the system to operate at night with relaxed temperature/humidity setpoints and offsets.

Adjustable Floor Stand

An adjustable floor stand is provided to allow for ease of installation of the CyberOne EC floor-mounted air conditioning system onto a raised floor environment. Floor stand height is adjustable ship separately for field installation.

Condensate Pump

A condensate pump is factory installed within the CyberOne EC floor-mounted air conditioning system for automatic removal of condensate and humidifier flush water (if applicable). The condensate pump shall include an internal overflow safety float switch, when wired to the remote start/stop terminals, shall open the control circuit, thereby shutting the unit down in the event of a condensate overflow. The condensate pump is specifically designed to operate with the higher condensate temperatures caused by the flush and drain cycle of the electrode canister humidifiers.

Smoke Detection

A photo-electric smoke detector is factory installed and wired in the return air section of the CyberOne EC floor-mounted air conditioning system. The photo-electric detector shall include built-in circuitry that performs a functional test of all detection circuits at least once every 40 seconds without the need for generating smoke. The UL listed velocity range is 0-3000 fpm. The air conditioner will shut down upon sensing smoke in the return air stream.

Firestat

The CyberOne EC floor-mounted air conditioning system is provided with a factory wired and mounted firestat. The firestat will shut down the air conditioner upon sensing a high return air temperature.

Remote Water Detector- Strip Type

A 20 foot remote strip/cable type water/leak detector is provided for remote field installation. In addition to the 20 ft. sensing cable, a 24-volt water detector power module requires field mounting and wiring to the factory provided terminal connection. Upon sensing a water leak, the normally closed water detector control circuit shall open, thereby shutting down the CyberOne floor- mounted air conditioning unitwater producing components.

Code Conformance

The supplied system is with the following compliance approvals: C ETL US listed to UL 1995 (2011 Ed. 4), CSA C22.2 No. 236 (2011 Ed. 4).

Stulz Air Technology Systems, Inc.
Engineering Submittal Data Sheet

Unit: SCS-MC-056-SEC Qty: 1
Unit Tag: CRACU-1

Air Cooled Condenser Data:

Temperature :	@ 95 °F
CFM @ e.s.p (in. w.g) :	9,500 CFM
Total Heat of Rejection :	192 MBH
Noise :	82 dBA
Fan RPM :	1500 rpm
Motor hp :	3.85 (1) hp

Connection Sizes:

Liquid Line O.D. (in.) :	7/8" in
Hot Gas Line O.D. (in.) :	7/8" in

Unit Weight:

Approximate Unit Weight (lb.) :	223 Lb
Unit Height :	37 in
Unit Width :	35.7 in
Unit Depth :	49.3 in
Approximate Shipping Weight :	360 Lb
Shipping Height :	45 in
Shipping Width :	48 in
Shipping Depth :	62 in

Manufactured By

STULZ Air Technology Systems, Inc.
Frederick, Maryland, USA
www.stulz-usa.com
Cage Code OB716
Tel: (301) 620-2033
Fax: (301) 620-1396

Quote Number: Q127352
Model Number: SCS-MC-056-SEC
Item Number: E_MC-3-SEC-03-N

Electrical data:
SCCR: 1 kA RMS Symmetrical
Voltage: 208 Phase: 3 Hz: 60
No. Wires: 4 (Including Ground)
MCA: 11.2
Max Fuse/ Ckt. Bkr (HACR type per NEC): 15 A

Evaporator Motor:	HP: -	FLA: -
	QTY: -	
Condenser Motor (1):	HP: 3.9	FLA: 8.5
	QTY: 1	
Condenser Motor (2):	HP: -	FLA: -
	QTY: 0	
Compressor (1/1A):	RLA: -	LRA: -
Compressor (1B):	RLA: -	LRA: -
Compressor (2):	RLA: -	LRA: -

Refrigerant Type: -

Heater: 0.0 kW (Nominal)
Humidifier: 0.0 kW (Nominal)

Condensate Pump (1):	HP: -	FLA: -
Condensate Pump (2):	HP: -	FLA: -

Selected Options

Refrigerant	R407C Refrigerant
Circuit	Single
Fan Controls	Standard Controls
Condenser Voltage	Cond. power supp. 208-230/3/60
Non-Fused Disconnect	Non-Fused Disconnect for Outdoor Air-Cooled Condenser (Factory Installed)

Engineering Guide Specification

Unit: SCS-MC-056-SEC

Summary

This specification describes requirements for a refrigerant condensing system to be used with a DX-based precision environmental control system. The Micro-Channel Condenser is an outdoor Air Cooled condenser with a direct driven, external rotor-motor integrated in an axial fan(s) unit. The Micro-Channel Condense r is a high efficiency state-of-the-art condenser that provides a high total heat of rejection with reduced weight and a smaller footprint than other condensers. The Micro-Channel Condenser is designed for both single and dual refrigeration circuits.

Design Requirements

The unit shall be designed for outdoor installation with a removable front electric access panel. No allowance for side service access shall be required; however the side and rear are accessible.

Refrigerant

Condensing units shall be designed for use with R-407C or R-410A refrigerant. The system is provided with a dry nitrogen charge and requires field evacuation and refrigerant charging.

Quality Assurance

The manufacturer shall maintain a set of international standards of quality management to ensure product quality. Each system shall be subjected to a complete operational and functional test procedure at the factory prior to shipment.

Cabinet

The condenser cabinet shall be constructed of 0.090 inch aluminum and shall be securely fastened to a frame constructed of 0.125 inch aluminum. The condenser cabinet shall house the condenser coil, fan(s), fan guard(s), condenser motor control and NEMA 3R electric box. The receiver will be mounted on cabinet frame and come pre-piped when required.

Mechanical Components

EC Axial Fans

The fans shall be direct driven, external rotor-motor integrated in an axial fan unit . The fan blades shall be constructed of a weather resistance, long life coated steel or aluminum. Each fan shall be low noise and low vibration. Each fan impeller shall be dynamically and statically balanced in two planes to minimize vibration during operation.

Micro-Channel Coil

The Micro-Channel coil shall be constructed of brazed aluminum. The coil is designed with high performance fins to provide low airside pressure drop and high heat transfer. Micro-Channel tubes offer a more predictable performance and improved air to refrigerant approach temperatures are achieved. Optional coil coating shall be available.

Electrical System

The electrical system shall conform to National Electric al Code (NEC) requirements. In accordance with NEC Class II circuits, the control circuit shall be 24 volts AC and control circuit wiring shall not be smaller than 18 AWG. All wiring shall be neatly wrapped, run in conduit or cable trays, and routed in bundles. Each wire shall end with a service loop and be securely fastened by an approved method. Each wire in the unit shall be numbered for ease of service

tracing.

All electrically actuated components shall be easily accessible without reaching over exposed high voltage components or rotating parts. Each high voltage circuit shall be individually protected with circuit breakers or manual motor starters on each phase. The blower motor shall have thermal and short circuit protection. Line voltage and 24 volt control circuit wiring shall be routed in separate bundles. The electric box shall include all the contactors, starters, fuses, circuit breakers and terminal boards required for operation of the Micro-Channel Condenser unit.

Main Power Service Switch

The Micro-Channel Condenser unit shall be provided with a unit mounted main power service switch.

Code Conformance

The unit is in compliance with the following: UL1995 (2011 Ed.4), CSA C22.2 No. 236 (2011 Ed.4)

DWG NO	SH	REV
ICC1555	1	B

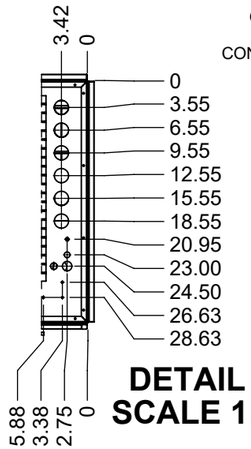
THIRD ANGLE PROJECTION

DIMENSIONS ARE IN INCHES [MILLIMETERS]
DO NOT SCALE DRAWING
REMOVE BURRS & BREAK ALL SHARP EDGES.
TOLERANCES AS FOLLOWS:
.X = ±.2 [5] .XXX = ±.060 [1.5]
.XX = ±.13 [3.2] ANGLES = ±0.5°

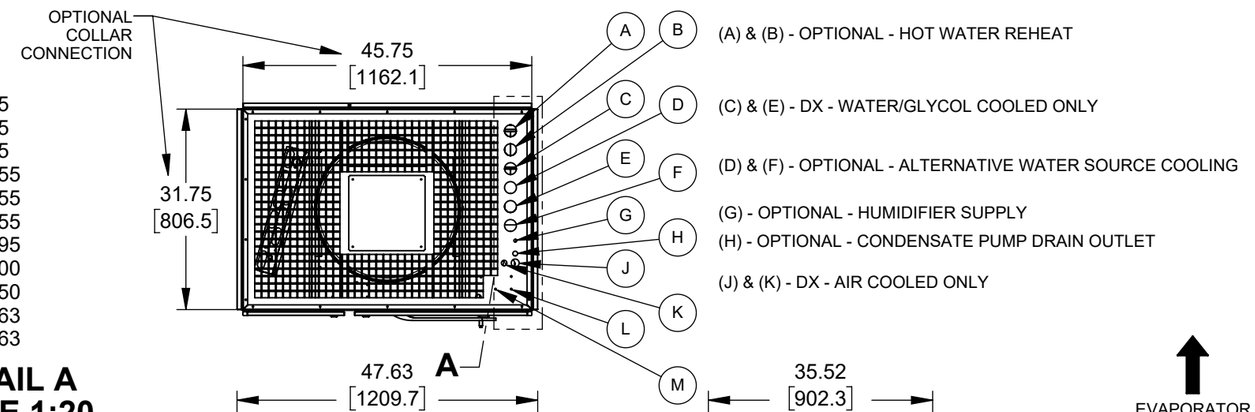
NOTES:
1. PROPER SIZING OF CONDUIT HOLES TO BE PERFORMED BY OTHERS.
2. APPROXIMATE WEIGHT IS TO BE DETERMINED.
3. FRAME MATERIAL TO BE 14 GA GALVANNEAL.
4. ACCESS PANEL TO BE 20 GA GALVANNEAL.
5. POWDER COAT ALL GALVANNEAL PARTS.
6. PIPING HOLES WILL REMAIN EMPTY WHEN UNUSED.

REVISIONS

REV	DESCRIPTION	DATE	CHG	CKR	ENG	APP
-	RELEASED FOR PRODUCTION, CM - 22112					
A	CM - 25991, ADDED MISSING DIMENSION ON REF. N	7/25/2019	JBM	HS	JBM	JRK
B	37107, REVISED DUCT COLLAR NOMENCLATURE	05/03/22	CFM	HS	HS	HS



DETAIL A
SCALE 1:20



(A) & (B) - OPTIONAL - HOT WATER REHEAT

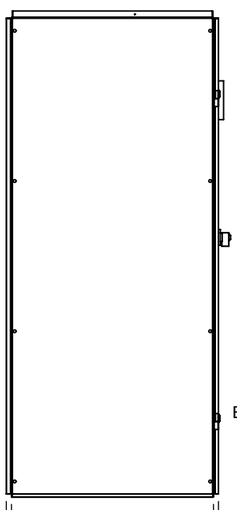
(C) & (E) - DX - WATER/GLYCOL COOLED ONLY

(D) & (F) - OPTIONAL - ALTERNATIVE WATER SOURCE COOLING

(G) - OPTIONAL - HUMIDIFIER SUPPLY

(H) - OPTIONAL - CONDENSATE PUMP DRAIN OUTLET

(J) & (K) - DX - AIR COOLED ONLY

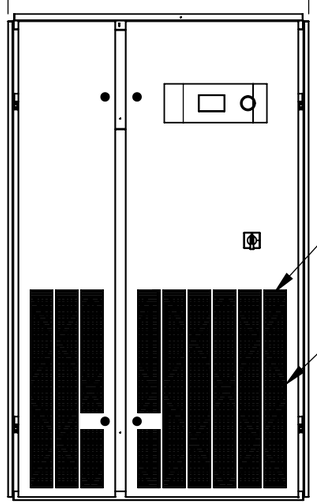


LEFT

32.00
[812.8]
BASE

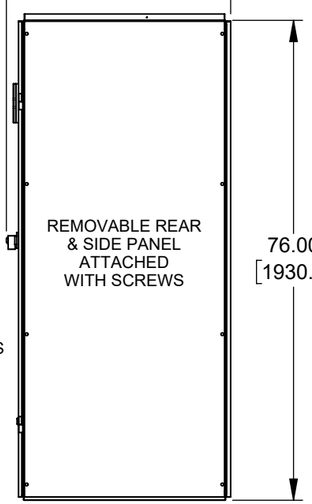
33.60
[853.6]
DOORS

EVAPORATOR AIR IN

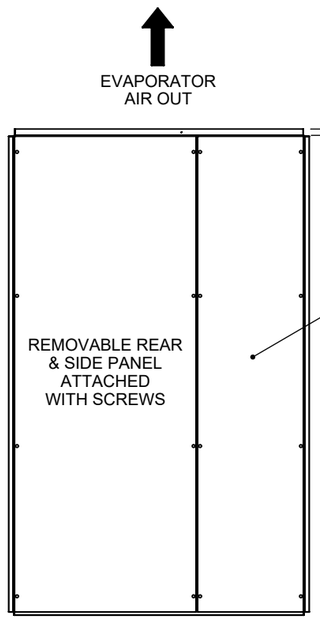


FRONT

46.00
[1168.4]
BASE

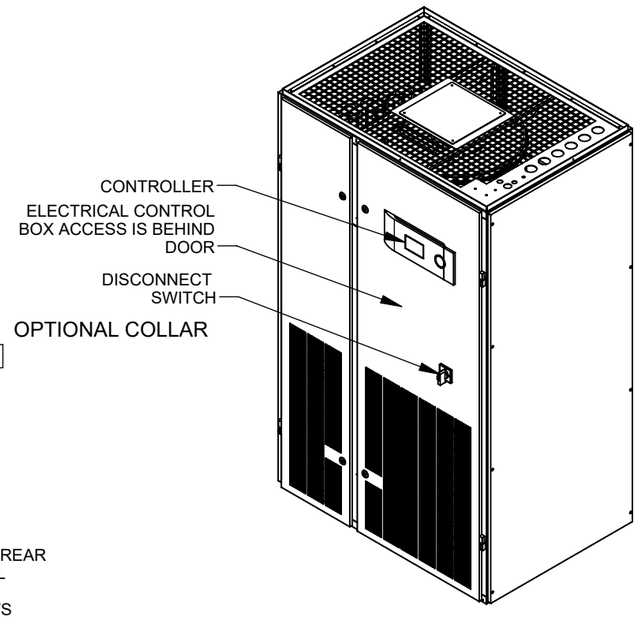


RIGHT



REAR

BOTTOM



FRONT FREE

FIELD CONNECTIONS:
(A) HOT WATER REHEAT IN - .88 [22.2] OD SWEAT CONNECTION
(B) HOT WATER REHEAT OUT - .88 [22.2] OD SWEAT CONNECTION
(C) WATER OUT TO HEAT EXCHANGER - 1.38 [35] OD SWEAT CONNECTION
(D) WATER OUT TO ALTERNATE WATER SOURCE - 1.38 [35] OD SWEAT CONNECTION
(E) WATER IN TO HEAT EXCHANGER - 1.38 [35] OD SWEAT CONNECTION
(F) WATER IN TO ALTERNATE WATER SOURCE - 1.38 [35] OD SWEAT CONNECTION
(G) HUMIDIFIER WATER SUPPLY INLET - 0.25 [6.4] OD SWEAT CONNECTION
(H) COPPER CONDENSATE PUMP DRAIN OUTLET - 0.50 [12.7] OD SWEAT CONNECTION
(J) REFRIGERANT DISCHARGE LINE - .88 [22.2] OD SWEAT CONNECTION
(K) REFRIGERANT LIQUID LINE - .62 [15.8] OD SWEAT CONNECTION
(L) POWER WIRE INLET - 0.38 [9.5] PILOT HOLE - SEE NOTE 1
(M) CONTROL WIRE INLET - 0.38 [9.5] PILOT HOLE - SEE NOTE 1
(N) COPPER CONDENSATE GRAVITY DRAIN OUTLET - 0.88 [22.2] OD SWEAT CONNECTION

INSTALLATION - COS-096-120-( )-( )-U-EC

MATERIAL: NA	DWN. J. MOODY	DATE: 04/06/18	STULZ	SIZE B	CAGE CODE 0B716
	CHK. H. SLOMSKI	DATE: 04/06/18		DWG NO. ICC1555	REV B
	ENGR. J. MOODY	DATE: 04/06/18			
FINISH: NA	APPD. R. ROY	DATE: 04/06/18			
				SCALE: 1:24	UNIT TYPE: CYBERAiR
					SHEET 1 OF 1

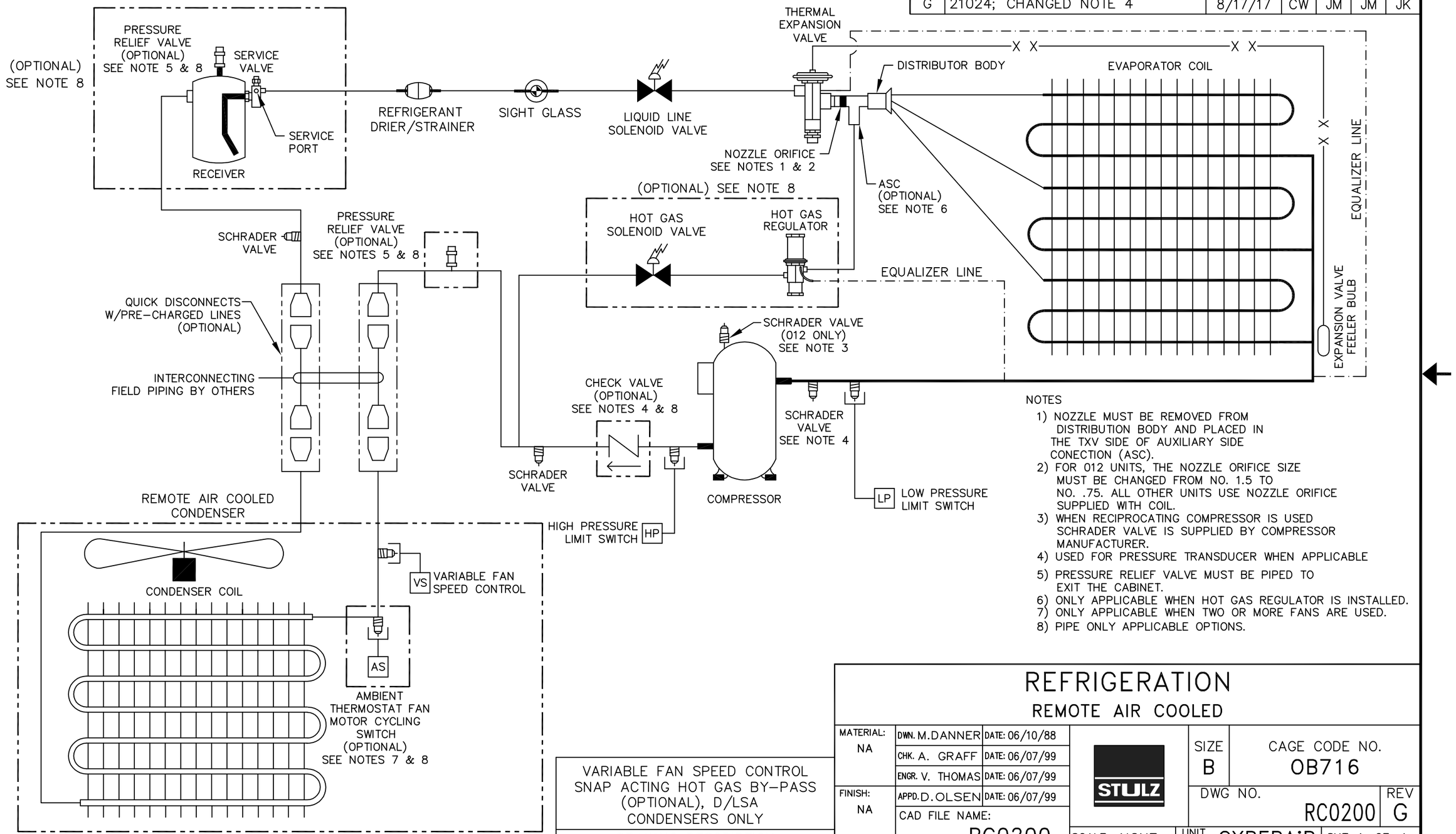
DWG NO	SH	REV
RC0200	1	G

THIRD ANGLE PROJECTION

DIMENSIONS ARE IN INCHES
DO NOT SCALE DRAWING
REMOVE BURRS & BREAK ALL SHARP EDGES
TOLERANCES AS FOLLOWS:
.X=±.1 .XXX=±.030
.XX=±.06 ANGLES 0.5°

REVISIONS

REV	DESCRIPTION	DATE	CHG	CKR	ENG	APP
–	RELEASED FOR PRODUCTION					
F	ADDED OPTIONAL RECEIVER	04/29/05	DWM	DWM	DWM	DM
G	21024; CHANGED NOTE 4	8/17/17	CW	JM	JM	JK



NOTES

1) NOZZLE MUST BE REMOVED FROM DISTRIBUTION BODY AND PLACED IN THE TXV SIDE OF AUXILIARY SIDE CONECTION (ASC).
2) FOR 012 UNITS, THE NOZZLE ORIFICE SIZE MUST BE CHANGED FROM NO. 1.5 TO NO. .75. ALL OTHER UNITS USE NOZZLE ORIFICE SUPPLIED WITH COIL.
3) WHEN RECIPROCATING COMPRESSOR IS USED SCHRADER VALVE IS SUPPLIED BY COMPRESSOR MANUFACTURER.
4) USED FOR PRESSURE TRANSDUCER WHEN APPLICABLE
5) PRESSURE RELIEF VALVE MUST BE PIPED TO EXIT THE CABINET.
6) ONLY APPLICABLE WHEN HOT GAS REGULATOR IS INSTALLED.
7) ONLY APPLICABLE WHEN TWO OR MORE FANS ARE USED.
8) PIPE ONLY APPLICABLE OPTIONS.

VARIABLE FAN SPEED CONTROL
SNAP ACTING HOT GAS BY-PASS (OPTIONAL), D/LSA CONDENSERS ONLY

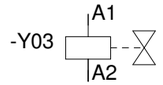
DRAWING DESCRIPTION

REFRIGERATION

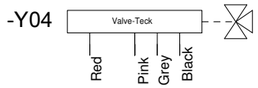
REMOTE AIR COOLED

MATERIAL: NA	DWN. M.DANNER	DATE: 06/10/88	STULZ	SIZE B	CAGE CODE NO. OB716
	CHK. A. GRAFF	DATE: 06/07/99			
	ENGR. V. THOMAS	DATE: 06/07/99			
FINISH: NA	APPD. D. OLSEN	DATE: 06/07/99		DWG NO. RC0200	REV G
	CAD FILE NAME: RC0200			SCALE: NONE	UNIT TYPE: CYBERAiR SHT 1 OF 1

Electrical Symbol Legend

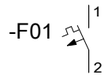


Solenoid Valve

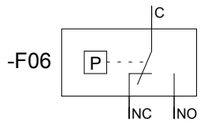


Multi-way Valve

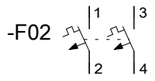
Varistor



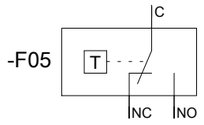
Single Pole
Circuit Breaker



Pressure Switch

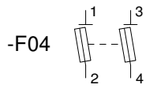


Multi Pole
Circuit Breaker

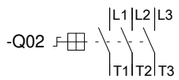


Temperature Switch

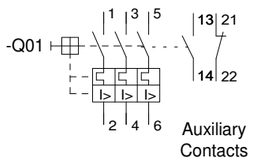
Single Pole fuse



Multi Pole fuse

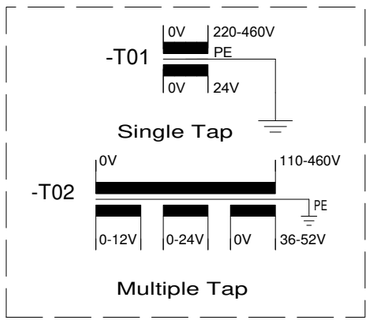


Disconnect switch

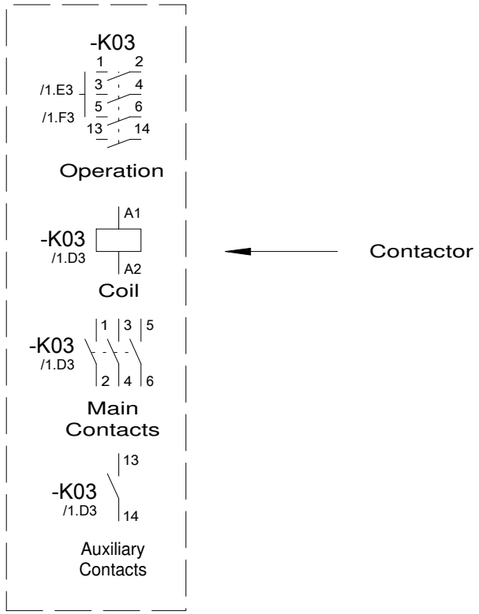


Auxiliary
Contacts

Manual Motor
Starter

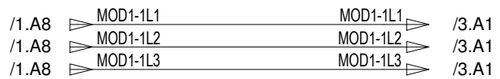


Transformers



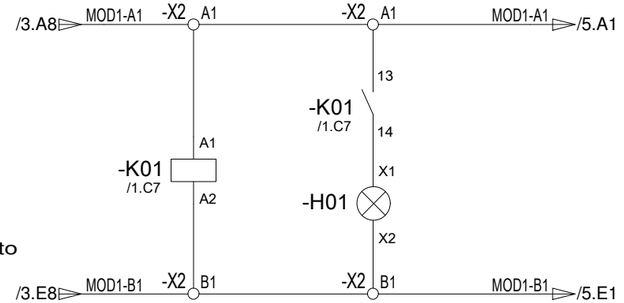
Contactor

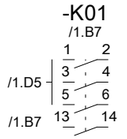
Defines Line

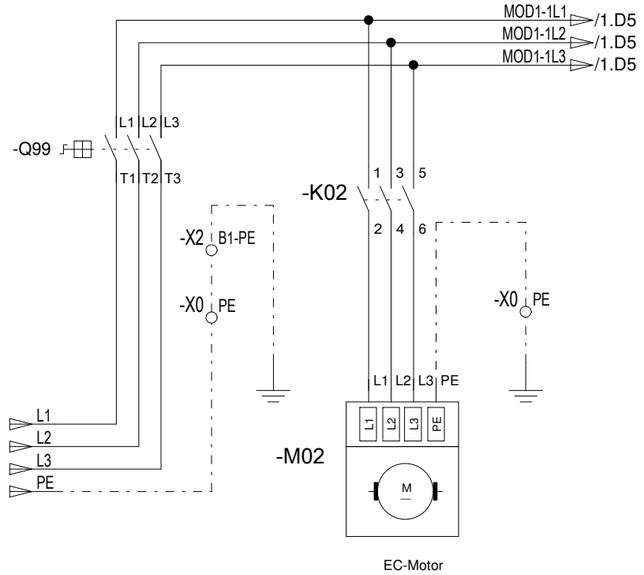


Page where line came from

Page where line is going to







EC-Motor

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV

SHT 1
OF 11

Power Supply | Fan | Compressor | Crankcase Heater

Main Power 3PH, PE

MOD1-1L1 /3.A1
MOD1-1L2 /3.A1
MOD1-1L3 /3.A1

-XA 2 4 6 / 1 3 5

-Q99 L1 L2 L3 / T1 T2 T3

-F01

-OPTION-

-X2 PE1

-X0 PE2

-X0 PE

L1
L2
L3
PE

Incoming Supply

-Q01 1 3 5 / 2 4 6

-K01 /6.F3 1 3 5 / 2 4 6

-X0 PE2

-WM01 1 2 3 PE
L1 L2 L3 PE PE

-M01 /8.D3
M

EC-Motor

-Q04 1 3 5 / 2 4 6

-K04 /7.F5 1 3 5 / 2 4 6

-X0 PE2

-WM04 1 2 3 PE
U V W PE

-M04
M
3 ~

-F12 1 3 / 2 4

-K04 /7.F5 21 / 22

-X1 1

-X1 2

-X0 PE2

-WE12 1

-WE12 2

PE

-E12

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
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Developed from:

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV

SHT 2
OF 11

Humidifier | Condensate Pump | Control Transformer | Remote Power Off

/2.A8 MOD1-1L1
/2.A8 MOD1-1L2
/2.A8 MOD1-1L3

MOD1-1L1
MOD1-1L2
MOD1-1L3

-F06 1 3 5 / 2 4 6

-K06 /8.F8 1 3 5 / 2 4 6

MOD1-T3 /8.C5

MOD1-T4 /8.C5

-X0 PE2

-WE06 1 2 3 PE

-E06 1 2 3 PE
NORTEC

-F10 1 3 / 2 4

-F05 1 3 / 2 4

101 102

-T01 0V 220-460V / 0V 24V PE

-R01

-X0 PE2

-X1 3 4 PE

-WM10 1 2 PE

-M10 U V PE
M
1 ~

MOD1-A1 /4.A1
MOD1-C1 /4.A1
MOD1-B1 /4.F1

-X2 A1 106
-X2 C1 108
-X2 B1 103
-X2 B1-PE

-X2 4
Red
Jumper

-X2 3
107

-F30 1 / 2 104
-F31 1 / 2 105

Factory Installed
-OPTION-

Field Installed
-OPTION-

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

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DATE
DWN.
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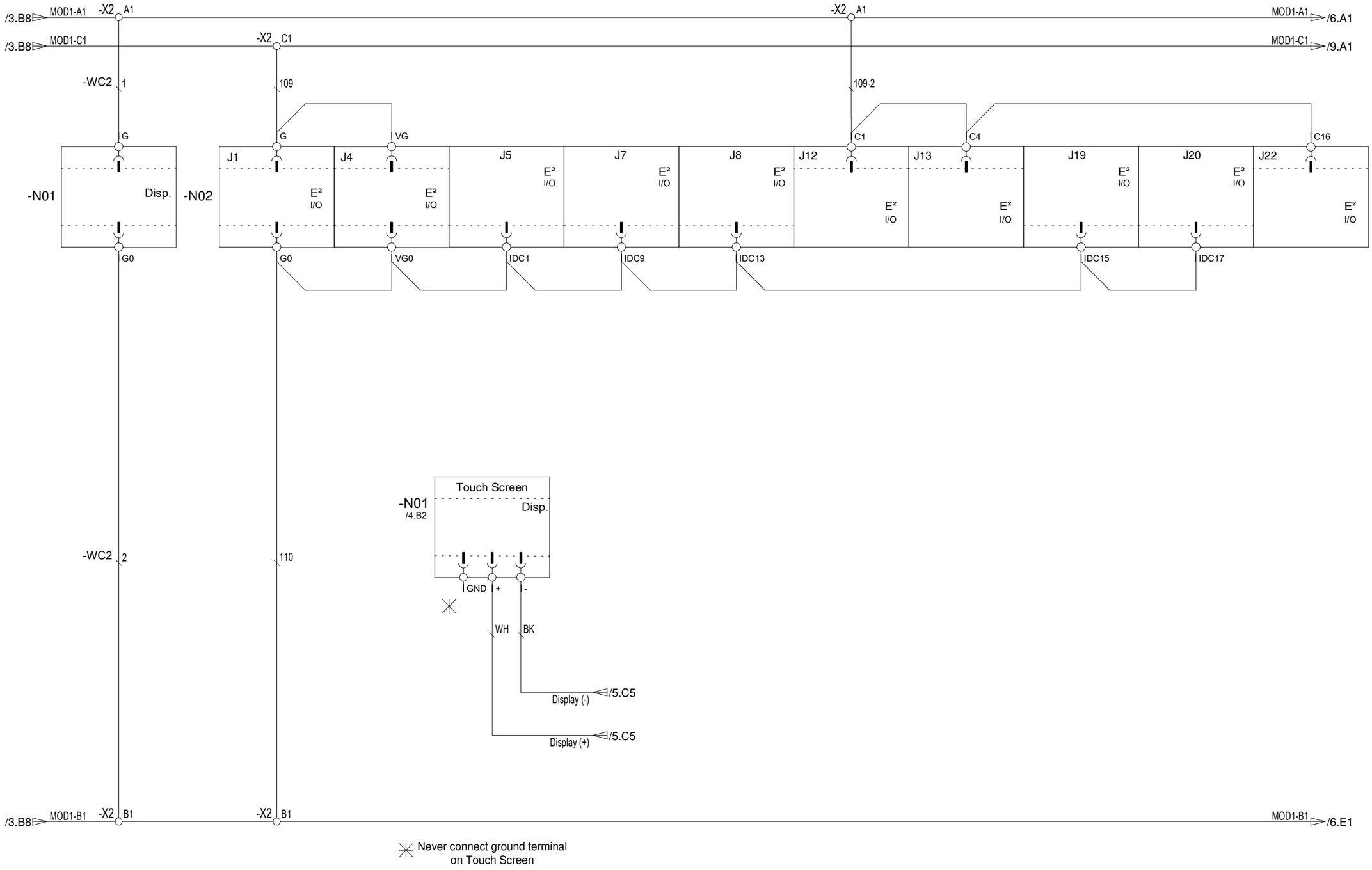
APPD.

DWG NO. E3SUB0860
COS-120-AR-EC

REV
SHT 3
OF 11

Power Supply Touch Screen	Power Supply E² I/O Controller	Touch Screen to E² I/O Controller



REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from: SATSCOSDXC291

Order no. SUBMITTAL

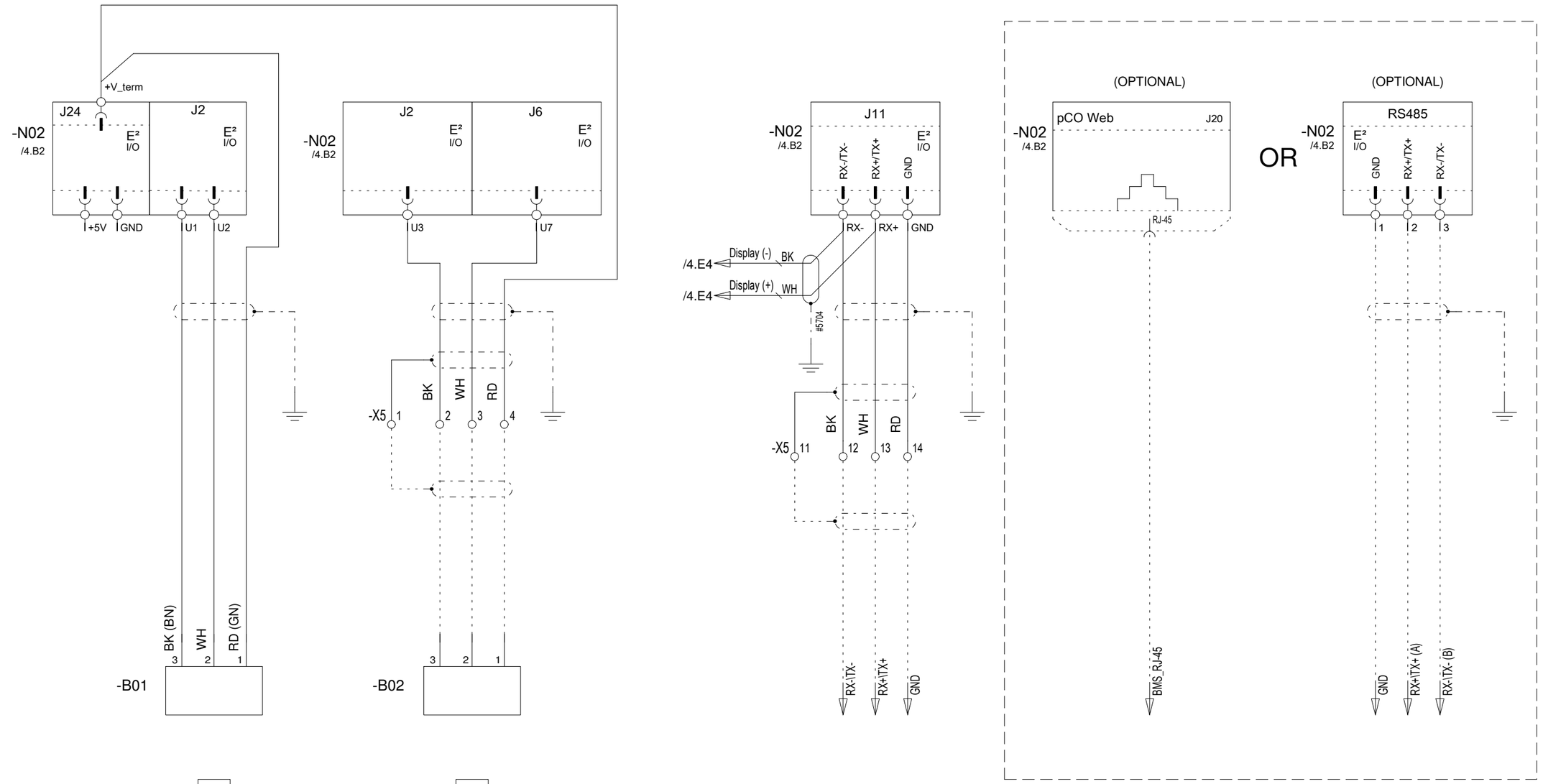
STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860
COS-120-AR-EC

REV
SHT 4
OF 11

Return Air Temp / Humid Sensor	Supply Air Temp / Humid Sensor	pLAN Network Connection	pCOWeb Interface Card	RS485 or LONWORKS Interface Card



REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from: SATSCOSDXC297

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV

SHT 5
OF 11

Fan Control	Unit In Operation	Filter Clog	Air Flow	Hot Water / Steam
	Dry Contacts	Switch	Switch	Valve

/4.A8 MOD1-A1

-X2 A1

-X2 A1

MOD1-A1 /8.A1

-X2 E1

-X2 E1

MOD1-E1 /7.A1

J12

E²
I/O

-N02
/4.B2

NO3

115

117

118

118-2

718

C9

J16

-N02
/4.B2

E²
I/O

J16

E²
I/O

-N02
/4.B2

NO9

C

-F41 P

NC NO

C

-F40 P

NC NO

717

719

-X2 64

13

-K01
/6.F3

14

137

138

-X2 36

-X2 37

116

-WY07 1

113

A1

-K01
/6.E3

A2

ID4

J5

-N02
/4.B2

E²
I/O

ID3

J5

-N02
/4.B2

E²
I/O

ID6

J5

E²
I/O

-Y07

A1

A2

-WY07 2

114

/4.F8 MOD1-B1

-X2 B1

-X2 B1

MOD1-B1 /7.E1

-K01
/6.D3

1 2

/2.C4 3 4

5 6

/6.D4 13 14

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
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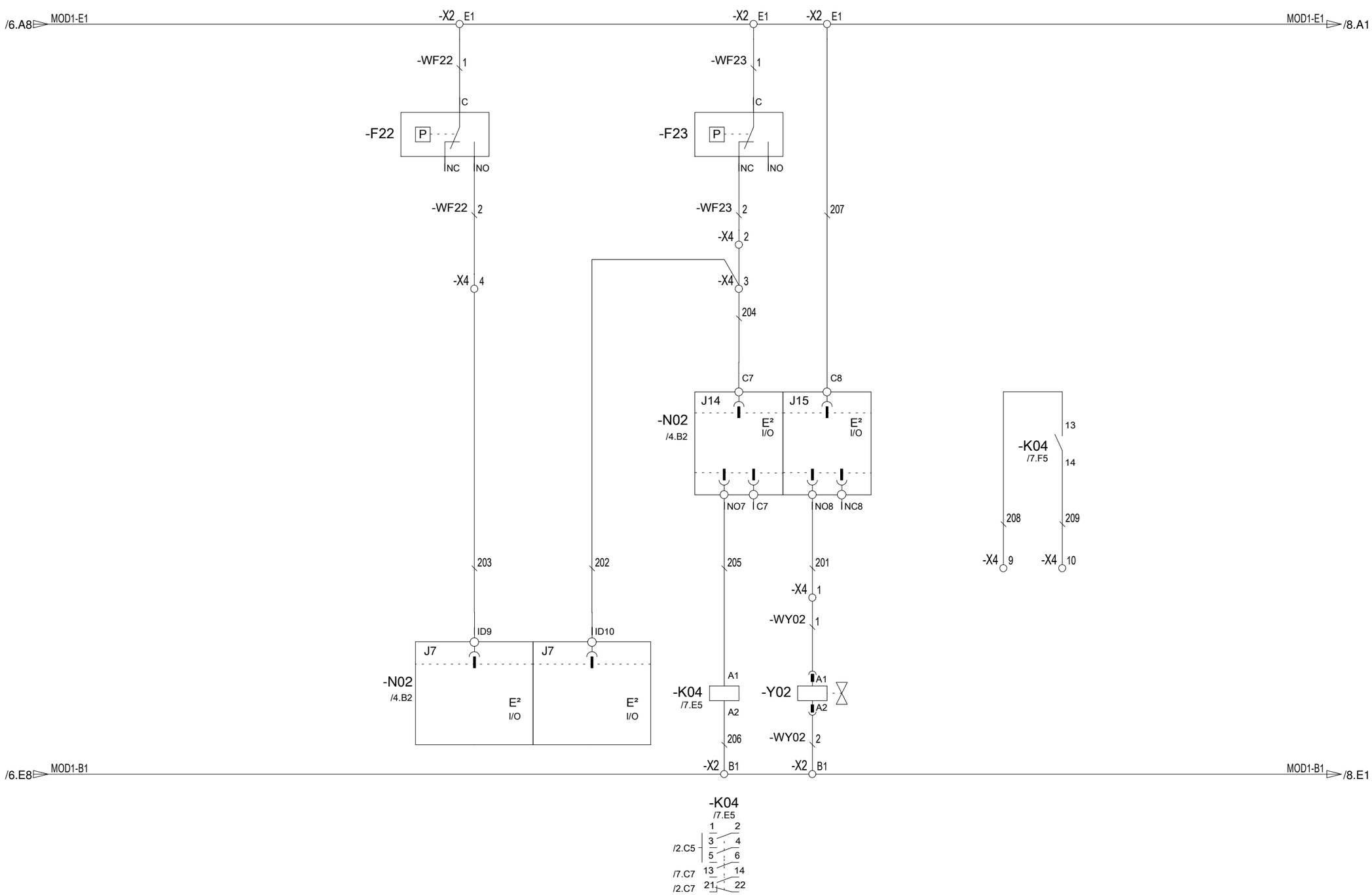
DWG NO. E3SUB0860

COS-120-AR-EC

REV

SHT 6
OF 11

LP Switch	Compressor	Liquid Line	Compressor On
HP Switch		Solenoid	Dry Contacts
Comp. Failure			To External Equipment



REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV

SHT 7
OF 11

Fan Speed Control	Motor Protection Fan 1	Humidifier Proportional

/6.A8 MOD1-A1 → -X2 A1 → MOD1-A1 /9.A1

/7.A8 MOD1-E1 → -X2 E1 → -X2 E1 → MOD1-E1

Humidifier Jumper Settings

Jumper	Installed	Removed
J1	550-600V	No Affect
J2	440-480V	No Affect
J3	380-415V	No Affect
J4	277V	No Affect
J5	220-240V	No Affect
J6	200-208V	No Affect
J8	HWS 380-600V	No Affect
J9	HWS 200-277V	No Affect
J10	ON/OFF Operation	Modulating Operation
J13	2-10VDC or 4-20mA	0-10VDC or 0-20 mA
J15	GFI on	GFI off
J26	Modbus control enabled	Modbus control disabled
P11 (2-3)	Self test at start up disabled	Self test at start up enabled

-X2 23 24

-X2 SHLD

-WC3 BK Sh

-WCM1 WH BK

-WCM11 1 2

-X2 33 119

-WCE06 3 2 | -WCE06 1 | -WCE06 4

502 -X2 27 -K06 /8.F8 A1 A2

/3.C4 MOD1-T3

-E06 /3.E3

/3.C4 MOD1-T4

P3 3 AMP FUSE K2 C NO

Humidifier Circuit Board MES2

GND

P5 P1

2 1 1

-M01 /2.E4

KL3: 1 0-10V, 2 GND, 3 0-10V/PWM, 4 10V, 5 20V, 6 4-20mA, 7 0-10V/PWM, 8 GND

KL2: COM, NC, NO

RSB RSA RSB RSA

9 10 11 12

-X3 10 11

1 3

Y2 J4 -N02 /4.B2 E² I/O

ID8 J5 -N02 /4.B2 E² I/O

Bk

Y5 J20 -N02 /4.B2 E² I/O

-WCE06 2 PE 504

-X0 PE2

/7.E8 MOD1-B1 → -X2 B1 → -X2 B1 → -X2 B1 → MOD1-B1 /9.E1

✳ EC-fan RS485 Bus

-OPTION-

-K06 /8.B8

/3.B3 1 2 | 3 4 | 5 6 | 13 14

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

STULZ

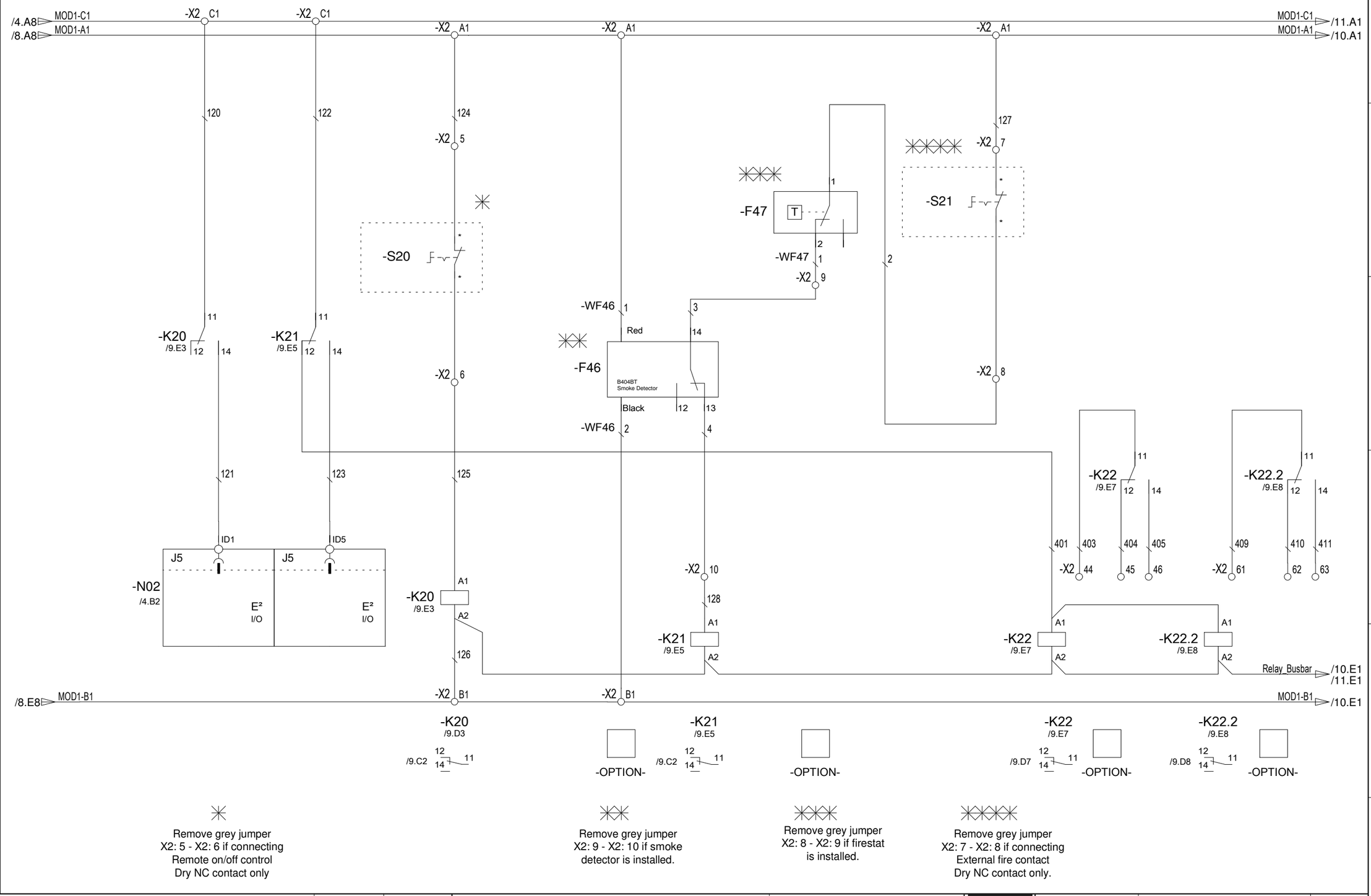
DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860 REV

COS-120-AR-EC

SHT 8
OF 11

Remote On / Off Control	Fire Alarm	Remote On / Off Control	Smoke Detector	Firestat	External Fire Contact	Smoke / Fire Detector Aux Contacts 1	Smoke / Fire Detector Aux Contacts 2



✳ Remove grey jumper X2: 5 - X2: 6 if connecting Remote on/off control Dry NC contact only

✳✳✳ Remove grey jumper X2: 9 - X2: 10 if smoke detector is installed.

✳✳✳✳ Remove grey jumper X2: 8 - X2: 9 if firestat is installed.

✳✳✳✳✳ Remove grey jumper X2: 7 - X2: 8 if connecting External fire contact Dry NC contact only.

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
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Order no. SUBMITTAL

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DATE
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APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV
SHT 9
OF 11

Heat / Humid OR Compressor Lockout

Water Detector

Condensate Pump Level Switch

Water Detector Aux Contacts

/9.A8 MOD1-A1 -X2 A1

MOD1-A1 /11.A1

130

-X2 11

-S22

-X2 12

131

ID14

J8

-N02 /4.B2

E² I/O

-X2 A1

135

-X2 30

601

602

A1 11

-U03

set function to "EL"

B1 B3 A2 14 12

603 604 605 607

-X2 31 32 -X2 29

-B15 -B14 -B13

1 2 1 2 1 2

-WCM10 1

C

-LS10 L

NC NO

-WCM10 2

-X2 28

136

ID7

J5

-N02 /4.B2

E² I/O

606

-X2 53

611

A1

-K23 /10.E7

A2

11

-K23 /10.F7

12 14

608 609 610

-X2 40 41 42

/9.E8 MOD1-B1

/9.E8 Relay_Busbar

-X2 B1

MOD1-B1

Heat/Humid Lockout -OPTION-

Compressor Lockout -OPTION-

✳ Remove grey jumper X2: 11 - X2: 12 if connecting Heat / Humid / Compressor Lockout NC dry contacts.

-OPTION- -OPTION- -OPTION-

Field Wiring

✳✳ Remove grey jumper X2: 29 - X2: 30 if connecting water detector

Factory Installed -OPTION-

Field Installed -OPTION-

-K23 /10.E7

/10.C8 12 14 11 -OPTION-

✳✳✳ Remove grey jumper X2: 28 - X2: 29 if connecting Condensate Pump Level Switch

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860

COS-120-AR-EC

REV
SHT 10
OF 11

Common Alarm Dry Contacts	Custom Alarm Dry Contacts	Customer Alarm	Damper Control Dry Contacts

/9.A8 MOD1-C1
/10.A8 MOD1-A1

-X2 C1 — MOD1-C1
-X2 A1 — MOD1-A1

J12 E² I/O — -N02 /4.B2 — NO1
J12 E² I/O — -N02 /4.B2 — NO2
J13 E² I/O — -N02 /4.B2 — NO5

150 — 148 — -X2 59

-S27 (*)

11 — -K27 /11.F6 — 12 — 14

-X2 60

151 — 149

ID2 — J5 — -N02 /4.B2 — E² I/O

143 — 144 — 712

-K24 /11.F2: 11 — 12 — 14 — 132 — 133 — 134 — -X2 13 — 14 — 15
-K25 /11.F4: 11 — 12 — 14 — 145 — 146 — 147 — -X2 56 — 57 — 58
-K29 /11.F7: 11 — 12 — 14 — 720 — 721 — 722 — -X3 4 — 5 — 6

-K24 /11.F2 A1 / A2
-K25 /11.F4 A1 / A2
-K27 /11.F6 A1 / A2
-K29 /11.F7 A1 / A2

/9.E8 Relay_Busbar

-K24 /11.E2: /11.D3 12 / 14 — 11
-K25 /11.E4: /11.D4 12 / 14 — 11
-K27 /11.E6: /11.C5 12 / 14 — 11
-K29 /11.E7: /11.D8 12 / 14 — 11 — -OPTION-

(*) Remove grey jumper
X2: 59 - X2: 60 if connecting
Customer Alarm
Dry NC contact only

REV	REVISION DESCRIPTION	DATE	CHG

Project: TYPICAL DRAWING
Item: FOR SUBMITTAL ONLY
Developed from:

Order no. SUBMITTAL

STULZ

DATE
DWN.
CHK.
APPD.

DWG NO. E3SUB0860
COS-120-AR-EC

REV
SHT 11
OF 11

THIRD ANGLE PROJECTION

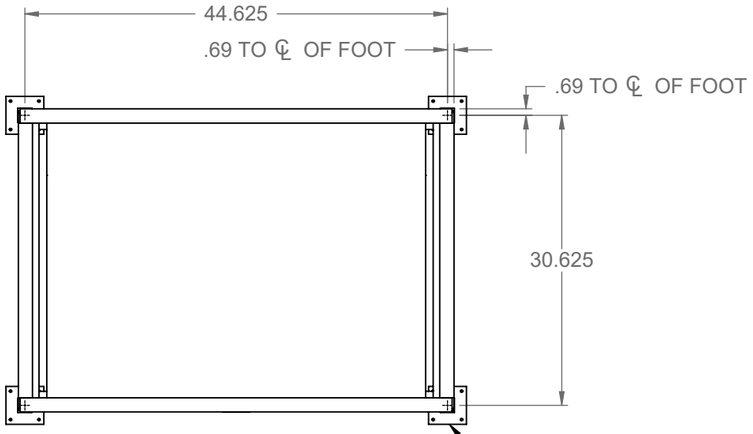
DIMENSIONS ARE IN INCHES
DO NOT SCALE DRAWING
REMOVE BURRS & BREAK
ALL SHARP EDGES.

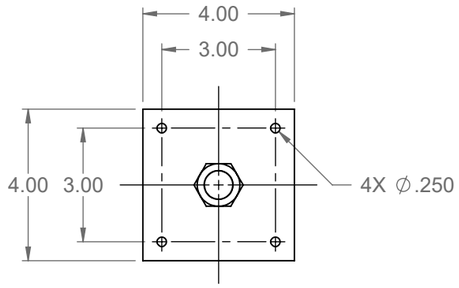
TOLERANCES ARE:
.X = ±.1 .XXX = ±.030
.XX = ±.06 ANGLES = ±0.5°

DWG NO	SH	REV
ACC3085	1	-

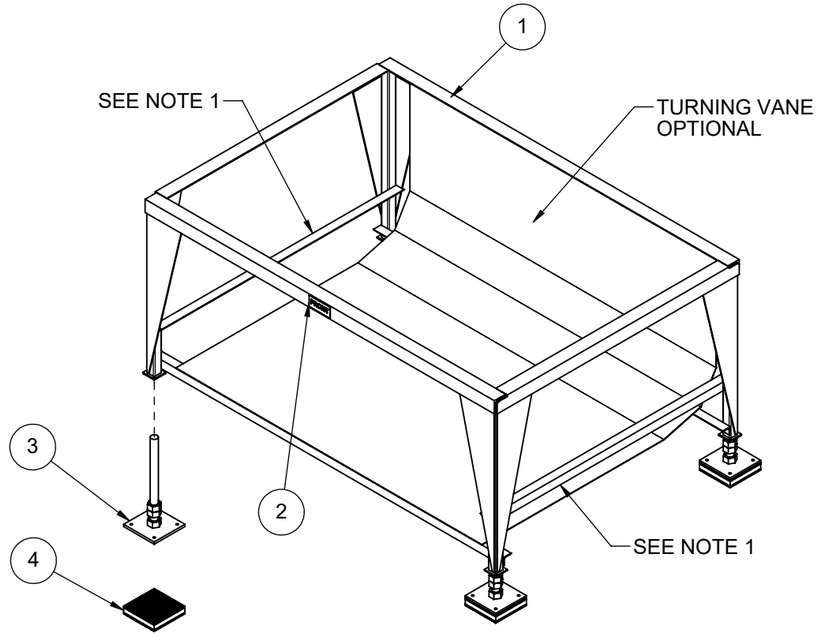
REVISIONS						
REV	DESCRIPTION	DATE	CHG	CKR	ENG	APP
-	CM-11811; RELEASED FOR PRODUCTION					

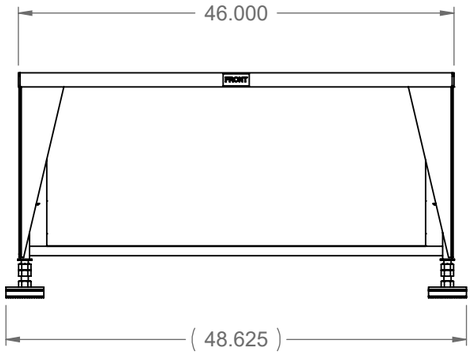
NOTE:
1. ANGLES ONLY REQUIRED ON ACC3085-04

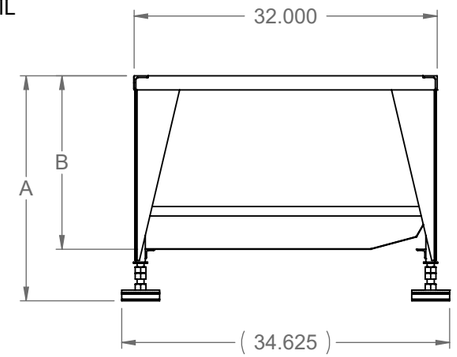




FOOT PAD DETAIL
SCALE 1 : 4
4 PLACES







SEE TABLE WHERE -XX IS USED

DASH NO.	WELDMENT	DIM A MINIMUM	NOMINAL HEIGHT	DIM A MAXIMUM	DIM B	NOTES	CHAR	CHAR_TV	BLK	BLK_TV
ACC3085-04	WCC1769-04	23.00	24.00	26.00	18.31	SHOWN	177042		197002	
ACC3085-03	WCC1769-03	17.00	18.00	21.00	12.31		177041	184700	193961	
ACC3085-02	WCC1769-02	14.00	15.00	18.00	9.31		177040	189051	188182	
ACC3085-01	WCC1769-01	11.00	12.00	15.00	6.31		177039	187081	191492	194146

FLOOR STAND ADJUSTABILITY

REF. DES.	QTY	ITEM NO.	DESCRIPTION	PART NO.
4	4	MNTVLXPBX	PAD, VIBRATION, ISOLATOR	-
3	4	103636	WELDMENT, FLOOR STAND FOOT	WCU0830
2	1	-	LABEL, FRONT	MCU0001
1	1	-	WELDMENT, FLOORSTAND	WCC1769-XX

ASSEMBLY - FLOOR STAND, 12"-24"
COS-096/120-( )-( )-EC

-	COS-096/120-( )-( )-EC
NEXT ASSY	USED ON
APPLICATION	

MATERIAL: SEE BOM
FINISH: NA

DWN.	A. CARBAUGH	DATE: 10/07/2011
CHK.	K. DECKER	DATE: 10/10/2011
ENGR.	A. CARBAUGH	DATE: 10/10/2011
APPD.	R. ROY	DATE: 10/10/2011

STULZ

SIZE B | CAGE CODE 0B716
DWG NO. ACC3085 | REV -
SCALE: 1:16 | UNIT TYPE: CYBERAiR | SHEET 1 OF 1

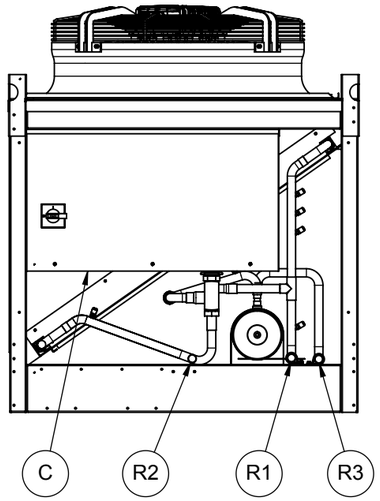
DWG NO	SH	REV
IRS1013	1	-

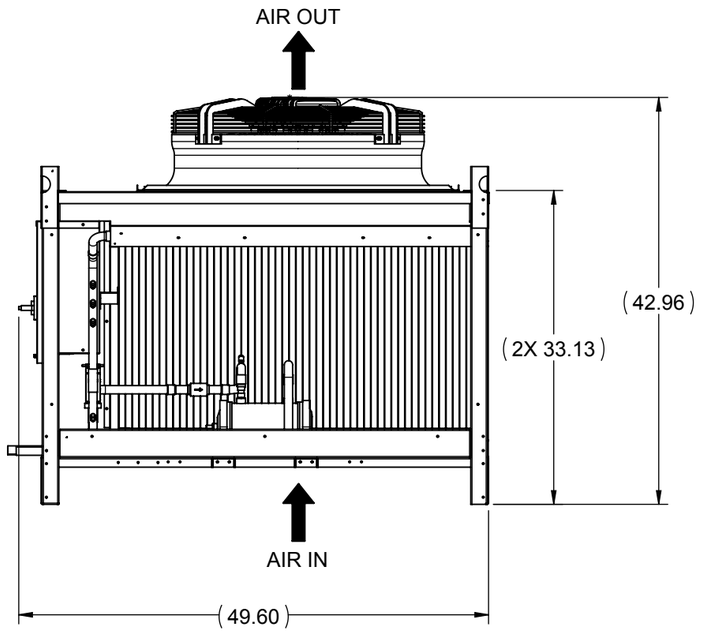
THIRD ANGLE PROJECTION

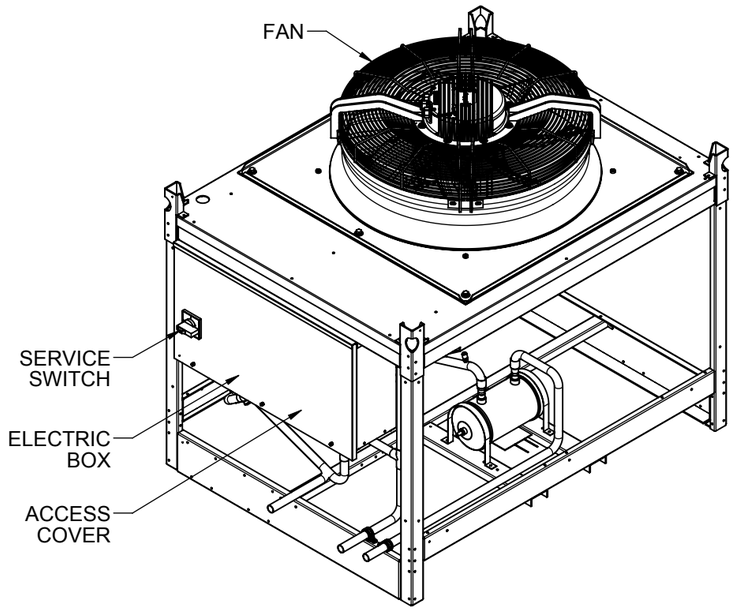
DIMENSIONS ARE IN INCHES [MILLIMETERS]
DO NOT SCALE DRAWING
REMOVE BURRS & BREAK ALL SHARP EDGES.
TOLERANCES AS FOLLOWS:
.X = ±.2 [5] .XXX = ±.060 [1.5]
.XX = ±.13 [3.2] ANGLES = ±0.5°

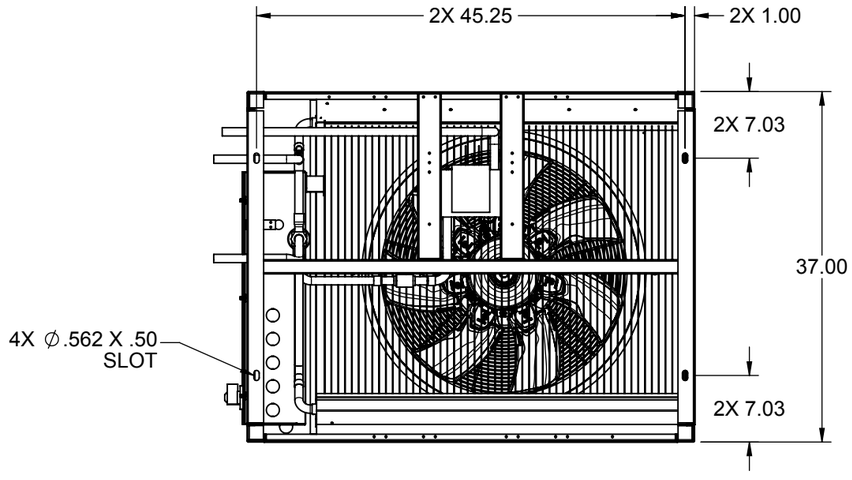
NOTES:
1) PROPER SIZING OF CONDUIT HOLE TO BE PERFORMED BY OTHERS.
2) APPROXIMATE WEIGHT- 223 LBS.

REVISIONS						
REV	DESCRIPTION	DATE	CHG	CKR	ENG	APP
-	13437, RELEASED FOR PRODUCTION					









FIELD CONNECTION LEGEND
(C) POWER WIRE HOLE - 1.375 - LOCATED ON BOTTOM OF ELECTRIC BOX - SEE NOTE 1
(R1) REFRIGERANT HOT GAS LINE, 0.875 OD SWEAT CONNECTION
(R2) REFRIGERANT LIQUID LINE, WITHOUT RECEIVER - 0.875 OD SWEAT CONNECTION (STANDARD)
(R3) REFRIGERANT LIQUID LINE, WITH RECEIVER - 0.875 OD SWEAT CONNECTION (OPTIONAL)

INSTALLATION - SCS-MC-056-S()

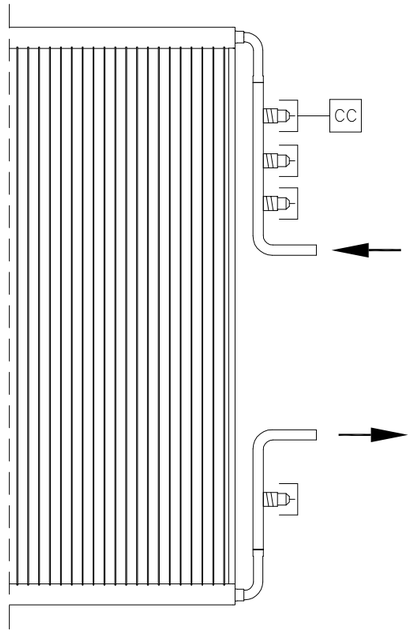
MATERIAL:	DWN.	DATE:		SIZE	CAGE CODE
NA	D. BLITZ	01/03/13	STULZ	B	0B716
	CHK. T. BEARD	07/30/13		DWG NO. IRS1013	REV -
	ENGR. D. BLITZ	07/30/13			
FINISH: NA	APPD. R. ROY	07/31/13		SCALE: 1:16	UNIT TYPE: CYBERAIR / SHEET 1 OF 1

DWG NO	SH	REV
RRS0224	1	A

REVISIONS

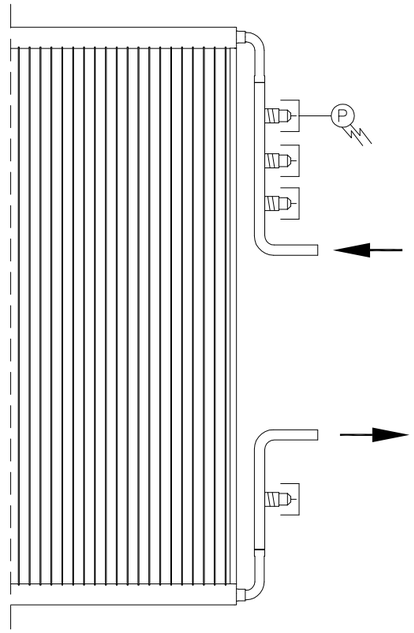
REV	DESCRIPTION	DATE	CHG	CKR	ENG	APP
–	14411, RELEASED FOR PRODUCTION					
A	19319, ADDED SLN	10/18/16	DPB	JK	DPB	CJM

CONDENSER COIL
HEADER END



SCS–MC–( )–SAA

CONDENSER COIL
HEADER END



SCS–MC–( )–SEC/SLN

LEGEND:

- CC — FAN CYCLING SWITCH
- VS — VARIABLE FAN SPEED CONTROL
- P — PRESSURE TRANSDUCER

REFRIGERATION –

SCS–MC–056–071–S()

MATERIAL: NA	DWN. D.BLITZ	DATE: 11/06/13	STULZ	SIZE B	CAGE CODE 0B716
	CHK. J.KELLEY	DATE: 11/8/13		DWG NO. RRS0224	REV A
	ENGR. D.BLITZ	DATE: 11/8/13			
FINISH: NA	APPD. R.ROY	DATE: 11/8/13			
	CAD FILE NAME: RRS0224A			SCALE: NONE	UNIT TYPE: CYBERAIR SHT 1 OF 1