

Cotes dehumidifier      C35E – C35D

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# COTES ALL ROUND C35E-C35D

How to install, set up, operate and service your  
Cotes C35E/C35D dehumidifier

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# SECTION 1 / GENERAL BACKGROUND

## ABOUT THIS HANDBOOK

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This is the installation and service handbook for your Cotes dehumidifier.

You should read the whole handbook before installing and/or starting the dehumidifier unit for the first time. It is important that you and your colleagues are familiar with the correct operating procedures and all precautionary safety measures, in order to avoid any damage to the surroundings, materials or installations, as well as to prevent any personal injury.

This handbook is mainly intended for use by technicians who install and operate this Cotes dehumidifier unit, who carry out preventive maintenance and who replace defective parts.

Anyone using Cotes dehumidifier units, or whose responsibilities include supervising their operation, will also benefit from reading this handbook and from consulting it as a practical help should the need arise.

### **Product number for this handbook**

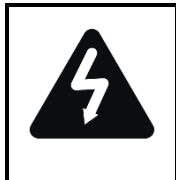
The product number of this particular service handbook is 140712.

This is the number you need to give us if you would like to order additional copies for your staff, colleagues or service personnel, or for technical staff from outside your company.

**SYMBOLS USED IN THIS HANDBOOK**



This tells you to perform a particular action



Important to note, because items in the dehumidifier can cause injury or affect people's health



You need to pay special attention to this



**NOTE**

It is each operator's responsibility to read and understand this manual and other information and to employ the correct operating and maintenance procedures.

## ABOUT MANAGING HUMIDITY

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### **Cotes humidity management technology – cost-effective and energy-efficient**

The moisture in the air all around us has surprising – and often costly – effects on the materials, structures and processes at the heart of virtually all business processes and industrial activity.

Cotes humidity management technologies enable you to control the levels of moisture in the air inside any building, installation or facility, using only a bare minimum of energy.

And effective control of the basic parameters for your operations is good business.

## ABOUT COTES

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### World leader

Cotes is one of the world's leading experts in the field of adsorption dehumidification, providing technology and expertise that enable companies to achieve better control of the humidity always present in the air.

Better management of the humidity in the air also makes it possible to improve and optimise a wide range of industrial processes, prevent damage and corrosion in many types of structures, and reduce energy consumption in all kinds of installations where air specifications are important.

### Big benefits

Cotes dehumidification units provide exceptional advantages.

- Our know-how and experience make sure each customer gets the right equipment to tackle all the practical needs and operating priorities associated with the specific installation
- Our units are exceptionally reliable, and can withstand even harsh treatment unusually well
- They are very easy to maintain and service
- They only use a minimum of energy in order to achieve maximum effect.

We aim to provide our customers with the most technically effective and energy-efficient solution for the best price. This ensures the best possible return on investment, as well as peace of mind about having made the best decision.

# SECTION 2 / THE DEHUMIDIFIER

## ABOUT THE COTES C35E/C35D RANGE OF DEHUMIDIFIERS

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The Cotes C35E/C35D range of dehumidifiers is designed and configured for a wide range of industrial uses. Prominent among these is humidity management in storage facilities and basement areas, in water works and in many kinds of process industry in which stable, well-controlled air conditions are crucial.

The C35E series is specifically configured to minimise the overall energy consumption of the dehumidification process, whereas the C35D is configured to ensure as dry air as possible.

The units in the C35E/C35D range are designed for easy cleaning and for configuring with extra features like cooling/heating coils and extra filters if this is needed.

### Design priorities

The Cotes C35E/C35D range features an eye-catching modern industrial design appearance, along with exceptional reliability.

It is designed to ensure the unhindered passage of air through the unit, which reduces

- energy consumption
- pressure losses
- noise levels.

All the components, ancillary equipment and features are optimised for better performance, exceptional service life and ease of maintenance.

### Capacities

The Cotes C35E/C35D range currently features models with air volumes of between 405 m<sup>3</sup>/hour and 1,000 m<sup>3</sup>/hour.

At process air inlet conditions of 20°C and 60% relative humidity (%RH), the capacities (the amount of water which can be removed from the air) of these units are between 3.3 kg/hour and 5.6 kg/hour.

### Configuration priorities

The Cotes C35E/C35D range is available with 4 different PLC configurations – PLC-A, PLC-B, PLC-C and PLC-D.

#### PLC-A

The PLC-A configuration provides:

- High dehumidification capacity
- High energy efficiency
- Stainless steel cabinet
- Easy installation
- Low-noise running

- Low maintenance costs, reducing the overall operating cost
- Easy cleaning
- Attachment of one external humidity sensor
- 3.5-inch touch display
- Service indication, to keep track of any need for maintenance
- Hour counter, to keep track of how long the unit has been in operation
- Over-heating alarm

#### PLC-B

In addition to the PLC-A features, the PLC-B configuration provides:

- Mechanical service alarm for rotor and filters
- Control of regeneration air fan, making installation easier
- Capacity control / modulating heat control
- Measuring and controlling dew point temperature
- Datalogging for keeping track of conditions in the space where the unit is installed
- Timer program
- Network connectivity (optional)
- Monitoring and control via smartphone app (optional)
- Monitoring and control by Cotes service centre (optional)

#### PLC-C

In addition to the PLC-A and PLC-B features, the PLC-C configuration provides:

- Control of process air fan, making installation easier
- Monitoring and control of air flows [m<sup>3</sup>/hour]
- Energy-saving program, for situations where energy consumption is the prime consideration
- Low-noise program, for situations where silence is the prime consideration
- CUSTOM program, for situation where dehumidifier parameters needs to be controlled

#### PLC-D

In addition to the PLC-A and PLC-B features, the PLC-D configuration provides:

- Accurate control of humidity level, whether % relative humidity or specific humidity [g/kg]
- Continuous measurement of capacity
- Detailed energy-saving program, for situations where energy consumption is the prime consideration



**Operating conditions**

For the process and regeneration air inlet, the following operating conditions must be respected:

Relative humidity	0–100%
Temperature	0–35°C
Pressure	Ambient $\pm$ 100 Pa

It is only possible to deviate from these ranges if such deviations were specifically mentioned when the order was placed, and special considerations have been incorporated into the unit in order to deal with this.

**NOTE**

Operating conditions for air inlet flows must be respected.

**Storage conditions**

For storing the dehumidifier, the following conditions must be respected:

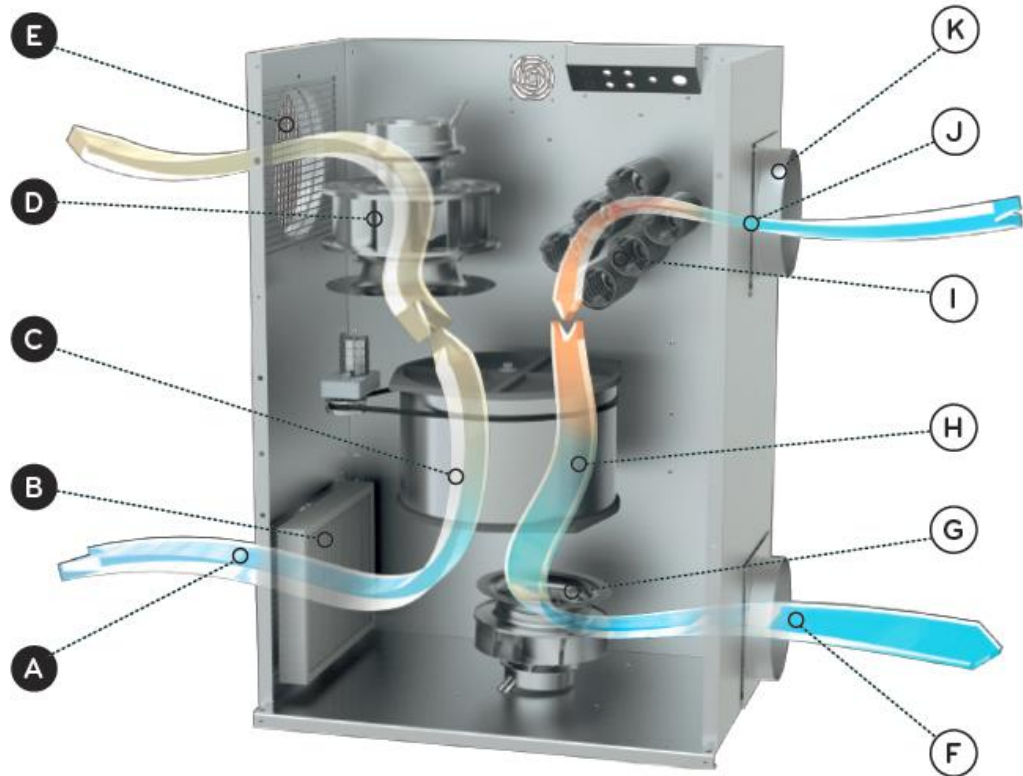
Relative humidity	0–90%
Temperature	-20°C to 50°C

It is only possible to deviate from these ranges if such deviations were specifically mentioned when the order was placed, and special considerations have been incorporated into the unit in order to deal with this.

**NOTE**

Storage conditions for dehumidifier must be respected.

## HOW IT WORKS



### Two flows of air

The effect of Cotes adsorption dehumidifiers basically stems from the action of two flows of air.

#### The drying process (A to E)

The incoming moisture-laden flow of air (process air) (A) enters one side of the cabinet and gets filtered by a process air filter (B). The air then passes through a slowly turning rotor (C) whose inner surfaces are coated with desiccant silica crystals that attract the water molecules passing through.

When the moist air passes through the rotor, water molecules are adsorbed and lodge in the pores on the surface of the silica gel. This means the air leaves the rotor containing less moisture (humidity) than when it entered (E). And because the adsorption process releases energy to the air, the temperature increases during the process. The process air is controlled by a process air fan (D).

#### The regeneration process (F to J)

The second air flow (the regeneration air) (J) is filtered by a regeneration air filter (K), and heated by heating elements (I) to reduce its relative humidity. On its way through the rotor (H), this heat evaporates the moisture previously adsorbed by the silica crystals in the rotor. The resulting water

vapour now leaves the dehumidifier in the outgoing regeneration air (F). The regeneration air is controlled by a regeneration air fan (G).

### **Fans**

All units in the C35E/C35D range of adsorption dehumidifiers are fitted with two fans as standard.

For the PLC-B configuration, the speed of the regeneration air fan can be controlled.

For the PLC-C and PLC-D configuration, the flows of process air and regeneration air flows can be controlled.

Cotes adsorption dehumidifiers are always configured with a certain amount of “external pressure” to make sure that ducting does not cause a reduction in the amount of air.

For details about the fans fitted to this particular Cotes dehumidifier, see page 24.

### **Filters**

All models of Cotes adsorption dehumidifiers are fitted with filters to remove undesirable particles or other pollutants from the incoming process and regeneration air.

Filters of the G4 class are fitted to Cotes C35E/C35D units as standard to filter the incoming process air.

For details about the filters fitted to this particular Cotes dehumidifier, see page 24.

### **Heating units**

Cotes C35E/C35D dehumidifiers are fitted with electrical heating units as standard, in order to control the temperature of the regeneration air entering the unit.

For details about heating units fitted to this particular Cotes dehumidifier, see page 24.

### **Post-heating units**

Being able to control the exact specifications of the air leaving the dehumidifier enables you to extract maximum benefit from Cotes humidity management.

If it is important to keep the process air at a consistently high temperature, a post-heating unit can be fitted after the adsorption rotor, as optional equipment.

A post-heating unit is normally in combination with a post-cooling coil, in order to ensure 100% control of both relative humidity and temperature.

Post-heating units can be retrofitted to C35E/C35D dehumidifiers with the PLC-C and PLC-D configuration.

For details about any post-heating units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

**Pre-cooling units**

Being able to control the exact specifications of the air entering the dehumidifier enables you to extract maximum benefit from Cotes humidity management.

Cotes C35E/C35D dehumidifiers can therefore be fitted with cooling units to reduce and/or control the temperature of the dry air entering and leaving the dehumidifier.

A cooling unit fitted before the adsorption rotor is particularly beneficial if the incoming process air is very warm and humid. In such cases, some of the water in the air condenses and the efficiency of the adsorption rotor increases. A cooling unit fitted before the adsorption rotor can also be an advantage if the outgoing process air has to be especially dry.

Pre-cooling units can be retrofitted to C35E/C35D dehumidifiers with the PLC-C and PLC-D configuration.

For details about any pre-cooling units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

**Post-cooling unit**

Cotes C35E/C35D units can be fitted with post-cooling/heating units to maintain full control of the temperature of the dry air leaving the dehumidifier.

Post-cooling/heating units can be retrofitted to C35E/C35D dehumidifiers with the PLC-C and PLC-D configuration.

For details about any cooling units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

**Heat recovery unit**

Cotes adsorption dehumidifiers can be fitted with heat exchangers to make sure that part of the thermal energy from the regeneration air leaving the unit is extracted, and reused for preheating the incoming regeneration air.

The heat exchangers are placed in an external box equipped with inlets and outlets for the incoming and outgoing regeneration air.

The heat recovery unit can save as much as 20–25% on energy consumption, and can be fitted to C35E/C35D dehumidifiers with the PLC-B, PLC-C and PLC-D configuration.

The heat recovery unit can be fitted to C35E/C35D dehumidifiers with the PLC-A configuration, but you have to install the appropriate ducting and damper for outgoing regeneration air.

For details about the heat recovery units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

**Water condensation units**

Cotes adsorption dehumidifiers can be fitted with water condensation units in order to condense some of the water from the regeneration air leaving the dehumidifier. This is beneficial when a regeneration air outlet is not desired good idea or cannot be fitted.

When a water condensation unit is fitted, the regeneration air forms a closed circuit, using ambient air passing through heat exchangers to cool the regeneration air to below condensation temperature.

The water condensation unit can be fitted to C35E/C35D dehumidifiers with the PLC-B, PLC-C and PLC-D configurations.

For details about water condensation units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

## FEATURES AND BENEFITS

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Features to highlight	How customers will benefit
<b>Appearance/cabinet</b>	
Eye-catching industrial design appearance.	Visually attractive units that can be mounted in highly visible positions.
Inner surfaces made of stainless steel.	Easy cleaning saves on time and manpower.  Helps keep hygiene standards high and visual appearance good.
Outer surfaces made of stainless steel, as standard.	Helps keep technical installations looking modern and attractive.  Reinforces impression of quality.
Robust structure.	Longer service life.  Better return on investment.
<b>Equipment configurations inside the cabinet</b>	
All fans are mounted inside the cabinet.	Can be mounted in a wider range of positions and structures, even where there is public access, etc.
Easy to mount additional insulation and noise suppression equipment.	Configurations individually customised to each project/installation.
Key components are standardised units easily available throughout the world.	Less downtime.  Savings on maintenance and service work.
Most effective rotor currently available anywhere in the world.	Most humidity removed from the flow of air at lowest cost.

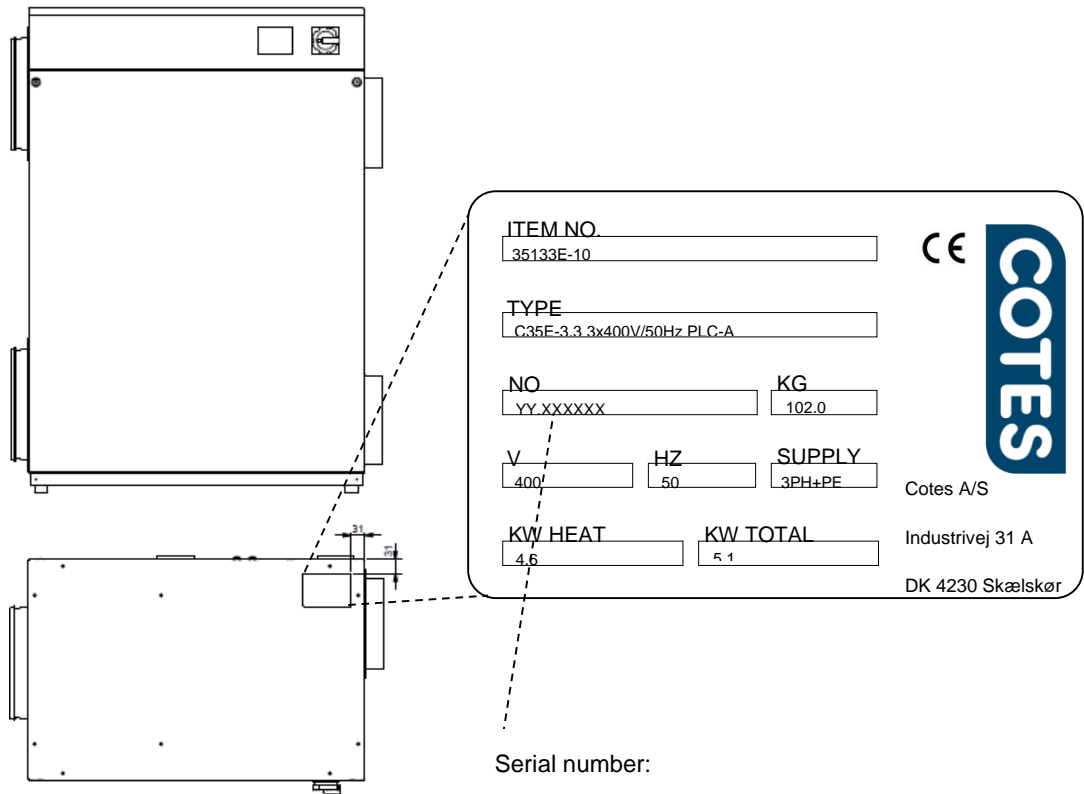
Highly durable rotor bushes.	Savings on maintenance and service work.  Greater operating efficiency.
<b>Air flow</b>	
Available with frequency-controlled ventilator.	Savings on energy costs.  Less noise
<b>Access</b>	
Large door that provide rapid, easy access.	Savings on maintenance and service work.  Less downtime means greater operating efficiency.
Filters that are easy to get out, and quick to change.	Savings on maintenance and service work.  Greater operating efficiency.
<b>Connectivity</b>	
Compatible with all standard electrical voltages and frequencies <ul style="list-style-type: none"> <li>• 230V/400V</li> <li>• 50Hz/60Hz.</li> </ul>	Savings on installation costs.  More rapid commissioning.
Designed for compatibility with modern PLC and web-based control and warning systems.	Easy to control and monitor from virtually anywhere.
Modular design prepared for installation of control systems, heaters, cooling systems, hygrometers, sensors, etc.	Rational, cost-effective dehumidification installations.  Maximum reliability.
<b>Energy sources</b>	
Thermal recovery installations can be fitted.	Savings on energy costs  Improved environmental footprint.

## SECTION 3 / TECHNICAL DETAILS

### SERIAL NUMBER/IDENTIFICATION

This is the installation and service handbook for your Cotes dehumidifier.

The serial number/identification code for your particular model is located in the top of the dehumidifier (see drawing below).



Serial number:

Example:

14.12345  
 |           |  
           12345 = Serial number  
 14 =           Year of production



## SPECIFICATIONS

Note that specifications and controls given in this handbook in some situations are approximate.

Table 1 Technical data C35E/C35D

	Type	C35E					C35D	
		Model	3.3	3.8	4.5	5.1	5.6	3.2
Dry air, nominal**	m <sup>3</sup> /hour	750	1000	1000	1000	1000	405	617
Regeneration air, nominal*	m <sup>3</sup> /hour	135	135	168	202	233	135	202
External pressure, dry air (at nominal air flow)	Pa	200	200	200	200	200	300	300
External pressure, regeneration air (at nominal air flow)	Pa	300	300	300	300	250	300	300
Capacity at 20°C, 60% relative humidity	kg/hour	3.3	3.8	4.5	5.1	5.6	3.2	4.5
Electric heater, max.	kW	4.6	4.6	5.7	6.9	8.0	4.6	6.9
Fuse (3x230V)	A	10 (32)	10 (32)	16 (32)	16 (32)	16 (32)	10 (32)	16 (32)
Nominal power consumption	kW	4.92	5.10	6.25	7.42	8.50	4.86	7.26
Maximum connected load	kW	5.10	5.30	6.50	7.60	8.70	5.30	7.60
Voltage (3x230V)	V	400 (3x230)						
Frequency	Hz	50						
Ground (3x230V)		3PH+N+PE (3PH+PE)						

Sound level (EN292-2)	dB(A)	62	68	68	68	68	68	68
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Table 2 Measurements

Type		C35E					C35D	
	Model	3.3	3.8	4.5	5.1	5.6	3.2	4.5
L x W x H cabinet	mm	492.5 x 756 x 1091						
L x W x H total	mm	532 x 756 x 1091						
Weight	kg	102	110	110	110	110	110	110
Regeneration air outlet	mm	200						
Regeneration air inlet	mm	200						
Process air inlet	mm	250						
Process air outlet	mm	250						

\* Adjustable in PLC-B configuration and fully controlled in PLC-C and PLC-D configurations

\*\* Fully controlled in PLC-C and PLC-D configurations

**Capacities**

Figure 1 C35E-3.3 capacity at 750m<sup>3</sup>/h

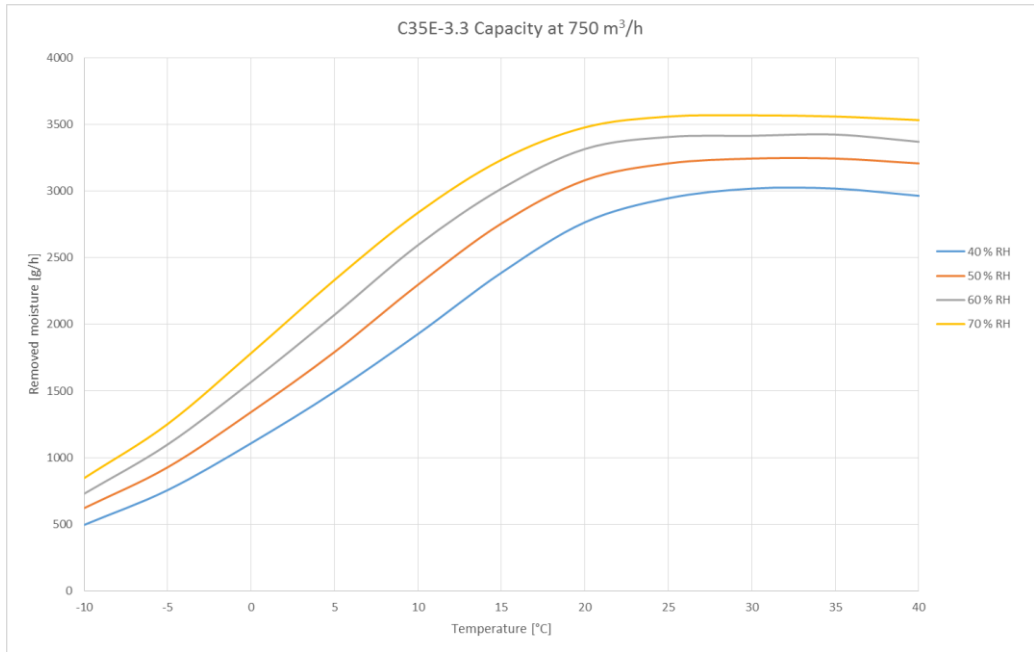


Figure 2 C35E-3.9 capacity at 1.000m<sup>3</sup>/h

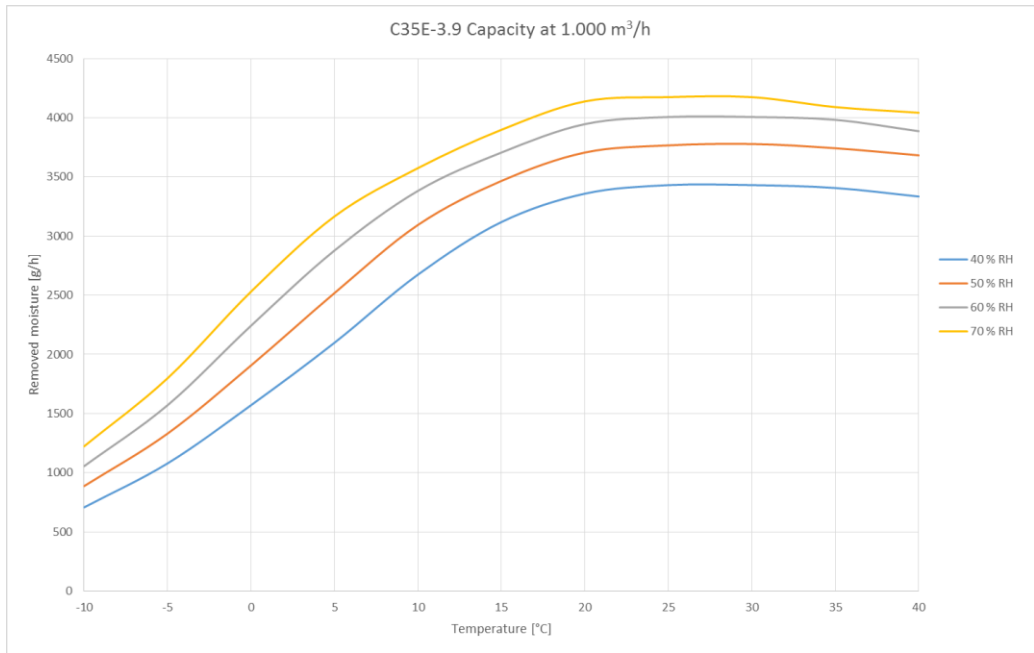


Figure 3 C35E-4.4 capacity at 1.000m3/h

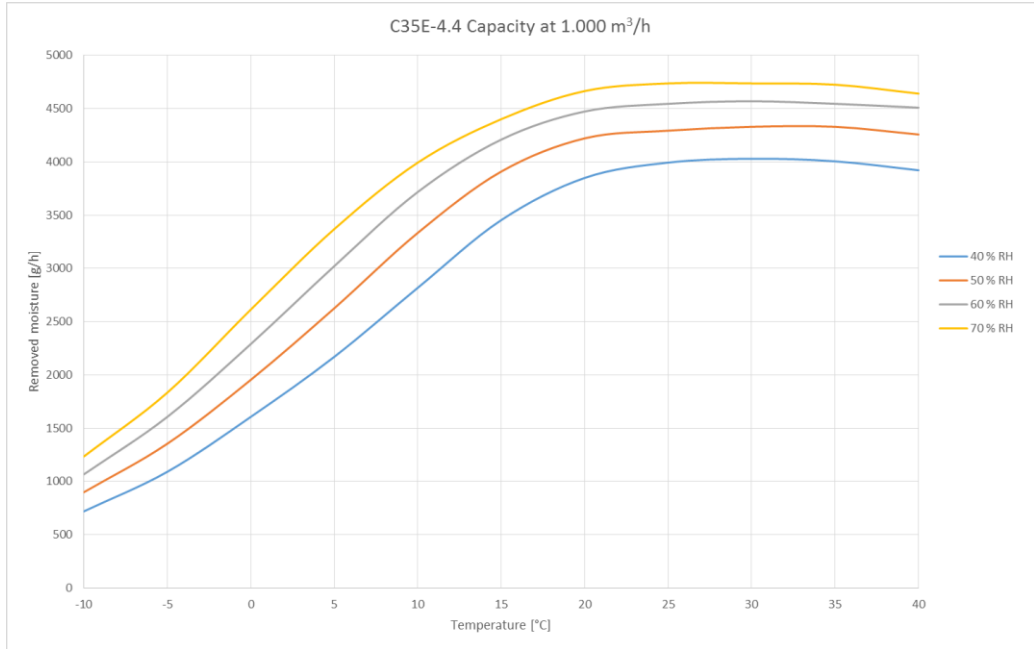


Figure 4 C35E-5.0 capacity at 1.000m3/h

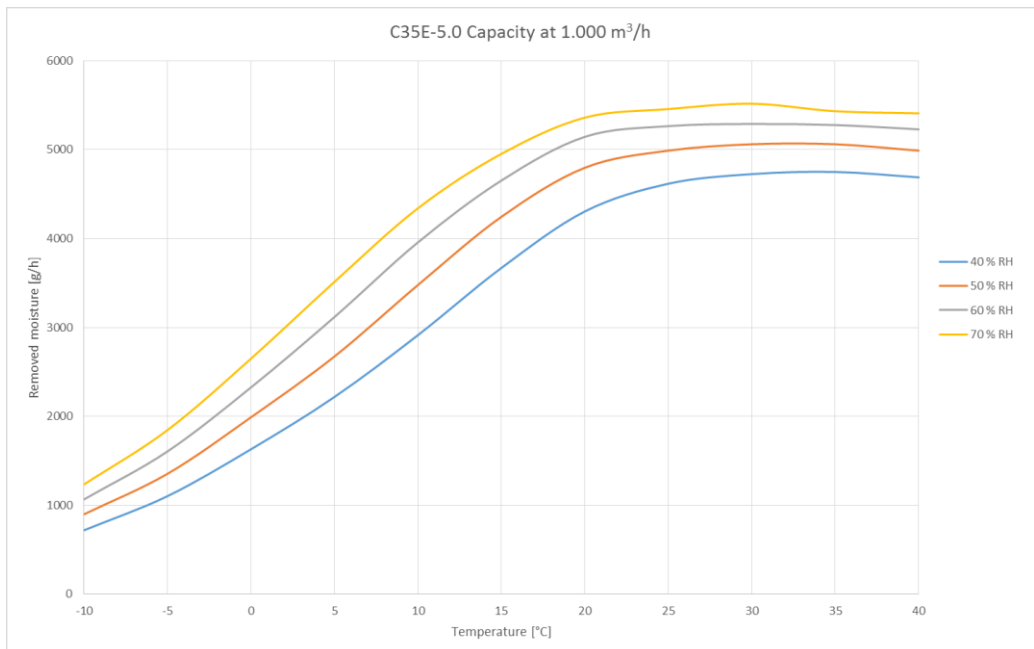


Figure 5 C35E-5.6 capacity at 1.000m3/h

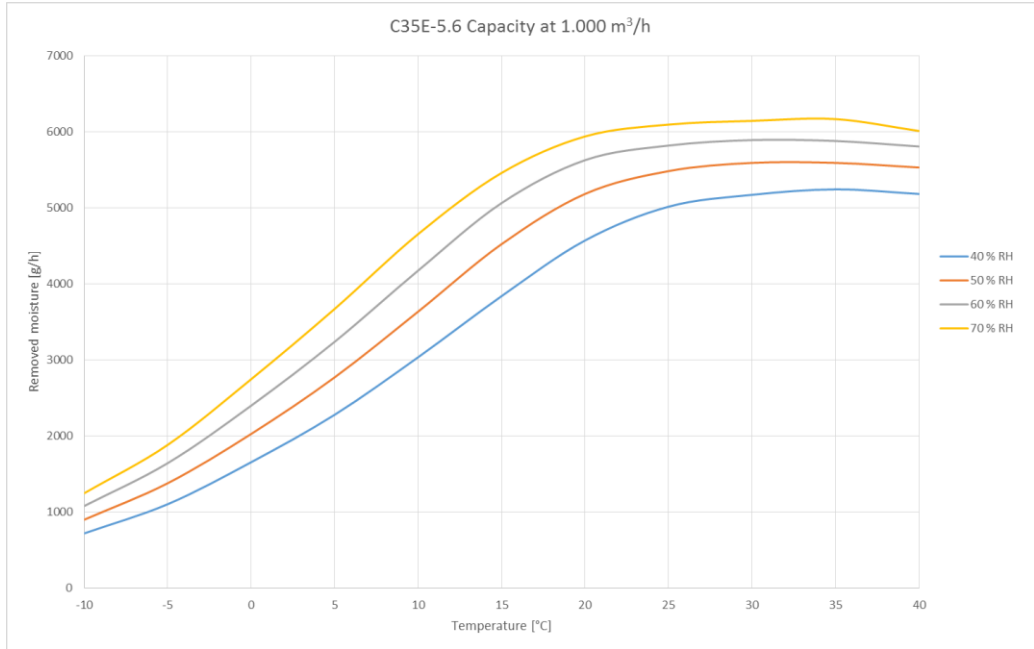


Figure 6 C35D-3.2 capacity at 405m3/h

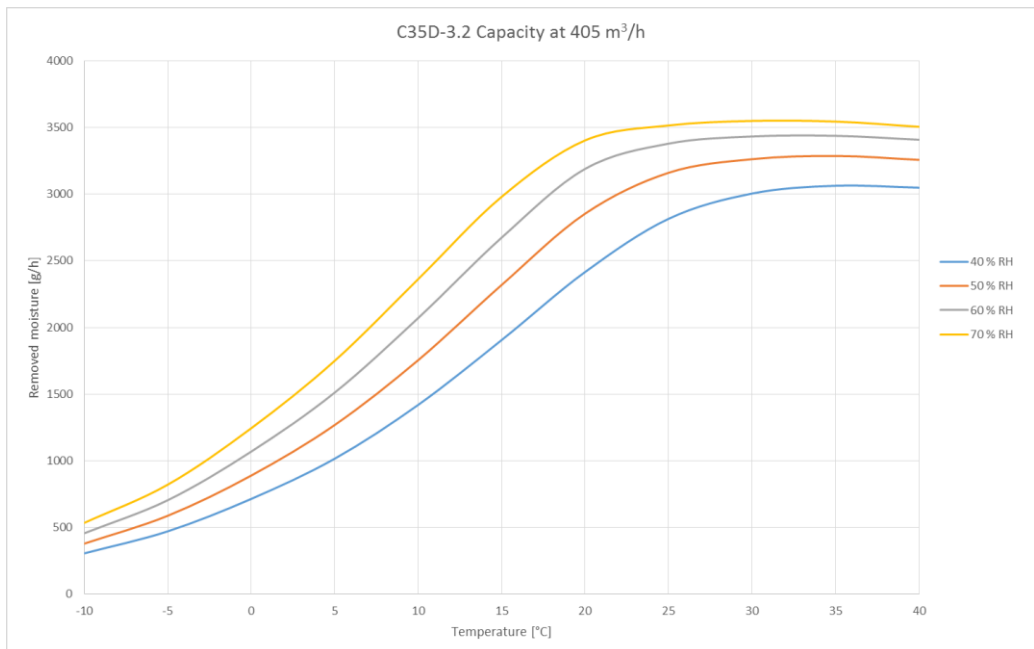
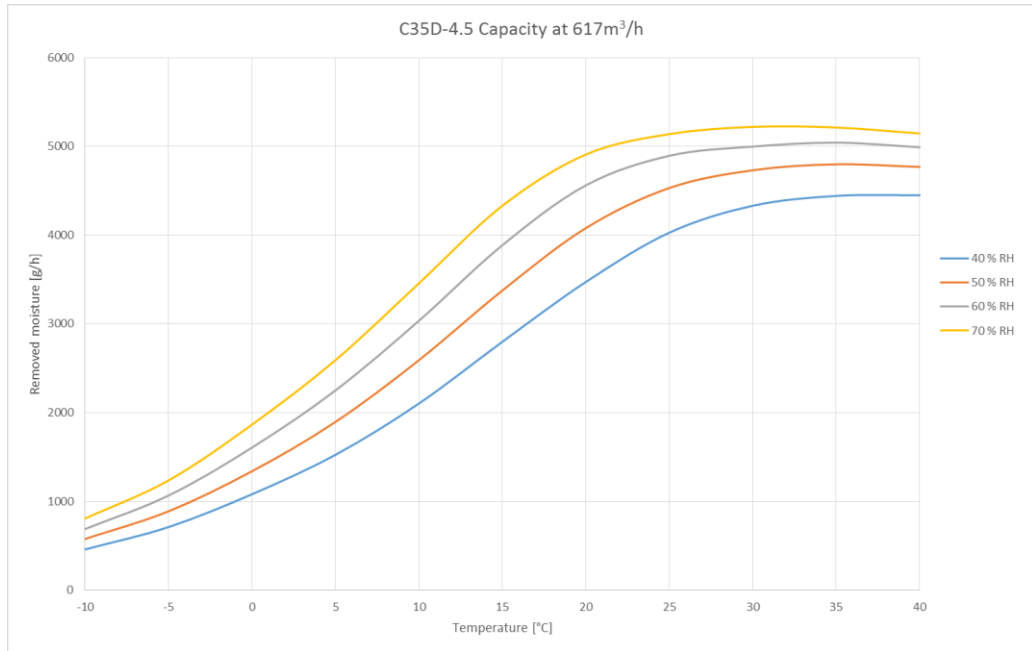


Figure 7 C35D-4.5 capacity at 617m<sup>3</sup>/h



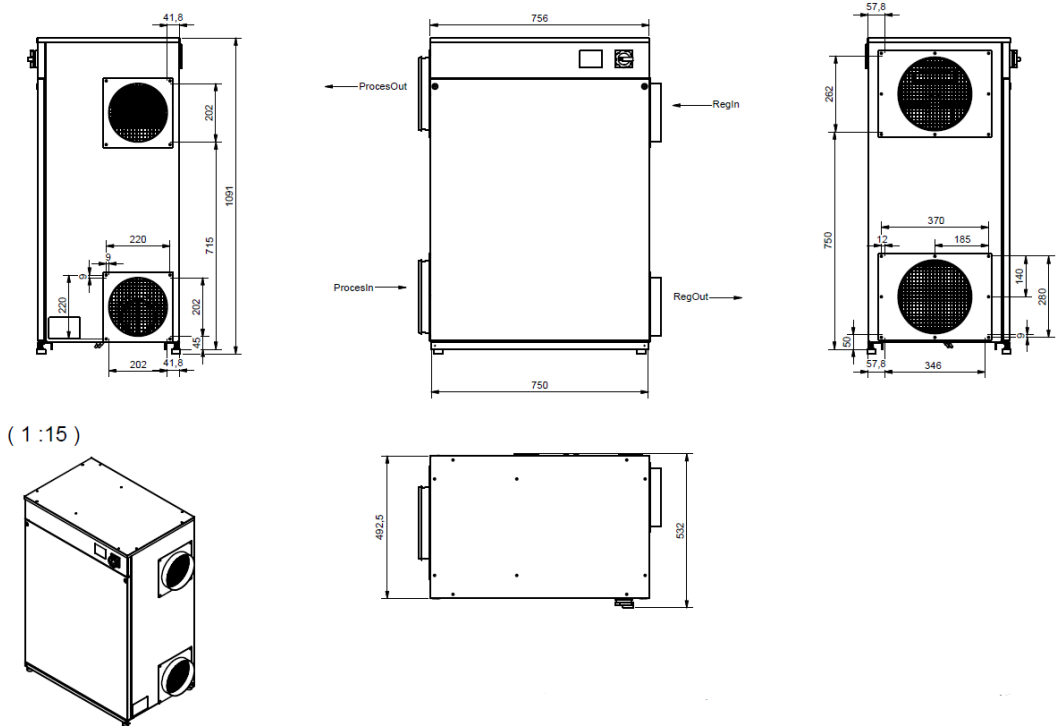
## ASSEMBLIES AND COMPONENTS

### Customised to meet your needs

Cotes dehumidifier units are based on a modular design that enables our customers to select from a broad range of carefully selected components and assemblies, to meet specific installation and operating requirements.

Your Cotes C35E/C35D dehumidifier unit has been configured to meet the particular requirements of your installation.

### Dimensions











## SOUND LEVELS

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### Sound dampening and silencers

Please check the maximum sound level permitted for the particular installation you are working with, and select the sound dampening and silencers needed for the dry air outlet duct and the regeneration air outlet duct accordingly.

Sound levels for the particular dehumidifier can be found on page 1817.

### Measuring sound levels

Sound levels for Cotes dehumidifiers are measured in accordance with the provisions of the EN292-2 standard.

While the sound level is being measured, the dehumidifier is placed on the floor. Ducts for regeneration air and for incoming air/outgoing air are installed and led out of the measuring room.

The sound level is then measured 1 metre outside the front of the cabinet (outside the large cabinet cover), and 1.6 metres above the floor.

# SECTION 4 / INSTALLATION

## HOW TO INSTALL THIS DEHUMIDIFIER

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### Removing the packaging

Cotes C35E/C35D dehumidifier units are delivered in a cardboard box. Please dispose of this packaging responsibly, and recycle it if at all possible.

### Handling

Cotes dehumidifier units are built to be very robust, so there is no need for special handling, apart from normal sensible care and attention.

Note the weight of the dehumidifier as specified on page 17. We recommend that you use a forklift to move the dehumidifier around and place it in position.

### Where to mount this dehumidifier

Cotes adsorption dehumidifiers are designed for installation indoors.

The back of the dehumidifier should be placed against an outer wall to make it easier to install the regeneration air ducts.

The three other sides of the unit should have at least 1 metre of unobstructed access, for easy service and maintenance.

### Where not to mount it

Unless it has been arranged with Cotes and special considerations have been made, the unit should not be placed outdoors.

The unit should not be placed inside an office or in other locations where the sound pressure level must be kept to a minimum.



#### NOTE

Dehumidifier must be placed indoors, and protected from rain and water.

**Things to be careful about**

Electrical work should only be carried out by an authorised electrician.

**NOTE**

Electrical work should only be carried out by an authorised electrician.

**Connections needed – electrical**

First, make sure that the main switch is OFF.

**NOTE**

Make sure power is switched off before installing and servicing.

Now the power circuit cable can be connected to the unit.

**Connections needed – ductwork****NOTE**

To ensure low pressure drop and low sound pressure levels, please request assistance from a company that specialises in ductwork.

The ductwork for the process air should be selected with regard to the external pressure available from the process air fan and the space available for ducting. A 250mm-diameter duct is normally recommended for the process air flow.

When installed, the process air flow should be adjusted by means of a damper.

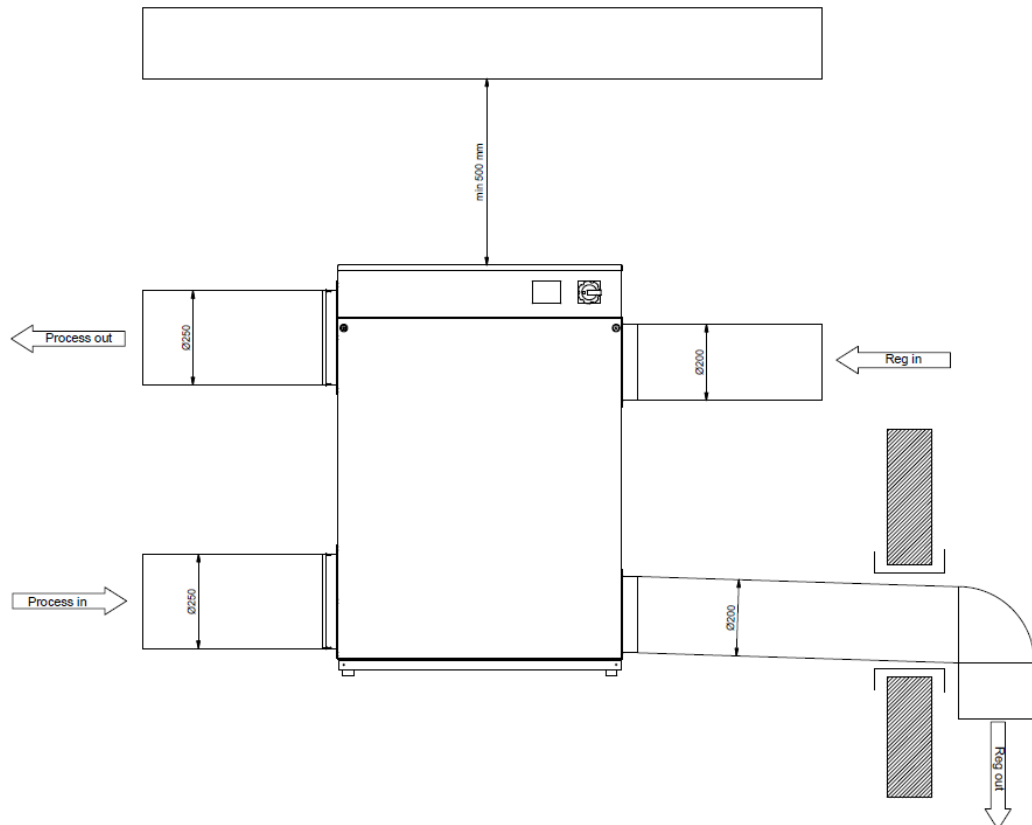
In PLC-C and PLC-D configurations, the process air fan is equipped with a frequency converter, which makes dampers on the process air side unnecessary.

The regeneration air should be led to and taken from the outdoors.

The ductwork for the regeneration air should be selected with regard to the external pressure available from the regeneration air fan and the space available for ducting. A 200mm-diameter duct is normally recommended for the regeneration air flow.

The regeneration air outlet should be made to drain downwards towards the outlet, to allow any condensate to run out.

There must be at least 500mm unrestricted access above the dehumidifier.



If this draining downwards is not possible, drill a  $\varnothing 6$ mm hole in the lowest part of the duct, so that any accumulated water can drain away.



#### NOTE

The regeneration air outlet should be made to drain downwards towards the outlet for draining.

If this is not possible, drill a  $\varnothing 6$ mm hole in the lowest part of the duct, so that any accumulated water can drain away.

A damper for adjusting the regeneration air flow must be installed on the outlet in order to adjust the regeneration air flow. If not, the regeneration air flow will – in most cases – be too high, making it impossible to reach the desired temperature for the regeneration air and thus making the unit less efficient.

In PLC-B, PLC-C and PLC-D configurations, the regeneration air fans are equipped with frequency converters, which makes dampers on the regeneration air side unnecessary. In PLC-C and PLC-D configurations, the flow of regeneration air will adjust automatically.

**Safety precautions**

The smallest units in the C35E/C35D range weigh approximately 102–110 kg and should therefore only be moved using a forklift or similar equipment

Any work in the electrical box should only be carried out by authorised electricians.

Any pipe connections to and from the coils should only be carried out by authorised plumbers.

## HOW TO COMMISSION THIS DEHUMIDIFIER

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### NOTE

Only trained/authorised electricians are allowed to carry out any work required in the electronics box of this Cotes dehumidifier.

When the cover of the electronics box is open, the power supply must be switched off at the mains switch.

### Procedure

#### a) Check the electrical installation before starting the dehumidifier, switch on the mains switch.

- Check the voltage between the terminals L1, L2, L3 (= 400V or 230V for 3 x 230V dehumidifiers)
- Check one of the phases and Neutral (= 230V)
- Is the ground cable connected, and of the correct specifications?
- Is any hygrometer (if fitted) correctly connected?

#### b) To check the connected duct system

- Is the recommended damper installed in the regeneration air outlet duct (PLC-A only)
- Is the recommended damper installed in the process air outlet duct (PLC-A and PLC-B only)
- Do the regeneration air outlet ducts drain away from the dehumidifier, to make sure that any condensed water flows away?
- If the regeneration air outlet does not drain away from the dehumidifier, check whether there is a 6mm-diameter hole drilled in the lowest part of the duct, so that any accumulated water can drain away.

#### c) Suggested damper positions/air flow settings at commissioning

Dampers/settings should be set in the following positions.

- PLC-A configuration:
  - Damper at process air outlet: Fully open.
  - Damper at regeneration air outlet: Fully open.
- PLC-B configuration:
  - Damper at process air outlet: Fully open.



- Regeneration air fan speed 50% (default value)
- PLC-C and PLC-D configuration:
  - Process air fan automatically adjusts to preset airflow (no damper needed)
  - Regeneration air fan automatically adjusts to preset airflow (no damper needed)

**d) If the dehumidifier starts up as described above, then go to e)**

If the dehumidifier does not start, you should check the humidity set point. If set point is higher than measured by the humidity sensor, the dehumidifier will not start (unless the “Always On” program has been chosen – see below).

**e) Once the dehumidifier is operating, you should adjust the air flows**

PLC-A configuration:

Adjust the dampers on process air and regeneration air so the incoming air flow matches the nominal values given on page 17. Check the air flows using a suitable instrument (pitot pipe/thermoanemometer or similar) in the duct.

PLC-B configuration:

- Adjust the damper on the process air so the incoming air flow matches the nominal value given on page 17. Check the air flow using a suitable instrument (pitot pipe/thermoanemometer or similar) in the duct.
- Adjust the regeneration air fan speed until the incoming air flow matches the nominal value given on page 17. Check the air flow using a suitable instrument (pitot pipe/thermoanemometer or similar) in the duct.

PLC-C and PLC-D configuration:

- In the PLC-C and PLC-D configuration, the dehumidifier is self-adjusting, and adjusts according to default air flows.

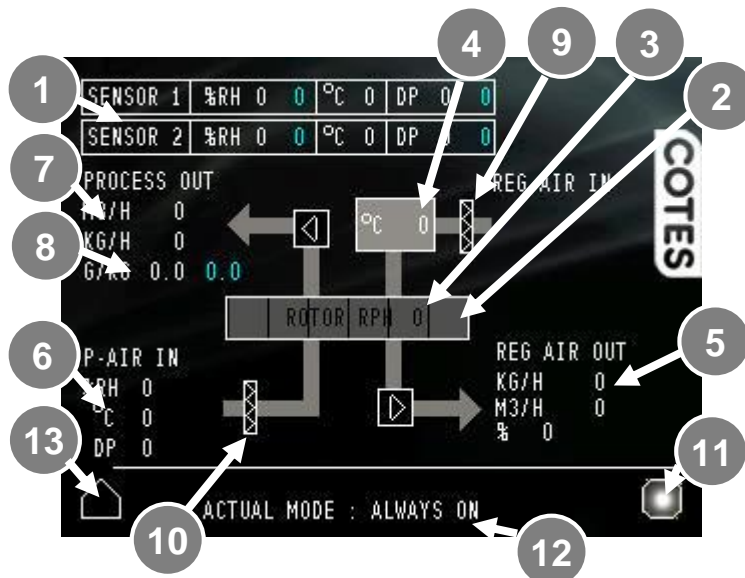
## SECTION 5 / OPERATION

### HOW TO OPERATE THIS DEHUMIDIFIER

The dehumidifier needs to be turned on at the main switch.

After a while the PLC overview screen will appear.

#### Overview menu



What you see:

1. **Actual measurement** and **Target value for %RH and temperature** within the space concerned (as registered by external sensors not part of the dehumidifier).

In PLC-B, PLC-C and PLC-D, the display can show the dew point of the space concerned, as an alternative measurement.

In PLC-C and PLC-D, more sensors can be used to provide measurements of %RH and temperature.

The blue number is the **Target value for %RH** within the space concerned. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing "enter".

If you wish to alter the threshold value, you do this on the HUMIDITY/SENSOR1 menu. In PLC-C and PLC-D, you can select dew point instead of %RH – or a combination of these.

2. **Rotor**. If the rotor is turning, this moves.
3. **Rotor speed** in rph.

4. **Regeneration air temperature.** Shows the temperature of the heated regeneration air. If the temperature is shown in red, something is overheating.
5. **Regeneration air flow** (PLC-C and PLC-D only). The white number indicates the air flow, given by the chosen program. In the CUSTOM program the number is blue, and can be changed. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing "enter". The value can be in m<sup>3</sup>/hour (based on normal m<sup>3</sup> (20°C)) or kg/hour.

In PLC-B (only) the regeneration air fan can be adjusted in % in relation to maximum setting. This should only be used for initial adjustment, and should not be changed subsequently.

6. **Inflow process air conditions** (PLC-C and PLC-D only). For PLC-C, temperature only.
7. **Adjustment of process flow** (PLC-C and PLC-D only). The white number indicates the air flow, given by the chosen program.

In the CUSTOM program the number is blue, and can be changed. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing "enter". The value can be in m<sup>3</sup>/hour or kg/hour.

8. **Adjustment of process air conditions**, measured in g/kg (PLC-D only). The blue number is where you adjust the target value. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing "enter".
9. **Regeneration air filter** (PLC-B, PLC-C and PLC-D only). If this is yellow, this filter should soon be replaced. If this is red, the service interval has been exceeded, or the filter sensor is showing an alarm.
10. **Process air filter** (PLC-B, PLC-C and PLC-D only). If this is yellow, this filter should soon be replaced. If this is red, the service interval has been exceeded, or the filter sensor is showing an alarm
11. **Alarm/warning.** Green = everything is ok. Yellow = warning = the target is not reached yet, or a service will soon be required.

Red = alarm = there is a fault or malfunction somewhere. The most likely causes are that the regeneration air heater is over-heating, the filter is blocked, or the service interval has been exceeded.

12. **Actual mode.** Indication of chosen program. See more page 41.
13. **Return to main menu**

Note that to change values, you will be asked to enter an operator code (1234 is standard/default).

**MAIN menu**

What you see:

**START/STOP** Turn the dehumidifier on and off.

**HUMIDITY** menu. This is where you decide the levels of humidity that the dehumidifier provides.

**PROGRAMS** menu. This is where you decide how you want the dehumidifier to operate (always on; on/off; automatic adjustment of heat; using Energy, Quiet or Custom programs). NB some programs are only available for certain specific configurations.

**SERVICE** menu. This is where you can see how long it is before the next service is required, and also where you reset the timer after a time-expired component has been replaced.

**ALARM** menu. This is where you check any alarms, and reset the dehumidifier after dealing with the alarm.

**SET-UP** menu (PLC-B, PLC-C and PLC-D only). This is where you set the time/date and set the timer.

**INFO**. This is where you can read data about how the dehumidifier is performing, with a series of performance graphs showing how humidity within the designated space has changed over time.

**Return to overview**

**HUMIDITY menu**

What you see:

**SENSOR 1.** This button is only shown when a sensor is connected. Touching on this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

**SENSOR 2** (PLC-C and PLC-D only). This button is only shown when a sensor is connected. Touching on this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

**PROCESS AIR HUMIDITY** (PLC-D only). Touching on this button leads to a pop-up menu where you can adjust the humidity target values (g/kg) for the process air leaving the dehumidifier. This button is only visible if there is no SENSOR 1 and/or SENSOR 2 connected.

**INDIVIDUAL** and **AVERAGE** buttons are only visible if both SENSOR 1 and SENSOR 2 are connected. The standard setting is INDIVIDUAL.

INDIVIDUAL means that the dehumidifier is controlled by the value measured by each individual sensor. If the air humidity level increases above the threshold value set for one of the sensors, the dehumidifier starts running.

If you press AVERAGE, it means that the dehumidifier is controlled by the average of the values measured by each individual sensor, in relation to the average of the designated threshold values. If the average values actually measured fall below the average designated threshold values, the dehumidifier starts running.

This is important in cases where (for example) one of the sensors takes measurements near a door or other entry point into the building, and where the level of humidity can go up for a short while, without this necessarily representing a problem.

In AVERAGE the TARGETS of the sensors must be identical

**Return to main menu**

**HUMIDITY / Sensor 1 menu**

What you see:

**Actual values measured by sensor 1** (measures both %RH and °C. PLC-B, PLC-C and PLC-D also measure actual dew point temperature).

**Controlling RELATIVE HUMIDITY with the dehumidifier.** Pressing the RELATIVE HUMIDITY checkbox makes the dehumidifier control relative humidity as measured by the sensor.

**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 41 for more information.

**Controlling DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). Pressing the DEW POINT checkbox makes the dehumidifier control dew point as measured by the sensor.

Target value can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

Threshold values (MIN and MAX) for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 41 for more information

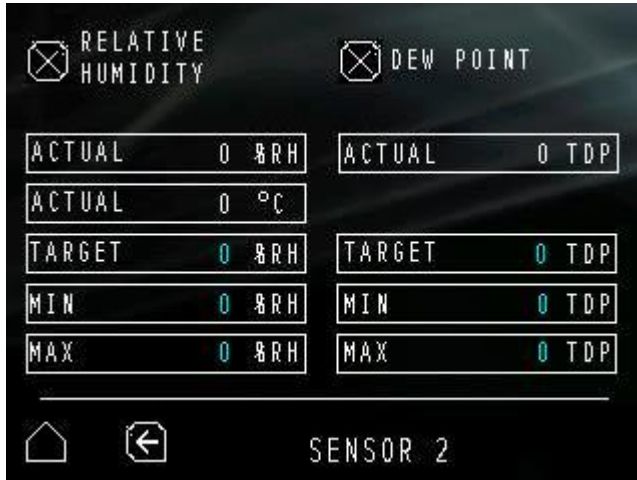
**Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

**Return to main menu**

**Return to HUMIDITY menu**

**HUMIDITY / Sensor 2 menu**

(PLC-C and PLC-D only)



What you see:

**Actual values measured by sensor 2** (measures both %RH and °C. PLC-B, PLC-C and PLC-D also measure actual dew point temperature).

**Controlling RELATIVE HUMIDITY with the dehumidifier.** Pressing the RELATIVE HUMIDITY checkbox makes the dehumidifier control relative humidity as measured by the sensor.

**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 41 for more information

**Controlling DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). Pressing the DEW POINT checkbox makes the dehumidifier control dew point as measured by the sensor.

Target value can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

Threshold values (MIN and MAX) for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 41 for more information

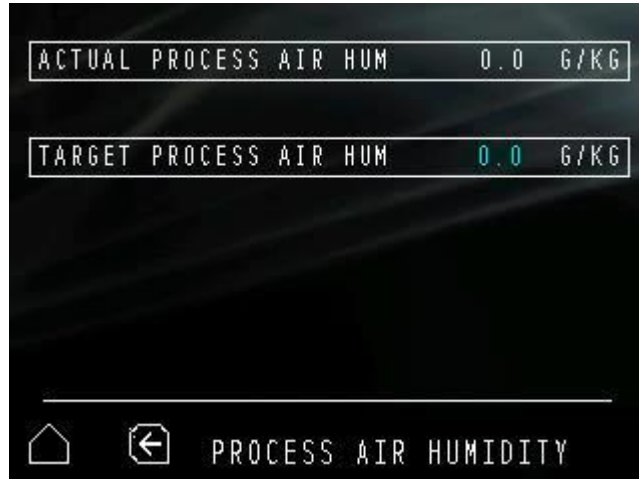
**Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

**Return to main menu**

**Return to HUMIDITY menu**

**PROCESS AIR HUMIDITY**

(PLC-D only, and only when no external sensors are mounted)

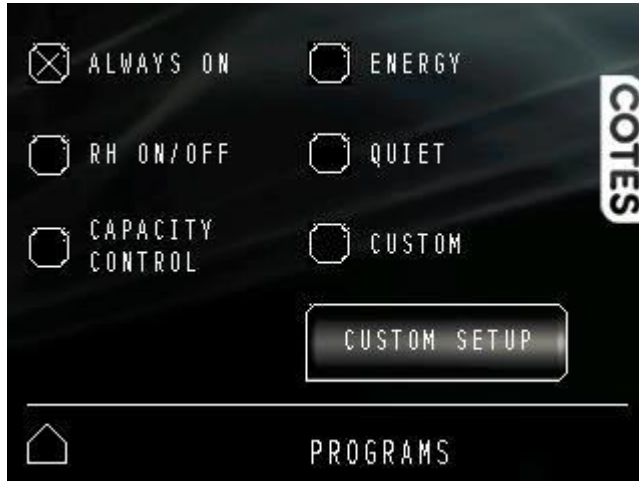


What you see:

- 1) **Actual PROCESS AIR HUMIDITY (g/kg)**
- 2) **Target PROCESS AIR HUMIDITY (g/kg)**

There are no threshold values shown because the dehumidifier is running all the time, and does not make adjustments in relation to threshold values.



**PROGRAMS menu** (when at least sensor 1 is attached)

What you see:

**ALWAYS ON** The dehumidifier is running at full power all the time.

**ON/OFF** The dehumidifier is controlled by an external sensor. When the values measured by this sensor are below the threshold you have set, the dehumidifier is turned off. When the values measured by this sensor are above the target you have set, the dehumidifier is turned on, and running at full power. See more details of targets and threshold on page 38 and 39.

**CAPACITY CONTROL** (PLC-B only). The focus here is on removing unwanted humidity, so the fans are running at all times. The level of heat is adjusted to meet requirements. The dehumidifier does not make adjustments in relation to threshold values.

**ENERGY** (PLC-C only). In addition to removing unwanted humidity, the focus here is on removing such humidity, in a more energy-efficient manner. When turned on the speed of the rotor and the level of heat are adjusted to meet requirements and to save energy.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**ENERGY** (PLC-D only). The focus here is on removing unwanted humidity and keeping overall energy consumption to a minimum. In PLC-D's ENERGY programme, the flow of air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**QUIET** (PLC-C and PLC-D only). The focus here is on making sure the dehumidifier runs as quietly as possible. The dehumidifier is only turned on then values measured by external sensor is above the target you have set.

In this configuration, all the air flows are reduced as much as possible, in order to keep noise levels to a minimum.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**CUSTOM SETUP** (PLC-C and PLC-D only). In this configuration, you can adjust all the values individually, within predefined limits. See page 45 for more details.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**Return to main menu**

**PROGRAMS menu in PROCESS mode**

(for PLC-D when no external sensors are attached)



What you see:

**ALWAYS ON** The dehumidifier is running at full power all the time.

**ENERGY +** The focus here is on keeping a target absolute humidity (g/kg), as defined in the humidity menu. The target process air flow (kg/hour) can be specified by pressing the PROCESS FLOW button. See page 44 for more details.

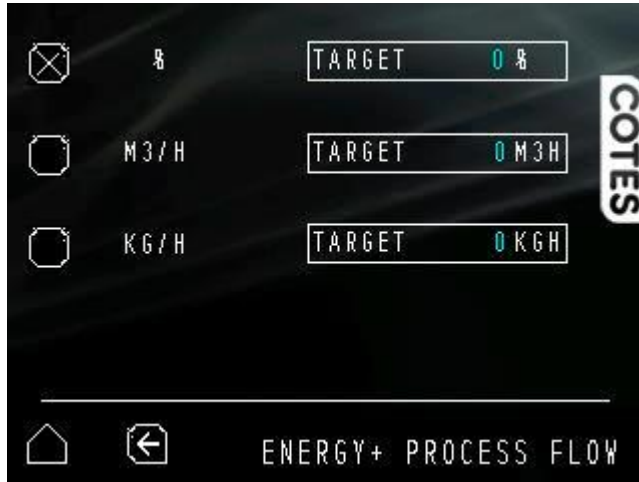
In ENERGY +, the flow of air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

**CUSTOM SETUP.** In this configuration, you can adjust all the values individually, within predefined limits. See page 45 for more details.

**Return to main menu**

**PROGRAMS / PROCESS MODE / PROCESS FLOW**

(For PLC-D when no external sensors are attached)



What you see:

% in relation to maximum fan speed

**m<sup>3</sup>/hour**

**kg/hour**

**Return to main menu**

To **PROGRAMS** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

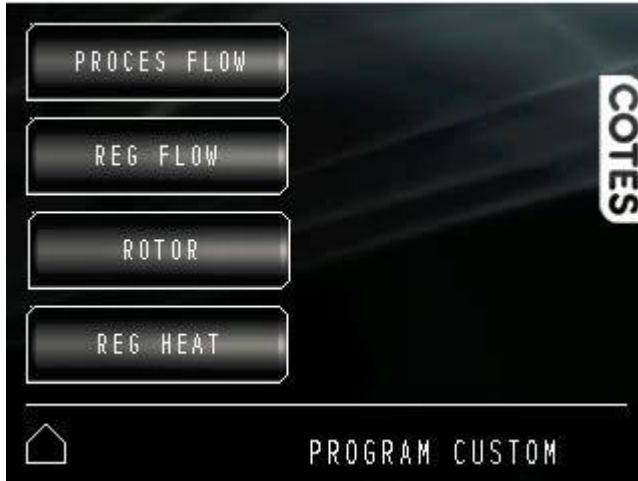
**NOTE**

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.



**PROGRAM / CUSTOM**

What you see:

**Adjustment of process flow** (PLC-C and PLC-D only)

**Adjustment of regeneration air flow** (PLC-B, PLC-C and PLC-D only)

**Adjustment of rotor speed** (PLC-C and PLC-D only)

**Adjustment of levels of heat in regeneration air flow** (PLC-B, PLC-C and PLC-D only)

**Return to main menu**

**Return to PROGRAMS menu**

**NOTE**

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

**PROGRAMS / CUSTOM / PROCESS flow**

What you see:

% in relation to maximum fan speed (PLC-C and PLC-D only)

**m<sup>3</sup>/hour** (PLC-C and PLC-D only)

**kg/hour** (PLC-C and PLC-D only)

**Return to main menu**

To **CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

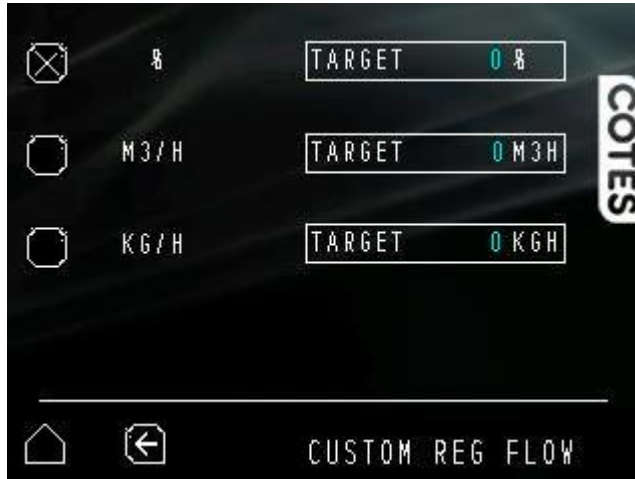
In CUSTOM programme the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**NOTE**

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

**PROGRAMS / CUSTOM / REGENERATION AIR FLOW**

What you see:

**%** in relation to maximum fan speed (PLC-B, PLC-C and PLC-D only)

**m<sup>3</sup>/hour** (PLC-C and PLC-D only) (based on normal m3 (20°C))

**kg/hour** (PLC-C and PLC-D only)

**Return to main menu**

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

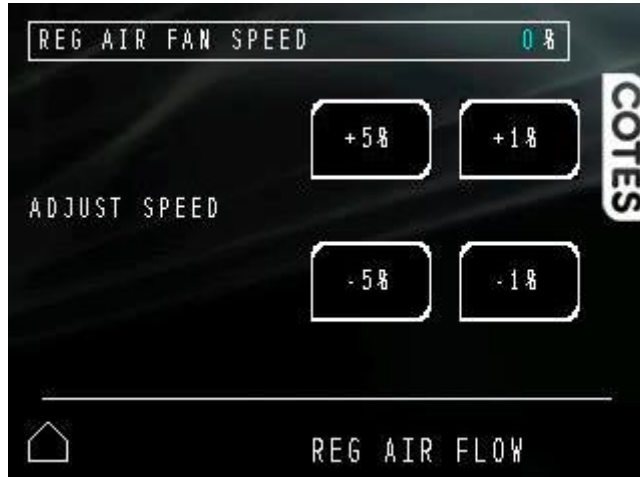
In CUSTOM programme the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**NOTE**

You should only change the regeneration air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

**PROGRAMS / CUSTOM / REGENERATION AIR FLOW**

You can reach this screen in two different ways ((PLC-B, PLC-C and PLC-D only):

- Choose % fan speed figure on the CUSTOM REG(eneration air) flow menu
- Choose the blue % fan speed figure in the OVERVIEW menu

You use it to adjust the fan that delivers the regeneration air that dries the rotor.

If, for example, you wish to achieve a value of 200 m<sup>3</sup>/hour, you place a flow measuring device in the duct and press the setting figure until it corresponds with a 200 m<sup>3</sup>/hour flow.

In CUSTOM programme the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**NOTE**

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.





**PROGRAMS / CUSTOM / ROTOR**

What you see:

**RPH** – this is where you select rotor speed (PLC-C and PLC-D only), by pressing the blue number, and entering the new value.

**AUTO** – automatically calculates the ideal rotor speed (rph)

**Return to main menu**

In CUSTOM programme the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

**NOTE**

You should only change rotor speed if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

## PROGRAMS / CUSTOM / HEAT



What you see:

**% HEAT** Select heat setting as % of maximum possible heat effect.

**TARGET** Select desired temperature (fixed temperature). NB you may not be able to achieve the desired temperature, because this can depend on air conditions outside. However, the dehumidifier will use this value as a target that it will attempt to achieve.

**AUTO** Automatically calculates the ideal level of heat in relation to the setting for regeneration air flow.

#### Return to main menu

In CUSTOM programme, the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 38 and 39 for more details.

#### NOTE

You should only change the heater temperature if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.



**SERVICE menu**

What you see:

**REGENERATION AIR FAN**

**PROCESS AIR FAN**

**GEAR**

**REGENERATION AIR FILTER**

**PROCESS AIR FILTER**

**ROTOR**

**SERVICE HISTORY**

**Return to main menu**

**What the colours mean** (on the SERVICE menu)

If your Cotes dehumidifier is operating perfectly, the frame surrounding each button will be **green**.

If a particular component in your Cotes dehumidifier is approaching the end of its planned service life, the frame surrounding the particular button will be **yellow**.

If a particular component in your Cotes dehumidifier has exceeded its planned service life and now needs replacing, the frame surrounding the particular button will be **red**.

If this dehumidifier features a PLC-A configuration, these service alarms will be based on hour counting that can be set when service is carried out.

If this dehumidifier features a PLC-B, PLC-C or PLC-D configuration, the filters and rotors are fitted with mechanical alarms that provide information on the display if any kind of service is due.

**SERVICE / REGENERATION AIR FAN**



What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**

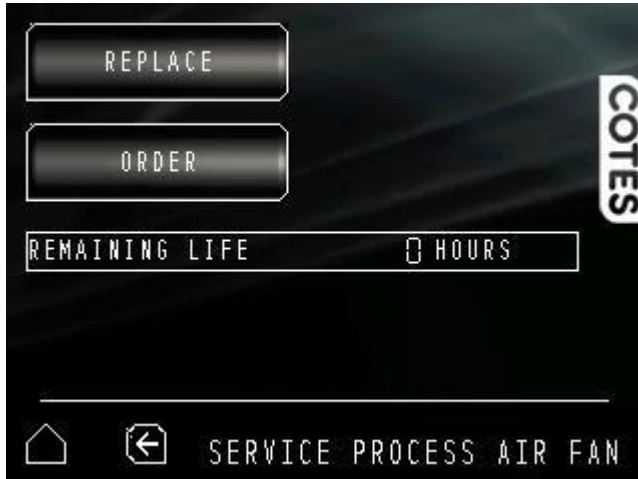


When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

**SERVICE / PROCESS AIR FAN**

What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**



When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

**SERVICE / REGENERATION AIR FILTER**

What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**



When you have pressed the ORDER button, you will see ordering details.





When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

**SERVICE / PROCESS AIR FILTER**



What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

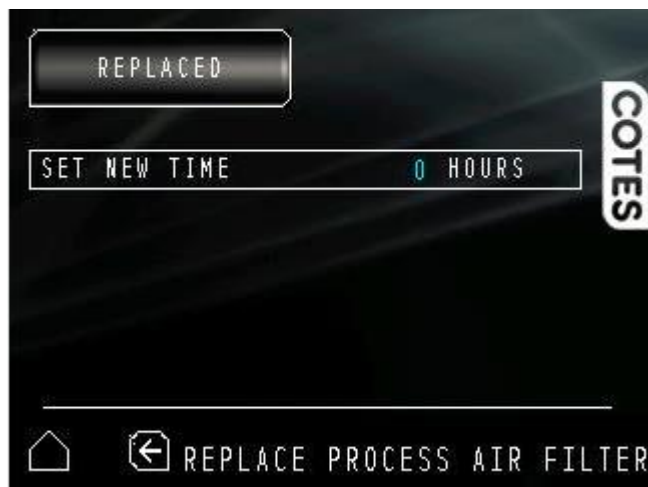
**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**



When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

**SERVICE / GEAR**



What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**

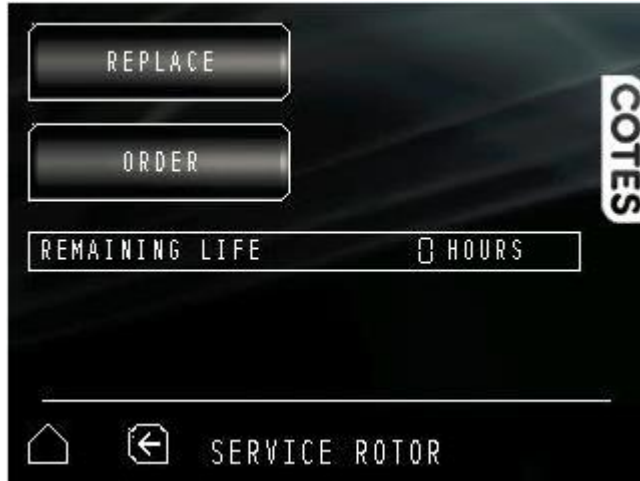


When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

**SERVICE / Rotor**

What you see:

**REMAINING LIFE** = Estimated service life left for the component or group of components.

**ORDER** to get details on how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

**REPLACE** (and reset actual service hours counter). When you press the button, a warning appears. When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default). A new screen will then appear.

**Return to main menu**

**Return to SERVICE**



When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

## ALARM



This is where you can see any alarms relevant to the operation of your Cotes dehumidifier.

What you see:

**INFORMATION ALARMS** These are solely for your information, and you do not have to do anything. Example: "out of reach"

After you have read the information, you can delete the alarm by pressing ALARM RESET

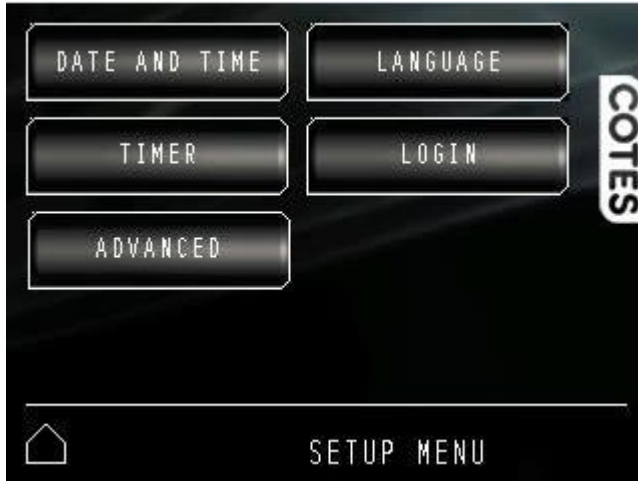
**REPLACE ALARMS** These tell you that a particular component will soon exceed, or has exceeded, its service life and must be replaced.

All alarms are shown. When you press ALARM RESET, all information alarms disappear.

NB: The safety thermostat will appear as an alarm if the temperature in the heating box around the filter exceeds 176 °C. If this happens, you will have to reset this alarm manually.

This is done by opening the cover and pressing the release button on the safety thermostat. This is why you cannot reset the alarm on the PLC itself – it can only be done after it has been done on the actual thermostat.



**SETUP menu**

What you see:

**DATE AND TIME** – this is where you adjust the date and time, if necessary.

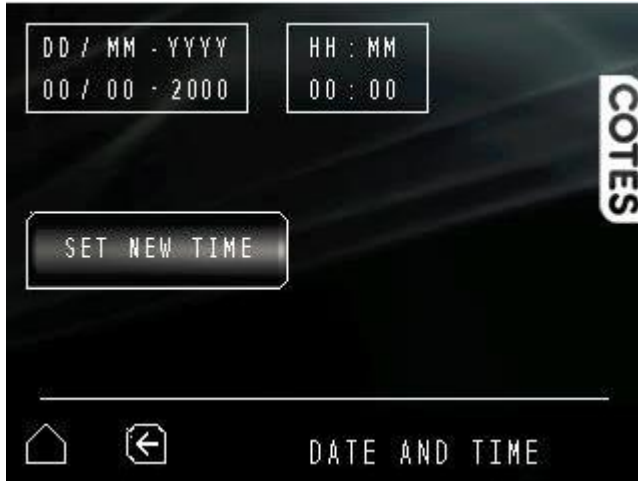
**TIMER** – this is where you adjust the timer setting. (PLC-B, PLC-C and PLC-D only).

**ADVANCED** – this is where you enter the height above mean sea level, and regeneration air fan (PLC-B configuration only).

**LANGUAGE** – you can choose between English, German and Danish.

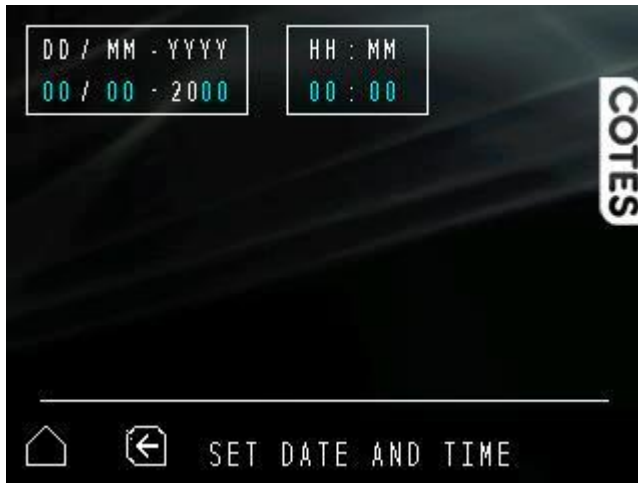
**LOGIN** – this is where you can log in to change settings.

**SET / DATE / TIME**



What you see:

You see actual settings of date and time. If you want to change these, press SET NEW TIME.



When you press on any blue number, a drop-down keyboard appears. Enter a new value, and complete the operation by pressing ENTER.

**SET / TIMER**

What you see:

**TIMER PROGRAM** – this is where you select which program is to run when the timer is on. Pressing on this button brings up the **TIMER PROGRAM MENU**. You can see the chosen timer program in the upper right corner.

**TIMER HUMIDITY** – this is where you define the targets when the timer is on.

**START** – this is where you select when the timer starts running.

**END** – this is where you select when the timer stops running.

**START TIMER** – this is where you select if the timer is on (marked), or off (unmarked).

**SET / TIMER / HUMIDITY**

What you see:

**SENSOR 1.** This button is only shown when a sensor is connected. Touching on this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

**SENSOR 2** (PLC-C and PLC-D only). This button is only shown when a sensor is connected. Touching on this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

**PROCESS AIR HUMIDITY** (PLC-D only). Touching on this button leads to a pop-up menu where you can adjust the humidity target values (g/kg) for the process air leaving the dehumidifier. This button is only visible if there is no SENSOR 1 and/or SENSOR 2 connected.

**INDIVIDUAL** and **AVERAGE** buttons are only visible if both SENSOR 1 and SENSOR 2 are connected. The standard setting is INDIVIDUAL.

INDIVIDUAL means that the dehumidifier is controlled by the value measured by each individual sensor. If the air humidity level increases above the threshold value set for one of the sensors, the dehumidifier starts running.

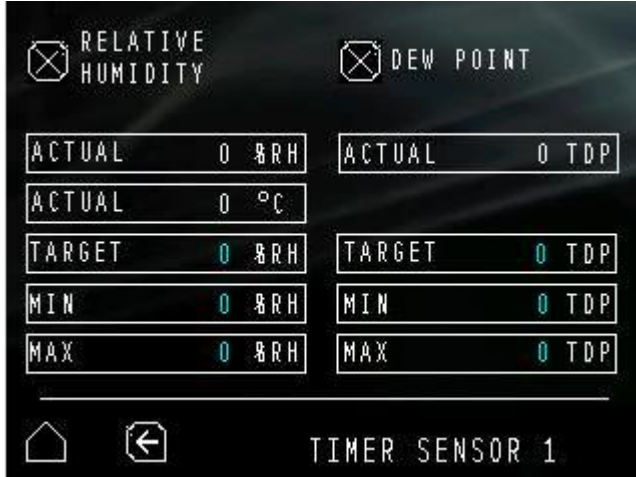
If you press AVERAGE, it means that the dehumidifier is controlled by the average of the values measured by each individual sensor, in relation to the average of the designated threshold values. If the average values actually measured fall below the average designated threshold values, the dehumidifier starts running.

This is important in cases where (for example) one of the sensors takes measurements near a door or other entry point into the building, and where the level of humidity can go up for a short while, without this necessarily representing a problem.

In AVERAGE the TARGETS of the sensors must be identical

**Return to main menu**

## SET / TIMER / HUMIDITY / SENSOR1



What you see:

**Actual values measured by sensor 1** (measures both %RH and °C. PLC-B, PLC-C and PLC-D also measures actual dew point temperature).

**Controlling RELATIVE HUMIDITY with the dehumidifier.** Pressing the RELATIVE HUMIDITY checkbox makes the dehumidifier control relative humidity as measured by the sensor.

**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in new value. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 71 for more information.

**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers.

**Controlling DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). Pressing the DEW POINT checkbox makes the dehumidifier control dew point as measured by the sensor.

**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

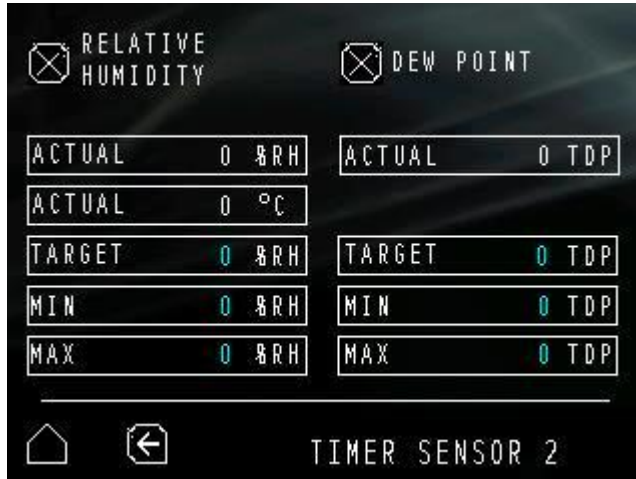
**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 71 for more information.

**Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

**Return to main menu**

**Return to HUMIDITY menu**

## SET / TIMER / HUMIDITY / SENSOR2



What you see:

**Actual values measured by sensor 2** (measures both %RH and °C. PLC-B, PLC-C and PLC-D also measure actual dew point temperature.)

**Controlling RELATIVE HUMIDITY with the dehumidifier.** Pressing the RELATIVE HUMIDITY checkbox makes the dehumidifier control relative humidity as measured by the sensor.

**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 71 for more information.

**Controlling DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). Pressing the DEW POINT checkbox makes the dehumidifier control dew point as measured by the sensor.

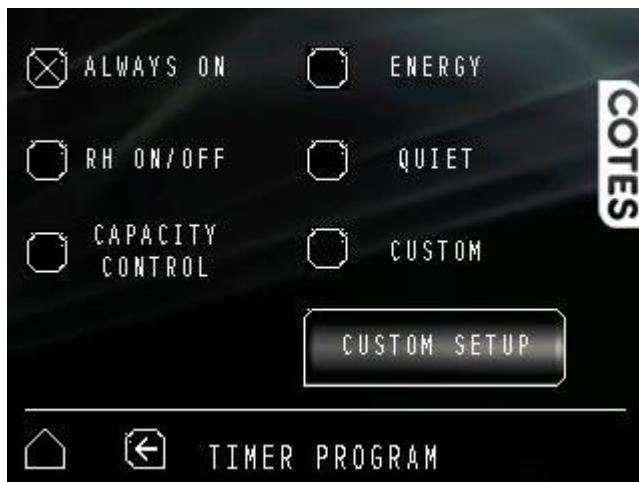
**Target value** can be changed by pressing the blue number. Then a keyboard shows up where you can type in a new value.

**Threshold values (MIN and MAX)** for target humidity can be changed the same way, by pressing the blue numbers. Threshold values are defining the hysteresis for ON/OFF programme. Further, the MIN value defines when the dehumidifier is turned off in ENERGY, QUIET and CUSTOM programme (only for PLC-C and PLC-D). See page 71 for more information.

**Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier** (PLC-B, PLC-C and PLC-D only). If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

**Return to main menu**

**Return to HUMIDITY menu**

**SET / TIMER / PROGRAM**

What you see:

Below only for dehumidifier in timer mode.

**ALWAYS ON** The dehumidifier is running at full power all the time.

**ON/OFF** The dehumidifier is controlled by an external sensor. When the values measured by this sensor are below the threshold you have set, the dehumidifier is turned off. When the values measured by this sensor are above the target you have set, the dehumidifier is turned on, and running at full power. See more details of targets and threshold on page 69 and 70.

**CAPACITY CONTROL** (PLC-B only). The focus is on removing unwanted humidity, so the fans are running at all times. The level of heat is adjusted to meet requirements. The dehumidifier does not make adjustments in relation to threshold values.

**ENERGY** (PLC-C only). In addition to removing unwanted humidity, the focus here is on removing such humidity, in a more energy-efficient manner. When turned on the speed of the rotor and the level of heat are adjusted to meet requirements and to save energy.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**ENERGY** (PLC-D only). The focus here is on removing unwanted humidity and keeping overall energy consumption to a minimum. In PLC-D's ENERGY programme, the flow of air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**QUIET** (PLC-C and PLC-D only). The focus here is on making sure the dehumidifier runs as quietly as possible. The dehumidifier is only turned on then values measured by external sensor is above the target you have set.

In this configuration, all the air flows are reduced as much as possible, in order to keep noise levels to a minimum.

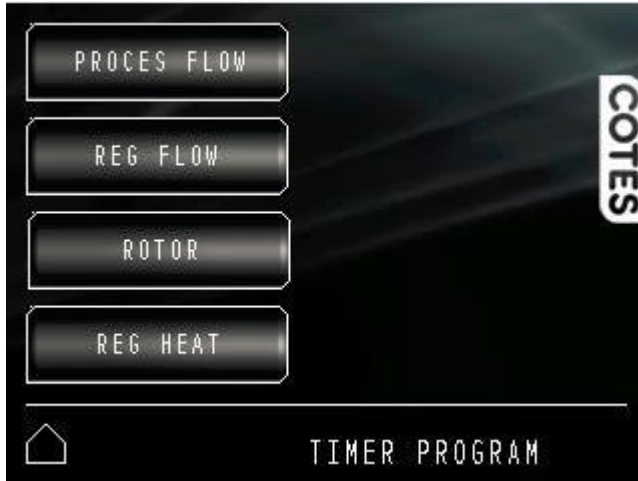
The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**CUSTOM SETUP** (PLC-C and PLC-D only). In this configuration, you can adjust all the values individually, within predefined limits. See page 73 for more details.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**Return to main menu**



**SET / TIMER / TIMER PROGRAM**

What you see:

**Adjustment of process flow in timer mode (PLC-C and PLC-D only)**

**Adjustment of regeneration air flow in timer mode.**

**Adjustment of rotor speed in timer mode (PLC-C and PLC-D only)**

**Adjustment of levels of heat in regeneration air flow in timer mode**

**Return to main menu**

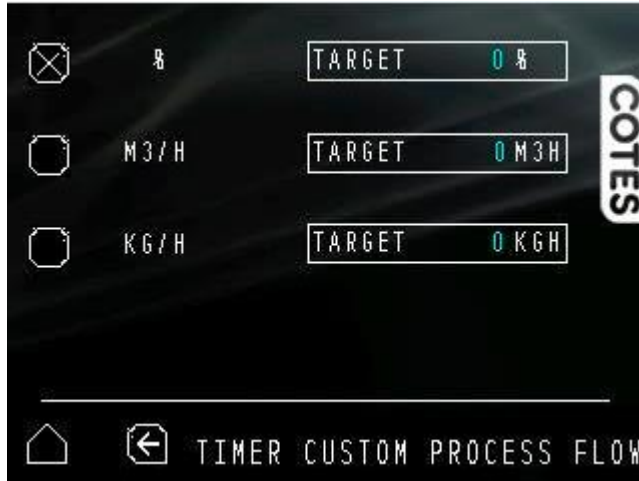
**Return to TIMER menu**

**NOTE**

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

**SET / TIMER / TIMER PROGRAM / CUSTOM / PROCESS FLOW**

What you see:

% in relation to maximum fan speed (PLC-C and PLC-D only)

**m<sup>3</sup>/hour** (PLC-C and PLC-D only)

**kg/hour** (PLC-C and PLC-D only)

**Return to main menu**

To **TIMER CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**NOTE**

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

**SET / TIMER / TIMER PROGRAM / CUSTOM / REGENERATION FLOW**

What you see:

% in relation to maximum fan speed (PLC-C and PLC-D only)

**m<sup>3</sup>/hour** (PLC-C and PLC-D only) (based on normal m3 (20°C))

**kg/hour** (PLC-C and PLC-D only)

**Return to main menu**

To **TIMER CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**NOTE**

You should only change the regeneration air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.



**SET / TIMER / TIMER PROGRAM / CUSTOM / ROTOR SPEED**

What you see:

**RPH** – this is where you select rotor speed (PLC-C and PLC-D only), by pressing the blue number, and entering the new value.

**AUTO** – automatically calculates the ideal rotor speed (rph)

**Return to main menu**

To **TIMER CUSTOM** menu

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**NOTE**

You should only change rotor speed if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.



**SET / TIMER / TIMER PROGRAM / CUSTOM / HEATER**

What you see:

**% HEAT** Select heat setting as % of maximum possible heat effect.

**TARGET** Select desired temperature (fixed temperature). NB you may not be able to achieve the desired temperature, because this can depend on air conditions outside. However, the dehumidifier will use this value as a target that it will attempt to achieve.

**AUTO** Automatically calculates the ideal level of heat in relation to the setting for regeneration air flow.

**Return to main menu**

To **TIMER CUSTOM** menu

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 69 and 70 for more details.

**NOTE**

You should only change the heater temperature if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take any responsibility for any changes you make in the standard programs, or for the results of any such changes.

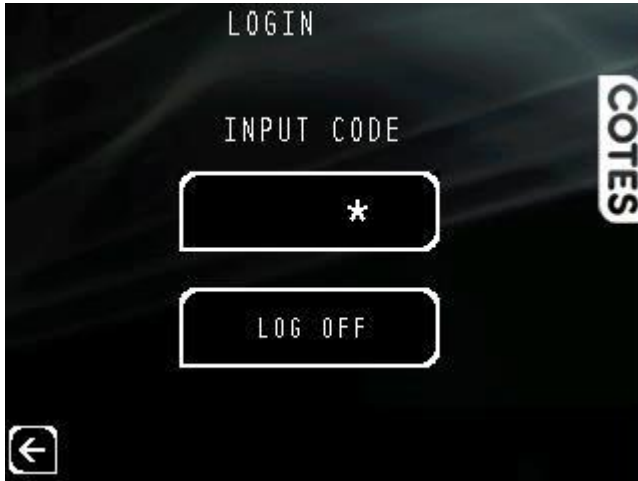


**SET / LANGUAGE**

What you see:

These are the languages you can choose the interface for this Cotes dehumidifier.

Choose the language you prefer to use to operate this system.

**SET / LOGIN**

What you see:

This is where you enter your operator code (1234), and press “enter”. You are now logged in for 10 minutes, so that you can set operating targets and other settings.

**LOG OFF** – this is where you log off.

## SET / ADVANCED

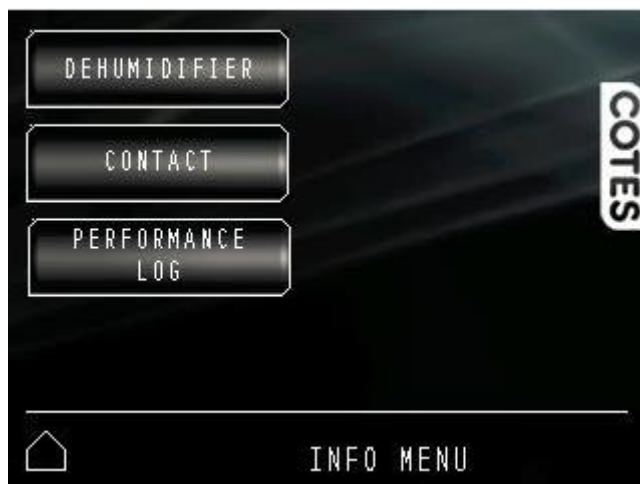


What you see:

**HEIGHT ABOVE SEA LEVEL** (PLC-C and PLC-D only). This is used to ensure correct calculation of air densities in different programs.

**REGENERATION AIR FAN** (PLC-B only). This is where you set the regeneration air fan.

These settings are only adjusted once – during the installation process.

**INFO menu**

What you see:

**DEHUMIDIFIER** – information about your Cotes dehumidifier, including its service history

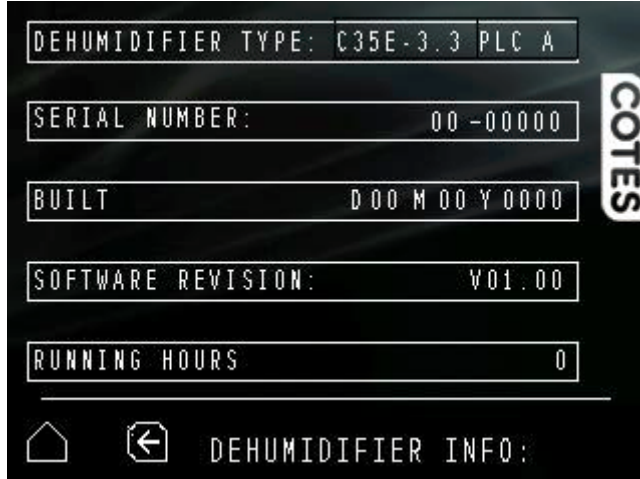
**CONTACT** – information about where/how to contact Cotes or a Cotes dealer

**PERFORMANCE LOG** – the performance log for your Cotes dehumidifier

**Return to main menu**



**INFO / DEHUMIDIFIER**



What you see:

**DEHUMIDIFIER TYPE** – defines the type and configuration of the dehumidifier

**SERIAL NUMBER** – dehumidifier serial number

**BUILD** – date of build

**SOFTWARE REVISION** – which software revision in PLC

**RUNNING HOURS** –total running hours

**Return to main menu**

To **INFO** menu

**INFO / SERVICE HISTORY**



What you see:

**SERVICE HISTORY** – List of service performed on dehumidifier

**Return to main menu**

To **INFO** menu

**INFO / CONTACT**



What you see:

**INSTALLED** – date of installation

**CUSTOMER** – who gets benefit of the dehumidifier

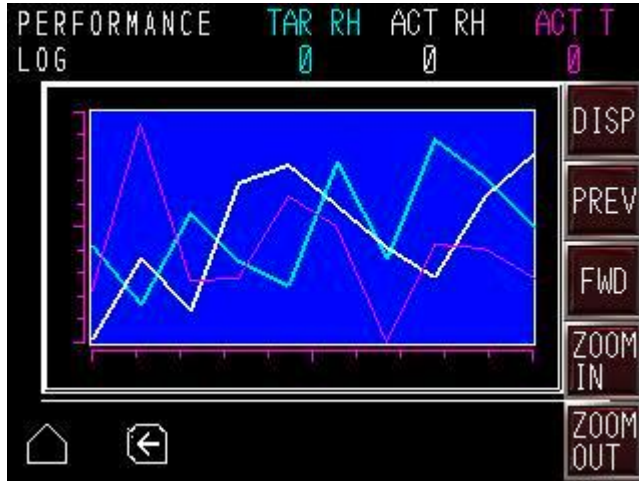
**DEALER** – who has sold the dehumidifier

**CONTACT** – how to get in contact with Cotes

**Return to main menu**

To **INFO** menu

## INFO / PERFORMANCE LOG



What you see:

**TARGET RH** – your target for relative humidity (%) (blue curve)

**ACT RH** – the actual relative humidity measured (white curve)

**ACT T** – the actual temperature measured (red curve)

**DISP** – see historical values

**PREV** – turning to previous screen

**FWD** – turning to next screen

**ZOOM IN** – zooming in

**ZOOM OUT** – zooming out

**Return to main menu**

To **INFO** menu

# SECTION 6 / SERVICE AND REPAIR

## HOW TO SERVICE AND REPAIR THIS DEHUMIDIFIER

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### Service and maintenance work on this dehumidifier

Cotes designs its dehumidifier units so that they are as robust as possible, and only need a minimum of service and maintenance.

None of the components require lubrication or adjustment.

The only maintenance work you need to do is listed below.

### Once a month

- Check or replace the filters for incoming air and regeneration air. For PLC-B, PLC-C and PLC-D configurations, the filter guard will automatically provide a warning if there are problems.
- Check that the fans are operating (by listening to check whether they are turning).

### Once a year

We also recommend the following annual checks.

- Check the service indication menu in the PLC. Are the working hours of any component inside near their time-to-change limit? If so, replace. See time-to-change limits below:
  - Process air filter. Depends on the working environment. Specified for 8,700 hours under normal conditions.
  - Regeneration air filter. Depends on the working environment. Specified for 8,700 hours under normal conditions.
  - Air filter for electronics box. Depends on the working environment. Specified for 8,700 hours under normal conditions.
  - Process air fan: 40,000 hours
  - Regeneration air fan: 30,000 hours
  - Motor and gear for rotor: 30,000 hours
  - Heaters: 40,000 hours
  - Filter guard (if installed): 40,000 hours
  - Manometer (if installed): 40,000 hours
  - Rotor, including gaskets: 60,000 hours
  - Electrical board including PLC: 60,000 hours
- External humidity sensor should be calibrated or replaced (with recycled instruments)
- Internal humidity sensor (only PLC-D) should be replaced (with recycled instruments)
- Check the wear on the rotor gaskets, especially the gasket placed on the circumference of the rotor. The red side of the gasket is made of Teflon®, and this coating must be intact over its entire surface.
- Check the inside of the cabinet for any signs of dirt or corrosion. Check that the drive belt for the rotor is still tight and that no parts of it are too worn or close to the breaking point.
- Check that the insulation on all electrical cables is intact, with no mechanical or heat

damage.

- Check that the insulation on the electric heater(s) is intact.
- Check that all cables inside the electronics box are properly attached, all miniature circuit breakers (MCBs) are switched on and all components are intact.
- Test that all electric components are working as intended – for example by following the instructions in the “Commissioning” section of this handbook.

### Service/repair work on this dehumidifier

#### Safety instructions

Before opening the dehumidifier, make sure that the electric current is switched off at the mains before you open the electronics box cover or the covers for the electric heater, process air fan and rotor.

The QS1 safety switch should also be switched off.

You should never just turn off the power to the dehumidifier while it is running. The correct procedure is to press STOP, after which the machine runs a cooling cycle before the regeneration air fan stops. Turning the dehumidifier off properly prevents any over-heating.



#### WARNING

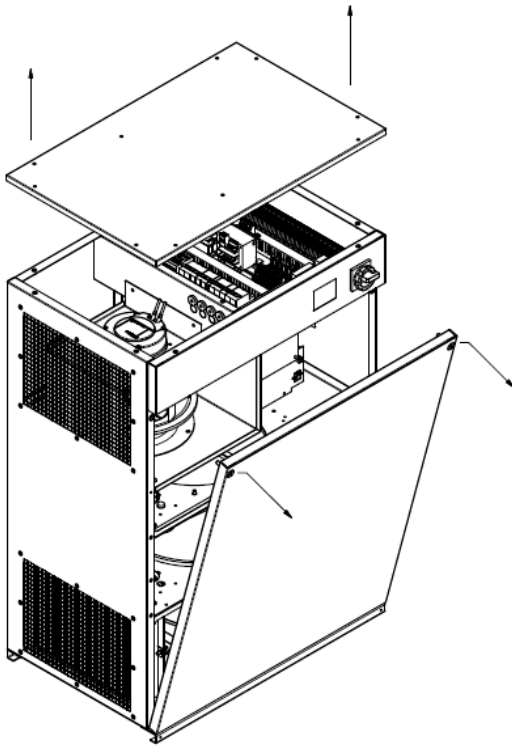
Make sure that electric current is switched off at the mains before you open the electronics box cover or the covers for the electric heater, process air fan and rotor

The QS1 safety switch should also be switched off.

**Easy access for quick service**

The electrical switchboard (contacts, fuse breakers, thermal relays, etc.) is placed in the electronics box in the top of the dehumidifier cabinet, directly under the top cover, to make them easy to get to.

All other electrical components (fan motors, gear motor, heating elements, etc.) are easy to access when the service doors for these parts are opened.

**Connecting 230V motors**

All C35E/C35D dehumidifiers are fitted with 230VAC electric motors. This means it doesn't matter how the plus/minus cables are connected.

### Replacing filters

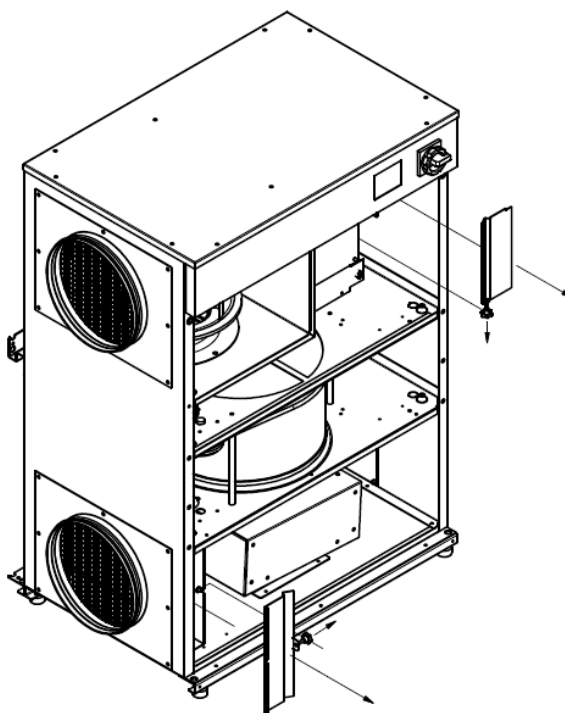
Process air filter; 130351

Regeneration air filter; 130350

(Except if special filters are specified).

The following is standard procedure for replacing the filters;

- Open front door
- Loosen the finger screws on the filter doors
- Replace the filters





### Replacing fans

Large process air fan: RH25C; 801667

Small process air fan: RH22V; 801668

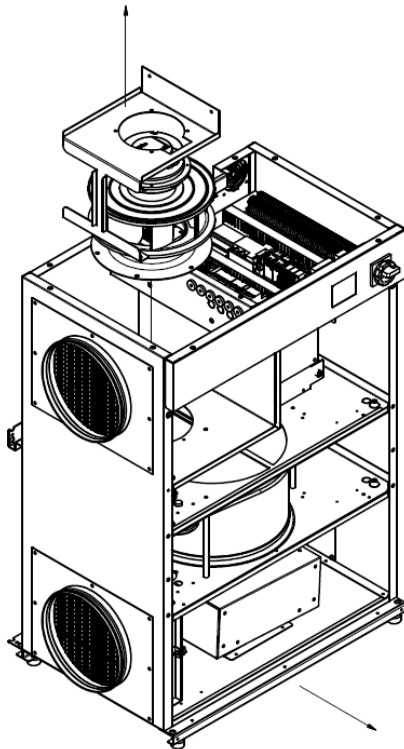
Regeneration air fan: RH22V; 801668

The following is standard procedure for replacing the process air fan;

- Remove top cover
- Disconnect cables for process air fan
- Remove the screws on the fan bracket
- Remove the screws on the fan
- Replace the process air fan

The following is standard procedure for replacing the regeneration air fan:

- Disconnect cables for regeneration air fan
- Dismount screw clamp fastened to the regeneration air fan box
- Remove the regeneration air fan box
- Insert a replacement regeneration air fan box, or remove the screws on the regeneration air fan box and replace the regeneration air fan

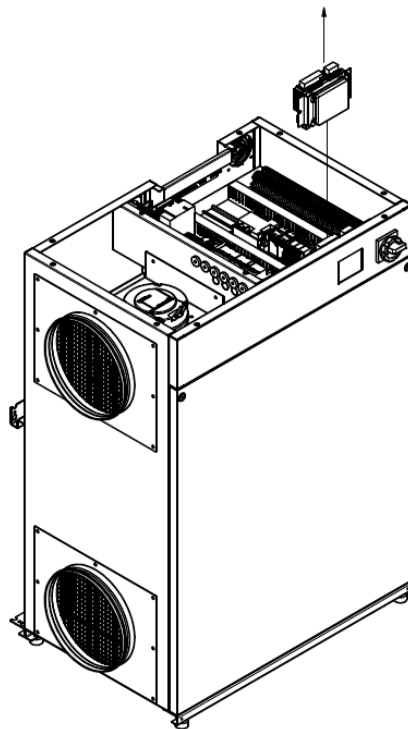


## Replacing PLC

PLC; 140620

The following is standard procedure for replacing the PLC unit.

- Remove the top cover
- Disconnect cables for the PLC
- Remove the screws for the PLC bracket
- Replace the PLC



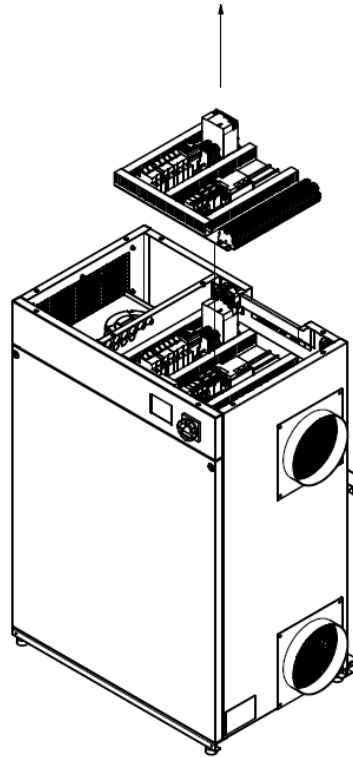
**Replacing electrical board**

400V electrical board; 619149

230V electrical board; 619199

The following is standard procedure for replacing an electrical board

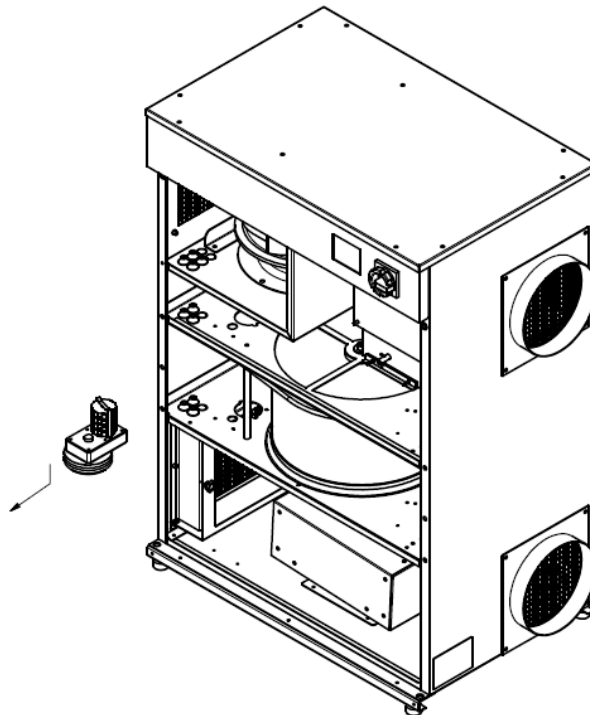
- Open the top cover
- Disconnect all cables and sensors connected to the electrical board
- Remove the screws fastening the electrical board to the cabinet
- Replace the electrical board



### Replacing gear motor

Remove the drive belt from the pulley, then remove the gear motor after disconnecting all electrical connections. You should then fit a replacement gear motor.

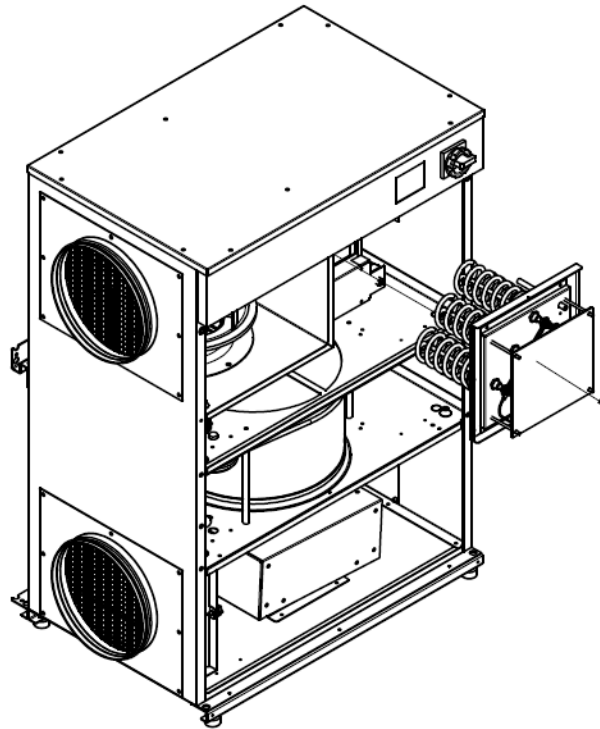
When re-starting up the unit, check that the rotor is moving. If not, swap the two cables on the motor as described above.



### Replacing electric heaters

All electric heaters are mounted in the front of the heater section of the dehumidifier.

To replace these units, disconnect the wiring and unscrew the plate. You can then withdraw the plate and heaters from the heating section.



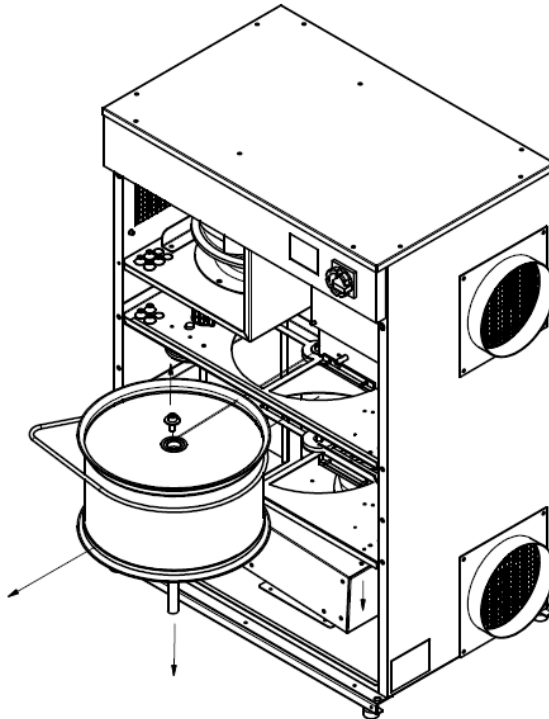
### Replacing rotor, rotor gaskets and shaft

You do not need to remove the rotor to replace the rotor gaskets. You simply place the new gasket on the rotor and fix it in place with the three-part expansion ring. You then turn the rotor, which presses the gasket against the departing plates until only half of the gasket is on the rotor. The expansion ring then fastens.

The following is standard procedure for replacing rotor gaskets.

- Open door at the front of the cabinet
- Remove the drive belt from the pulley
- Remove the rotor gaskets
- Mount new rotor gaskets

You *can* remove the rotor and mount new gaskets on it, but it is much easier to mount new gaskets *without* removing the rotor.



The following is standard procedure for replacing the rotor.

- Open door at the front of the cabinet
- Remove the drive belt from the pulley
- Remove the rotor gaskets
- Remove the screws for the rotor shaft
- Remove the screws for the lower divider and spacers in-between the dividers

Carefully slide out the rotor (including the Teflon® disc and rotor shaft) before the rotor shaft can be dismantled at the front.

**Troubleshooting**

<b>Problem</b>	<b>Cause</b>	<b>Action</b>
The unit (or parts of it) will not start after a power surge/an electrical short circuit	One or more fuse breakers have been triggered	Turn all fuse breakers on
The air is not as dry as expected	The rotor is not turning  The regeneration air temperature is lower than expected  The regeneration air flow is too low	If the drive belt is intact, change the gear motor  Check that the regeneration air flow is not too high  Check that all heating elements are functioning  Check that the regeneration air filter is not clogged
The regeneration air temperature has large variations	The regeneration air flow is too low	Check that the regeneration air filter is not clogged

If you have any queries or questions, please contact your Cotes dealer.

# SECTION 7 / FORMALITIES AND GENERAL/LEGAL INFO

## WARRANTIES

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### Warranty conditions

The Cotes factory warranty is only valid if a documented programme of service and preventive maintenance has been carried out.

Maintenance must have been carried out at intervals of six months or less. Documentation for this must be in the form of a written log/journal, with attested entries.

All spare parts must have been purchased from Cotes or an authorised Cotes dealer.



## LEGAL NOTICES

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### Terms

The information contained in this publication and the products and equipment described herein are subject to change at any time without prior notice.

Cotes A/S has no obligation to inform buyers of the products and equipment of such subsequent changes.

This publication may contain misprints. Cotes A/S is not liable for errors or omissions in this publication or for incidental or consequential damages in connection with the furnishing of or the use of this publication.

Cotes A/S is not liable for any loss or damages, including consequential damages caused by disregard of any advice or warnings in relation to safety in this publication.

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## EU DECLARATION OF CONFORMITY

---

Cotes A/S  
Ndr. Ringgade 70C  
DK-4200 Slagelse  
www.cotes.com  
info@cotes.com  
VAT no. 15 20 03 32



Declares at its own liability that the following models of Cotes adsorption dehumidifiers:

CR100, CR150, CR200, CR300, CR600, CR750, CR800T, CR900,  
C35E-3.3, C35E-3.8, C35E-4.5, C35E-5.1, C35E-5.6, C35D-3.2, C35D-4.5  
CR1200, CR1200S, CR1400T, CR1500, CR2000, CR2500,  
CR80B, CR80B-FC, CR80B-FCS, CR110B, CR110BT, CR240B, CR240BT,  
CR240BS, CR290B, CR290BT, CR300B, CR300BT, CR180B,  
CR200B, CR200BT, CR400B, CR400BT, CR400BS, CR110LK,  
CR160LK, CR300LK, CR600LK.

covered by this declaration comply with the following directives:

Machinery Directive 2006/42/EC  
Low Voltage Directive 2006/95/EC  
EMC Directive 2004/108/EC

and are manufactured in compliance with the following harmonised standards:

### **EN12100-1:2003**

Safety of machinery – basic concepts, general principles for design  
Part 1: Basic terminology, methodology

**EN12100-2:2003**

Safety of machinery – basic concepts, general principles for design

Part 2: Technical principles and specifications

**EN 60204-1:2006**

Safety of machinery – electrical equipment

Part 1: General requirements

**EN 61000-6-4:2001**

Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments

**EN 61000-6-2:2005**

Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments

**EN 61000-3-2:2006**

Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current  $\leq$  16 A per phase)

Skaelskoer, Denmark July 25<sup>th</sup>. 2014



Thomas Rønnow Olesen

CEO

## HOW TO UPDATE AND IMPROVE THIS COTES DEHUMIDIFIER

---

### Onwards and upwards

#### Energy recovery

To reduce the amount of energy needed for heating of the regeneration air, an energy recovery system can be placed beside the dehumidifier.

#### Extra insulation

The doors of the Cotes dehumidifier can be insulated to ensure that the sound pressure level of the unit is lowered and to insure that all energy (both cooling and heating) is kept inside the unit.

#### Additional cooling/heating coil

If a pre-cooling coil can increase the amount of moisture removed especially when very dry air is needed.

#### Additional post cooling/heating

If temperature after dehumidifier should be controlled, a post cooler/heater unit can be attached to the dehumidifier.

#### Additional/better filters

If cleaner air is needed then it will be possible to change the fitted filter for a finer one. If an additional filter is wanted, please contact Cotes expert and find out how the unit can be changed for this to be done.

#### Next step

Please contact Cotes or a Cotes dealer to find the best solution.

## WHO TO CONTACT

---

### **Help when and where you need it**

Contact COTES A/S or your local dealer:

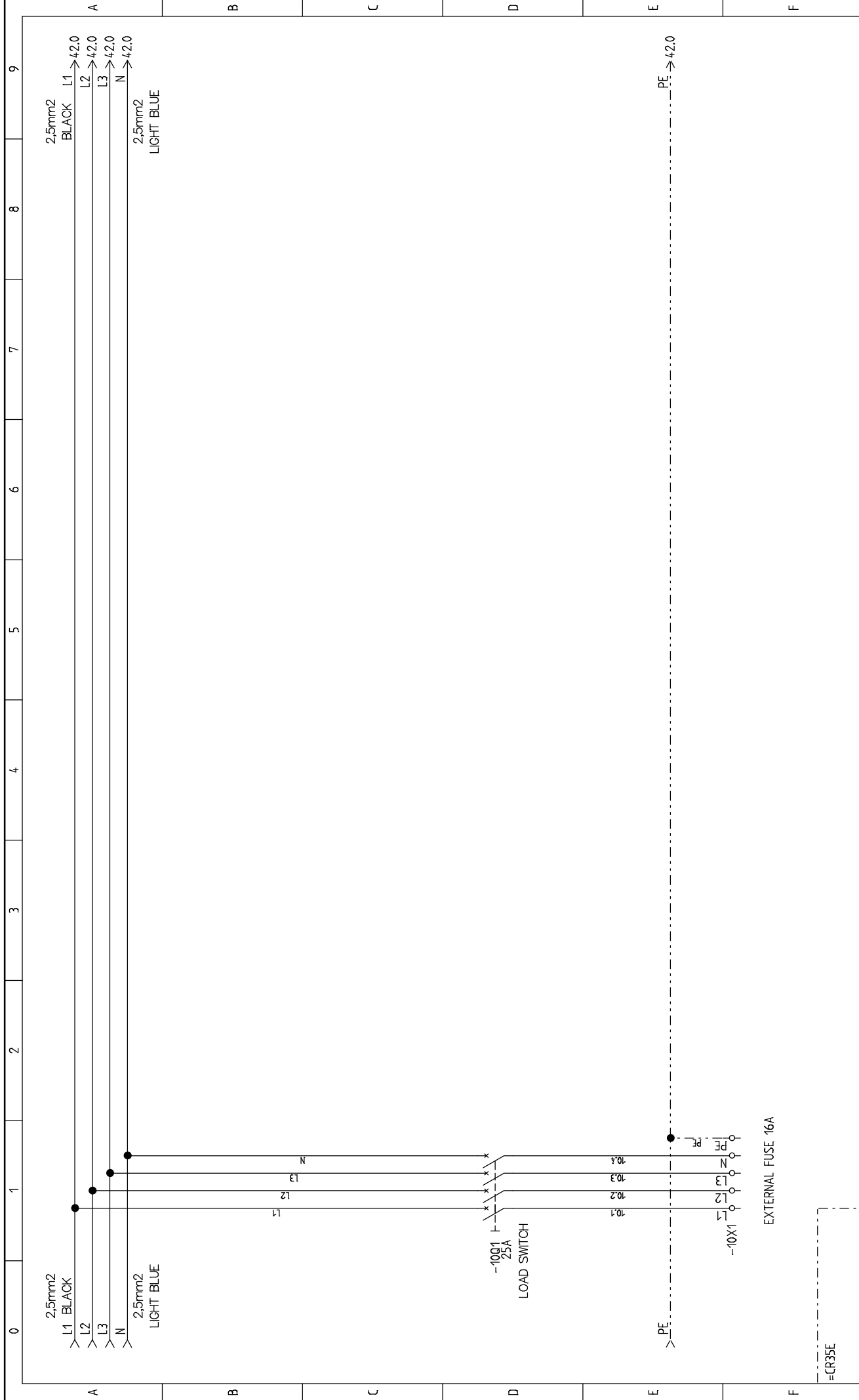
COTES contact information:

COTES A/S  
Ndr. Ringgade 70C  
4200 Slagelse  
Denmark  
0045 5819 6322  
info@cotes.com  
www.cotes.com

0 1 2 3 4 5 6 7 8 9

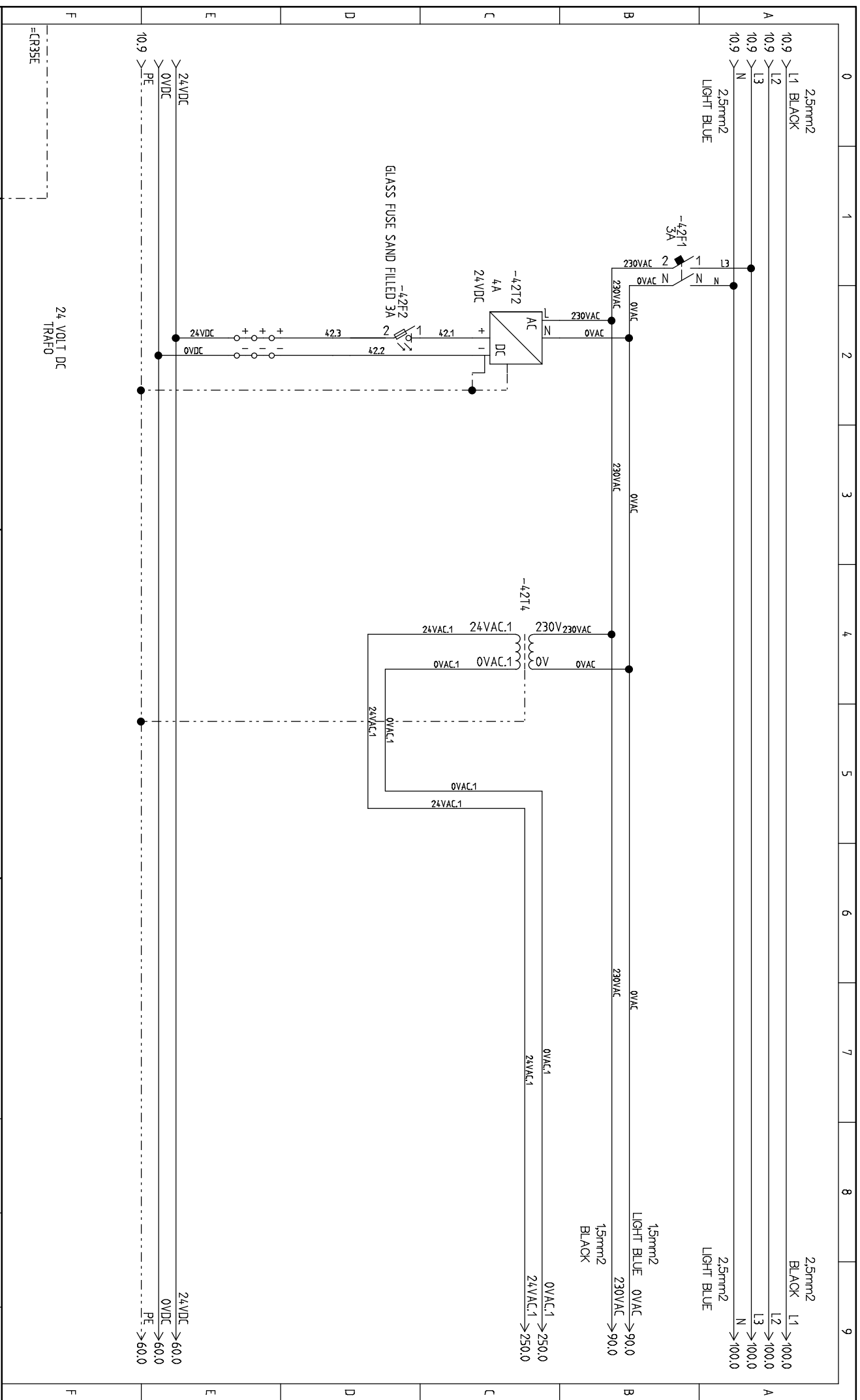
MODEL: CR35E-2 PLC  
PROJECT NR: E35E-2  
SECTION: ELECTRICAL BOX  
VOLTAGE: 3X400 V 50HZ 3PH+N+PE  
SYSTEM GROUND: TT SYSTEM  
FUSE: MAX 16A  
Ikmax: 6 KA  
Ikmin: \_ KA

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	PLATE	Project		DCC	Pages	
			E35E-2 CR35E-2 PLC	SD/TM			&EFS
			Date	Revision	Initials	Next page	Page
			11-12-2013	11-08-2014		=CR35E/10	1



<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		POWER CIRCUIT 3X400V, 50HZ		Project E35E-2 CR35E-2 PLC	Initials SD/TM	DCC &EFS	Pages 26
					Date 05-12-2013	Revision Initials	Next page =CR35E/42	Page 10

=CR35E



**COTES**  
 +4558196322

COTES A/S  
 Ndr. Ringgade 70C1  
 DK 4200 Slagelse

CONTROL CIRCUIT  
 24VDC

Project		Initials		Pages	
Date	05-12-2013	Revision	10-07-2014 TM	DC	8EFS
E3SE-2 CR3SE-2 PLC		SD/TM		Next page	Page
				=CR3SE/50	42



0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F				

# PLC

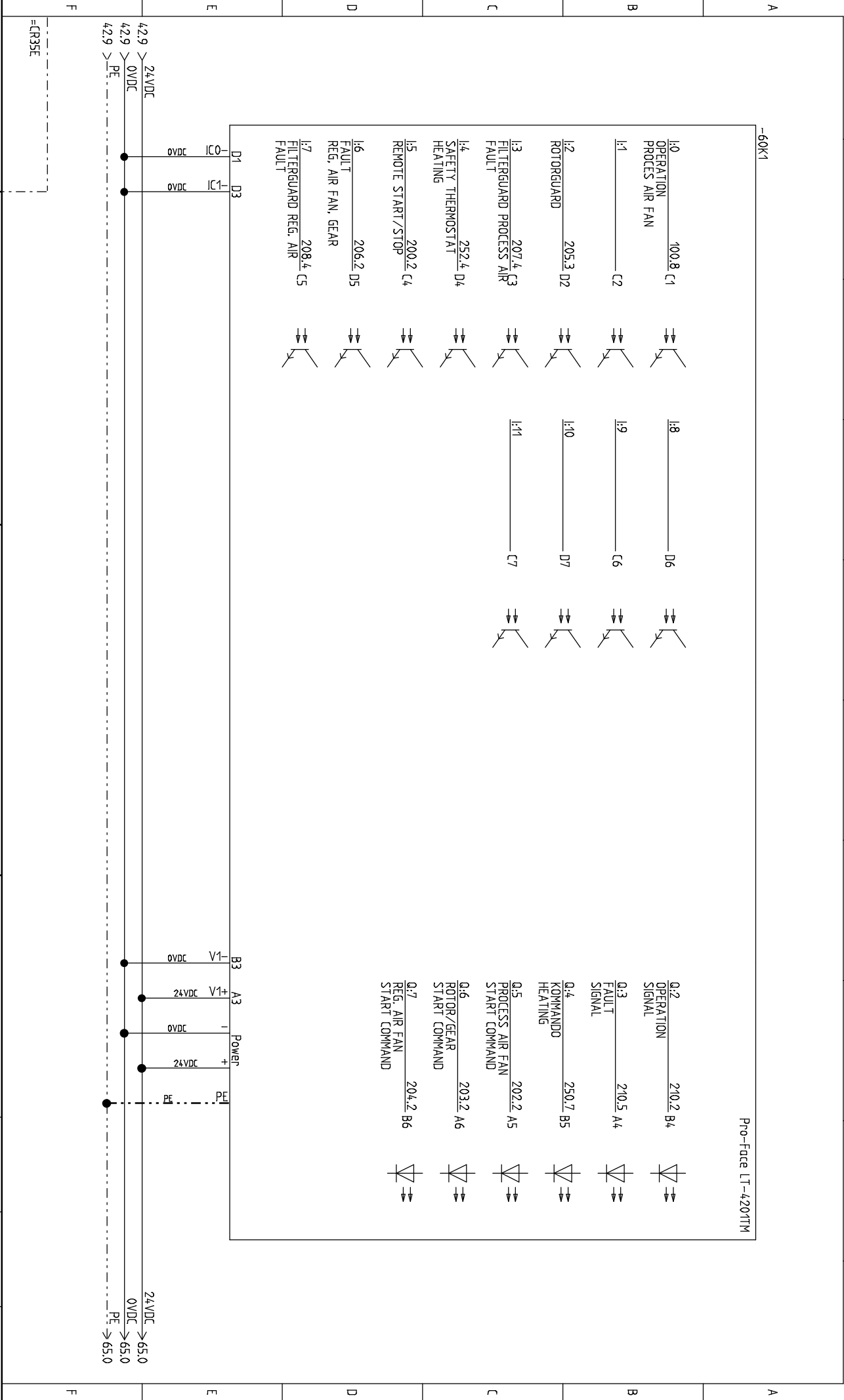
GROUP	PIN	SIGNAL NAME	GROUP	PIN	SIGNAL NAME
FAST OUTPUT	A1	V0+	FAST OUTPUT	B1	V0-
	A2	Q1		B2	Q0
	A3	V1+		B3	V1-
STANDARD OUTPUT	A4	V1+	STANDARD OUTPUT	B4	V1-
	A5	Q3		B5	Q2
	A6	Q5		B6	Q4

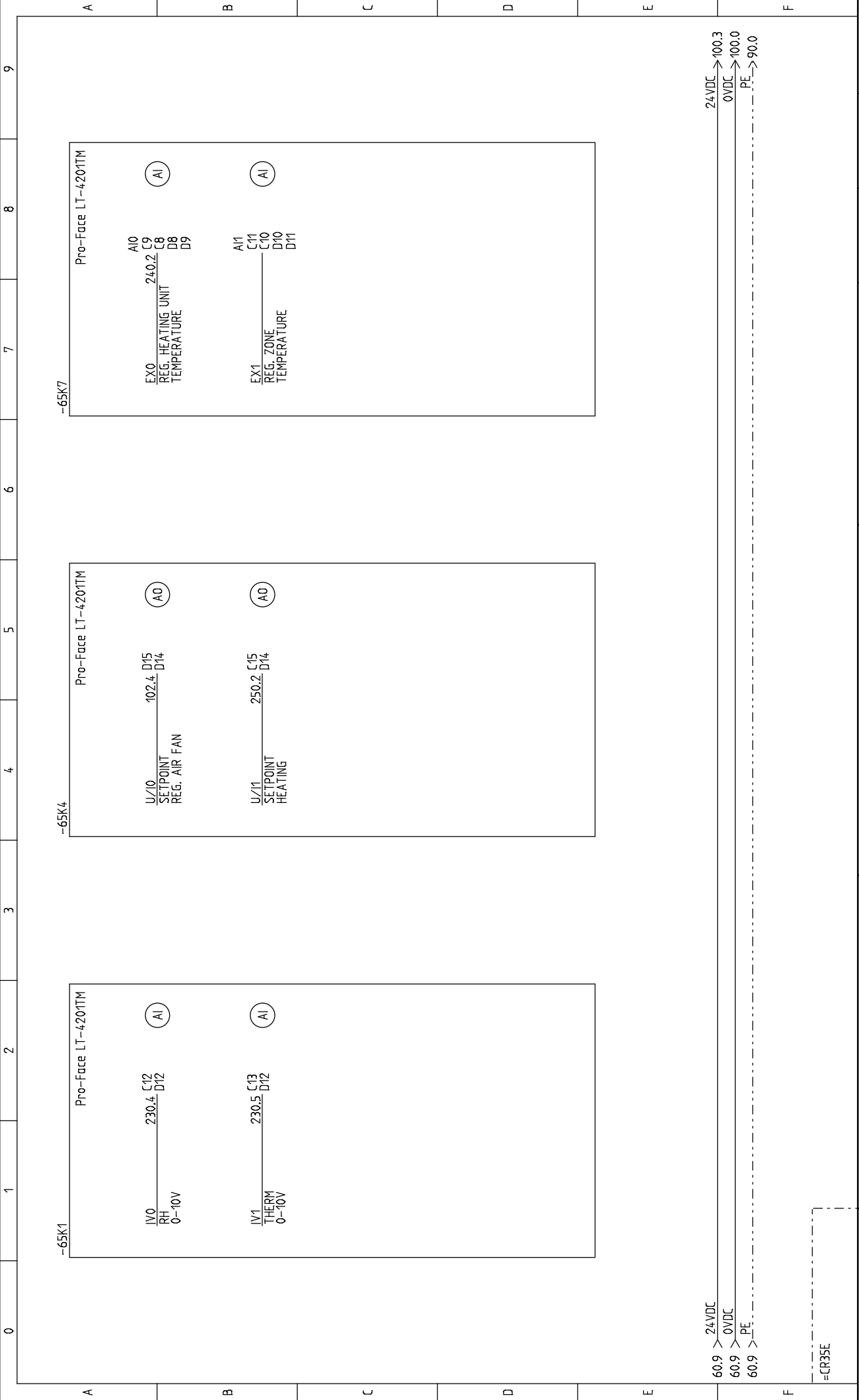
GROUP	PIN	SIGNAL NAME	GROUP	PIN	SIGNAL NAME
FAST INPUT/STANDARD INPUT	C1	I0	FAST INPUT/STANDARD INPUT	D1	I0
	C2	I1		D2	I2
STANDARD INPUT	C3	I3	STANDARD INPUT	D3	I1
	C4	I5		D4	I4
	C5	I7		D5	I6
	C6	I9		D6	I8
	C7	I11		D7	I10
TEMPERATURE INPUT	C8	MS0+	TEMPERATURE INPUT	D8	MS0-
	C9	EX0+		D9	EX0-
	C10	MS1+		D10	MS1-
	C11	EX1+		D11	EX1-
ANALOG INPUT	C12	IV0	ANALOG INPUT	D12	AIC
	C13	IV1		D13	IA0
	C14	IA1		D14	AOC
ANALOG OUTPUT	C15	U/10	ANALOG OUTPUT	D15	U/11

Pro-Face LT-420ITM

=CR35E

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		PLC CONFIGURATION		Project E35E-2 CR35E-2 PLC	Initials SD/TM	DCC Next page =CR35E/60	Pages 26
					Date 05-12-2013	Initials	Next page =CR35E/60	Page 50





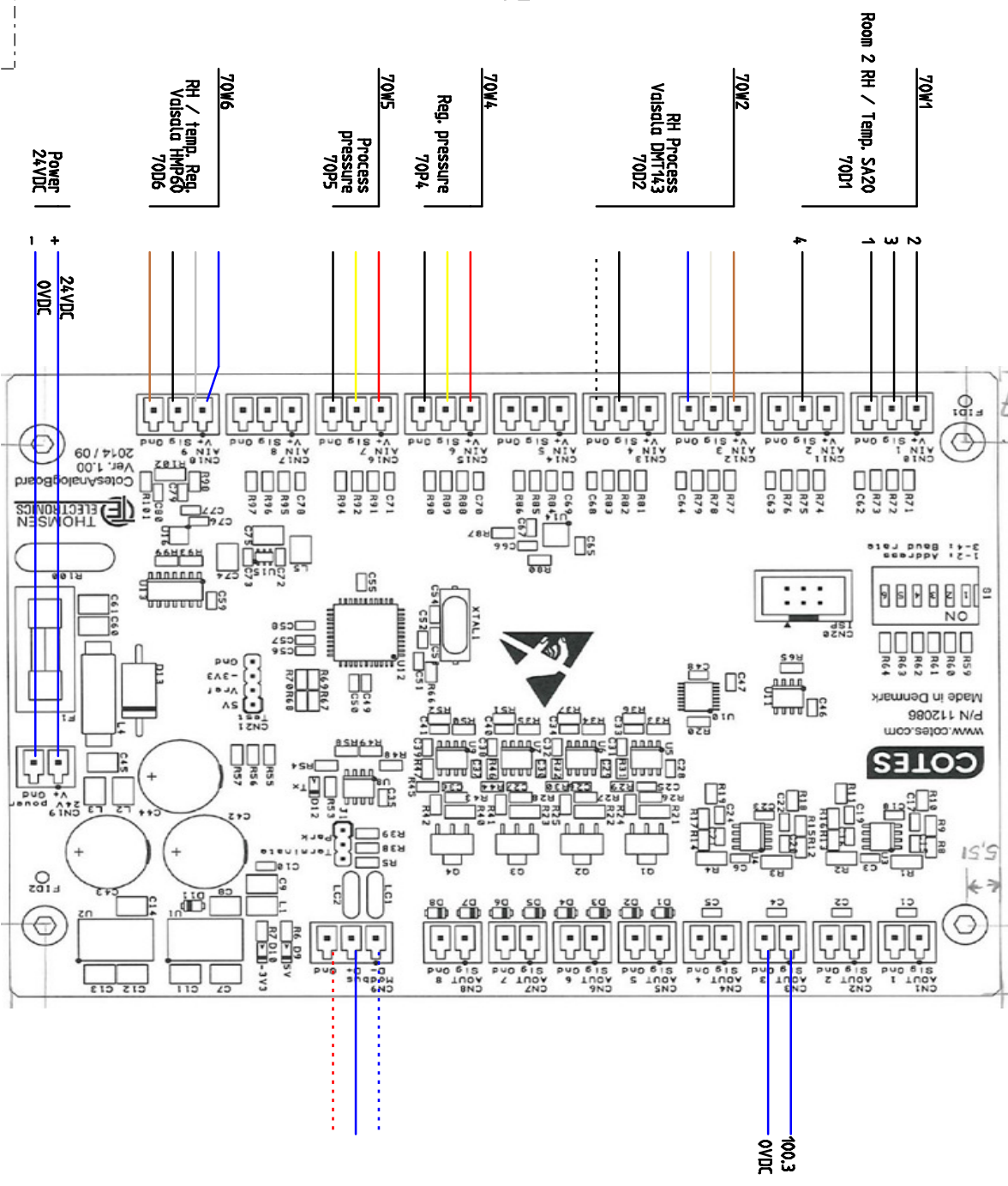
60.9 > 24VDC → 100.3  
 60.9 > 0VDC → 100.0  
 60.9 > PE → 90.0

=CR35E

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		PLC CONFIGURATION		Project E35E-2 CR35E-2 PLC	DCC &EFS	Pages 26
	Date 05-12-2013		Revision	Initials	SD/TM Initials	Next page =CR35E/70	Page 65

0 1 2 3 4 5 6 7 8 9

# OPTION C-D



**70W1**  
Room 2 RH / Temp. SAZ0  
70D1

**70W2**  
RH Process  
Vaisala DMT143  
70D2

**70W4**  
Reg. pressure  
70P4

**70W5**  
Process  
pressure  
70P5

**70W6**  
RH / temp. Reg.  
Vaisala HMP60  
70D6

**Power**  
24VDC

100.3  
Process speed

**70W7**  
MODBUS to  
Profibus PLC  
70B7

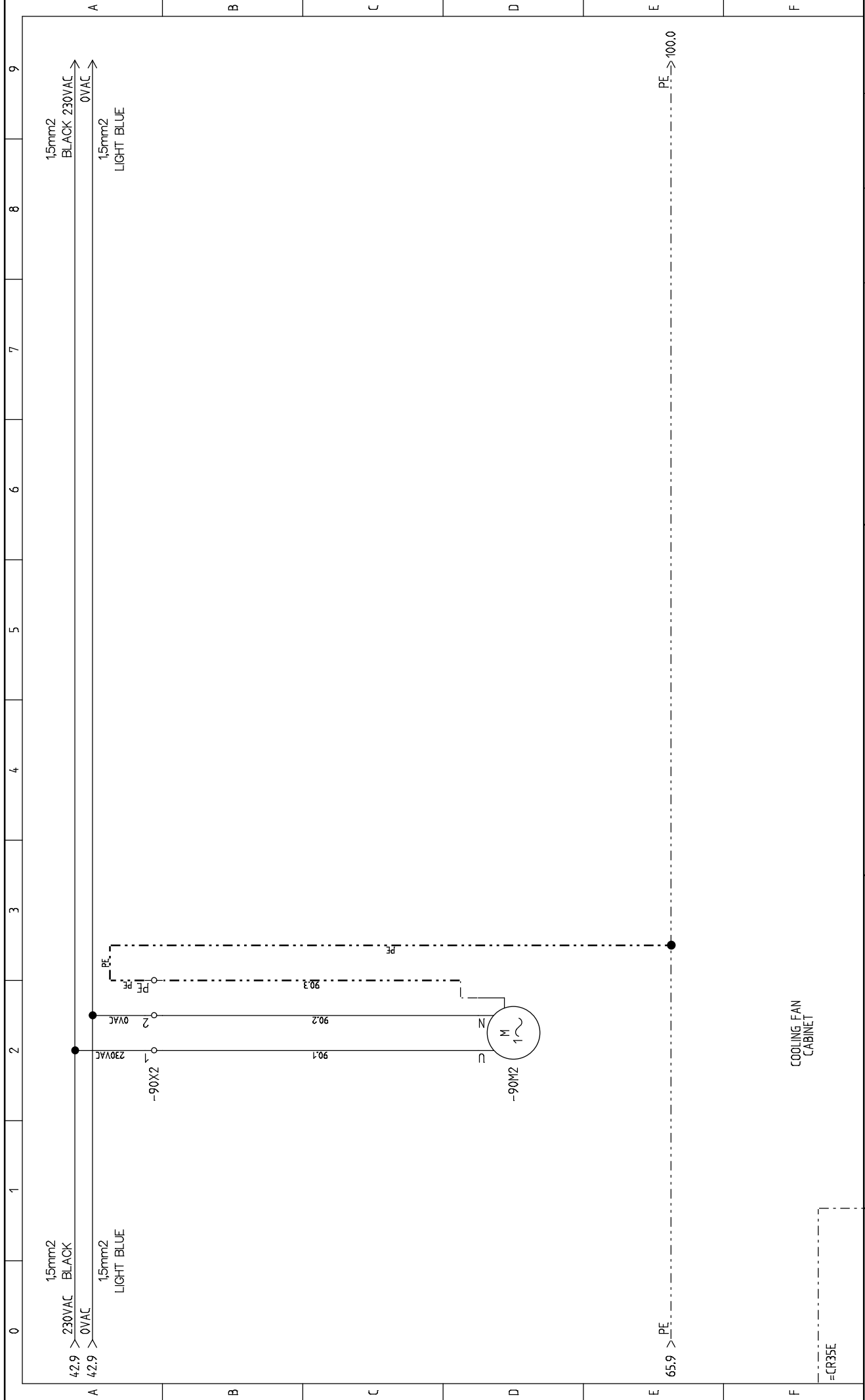
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**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

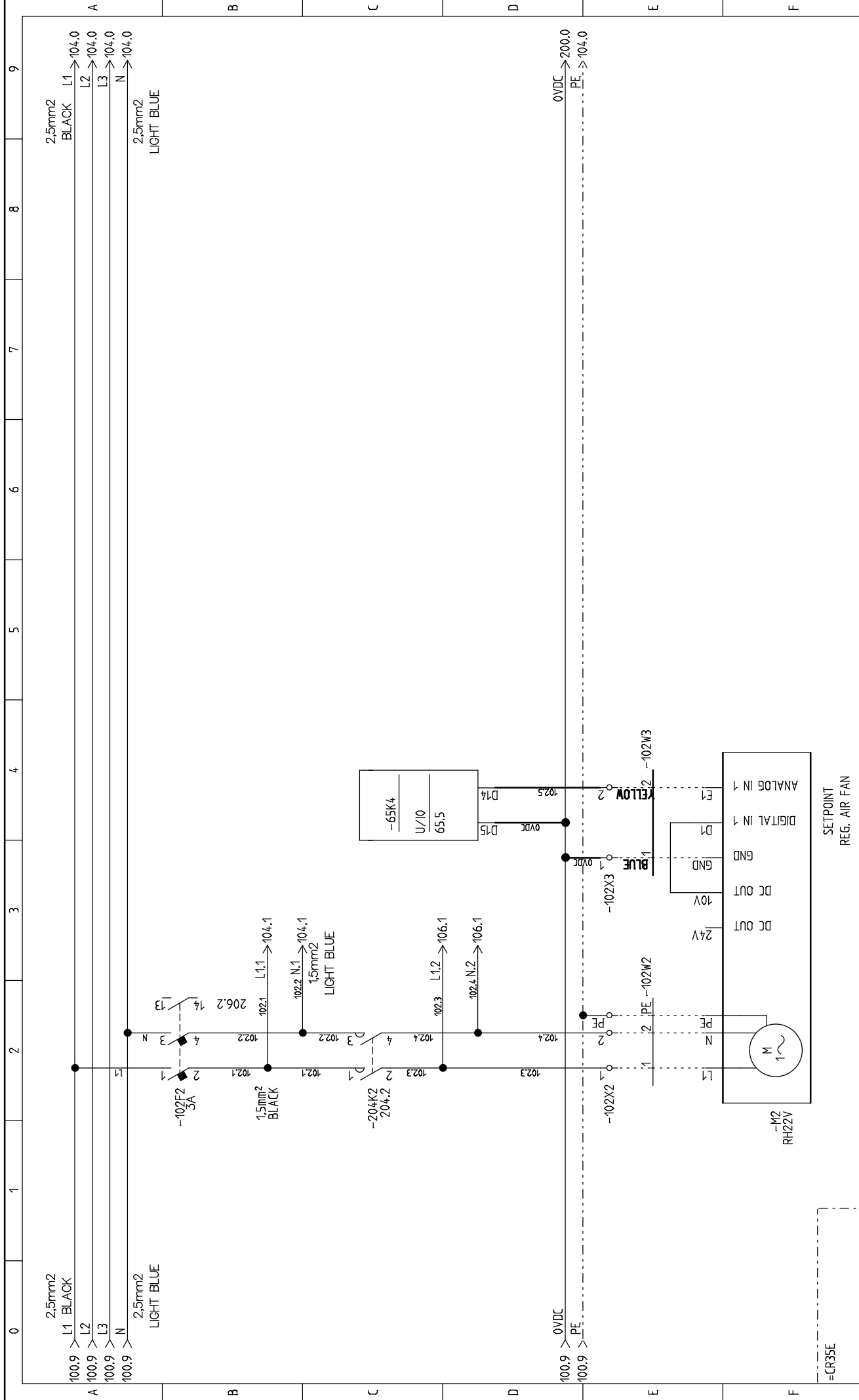
PCB  
OPTION C-D

Project	E35E-2 CR35E-2 PLC	Initials	SD/TM	DCC	EFES	Pages
Date	24-06-2014	Revision	03-07-2014 TM			26
		Initials		Next page	=CR35E/90	Page
						70

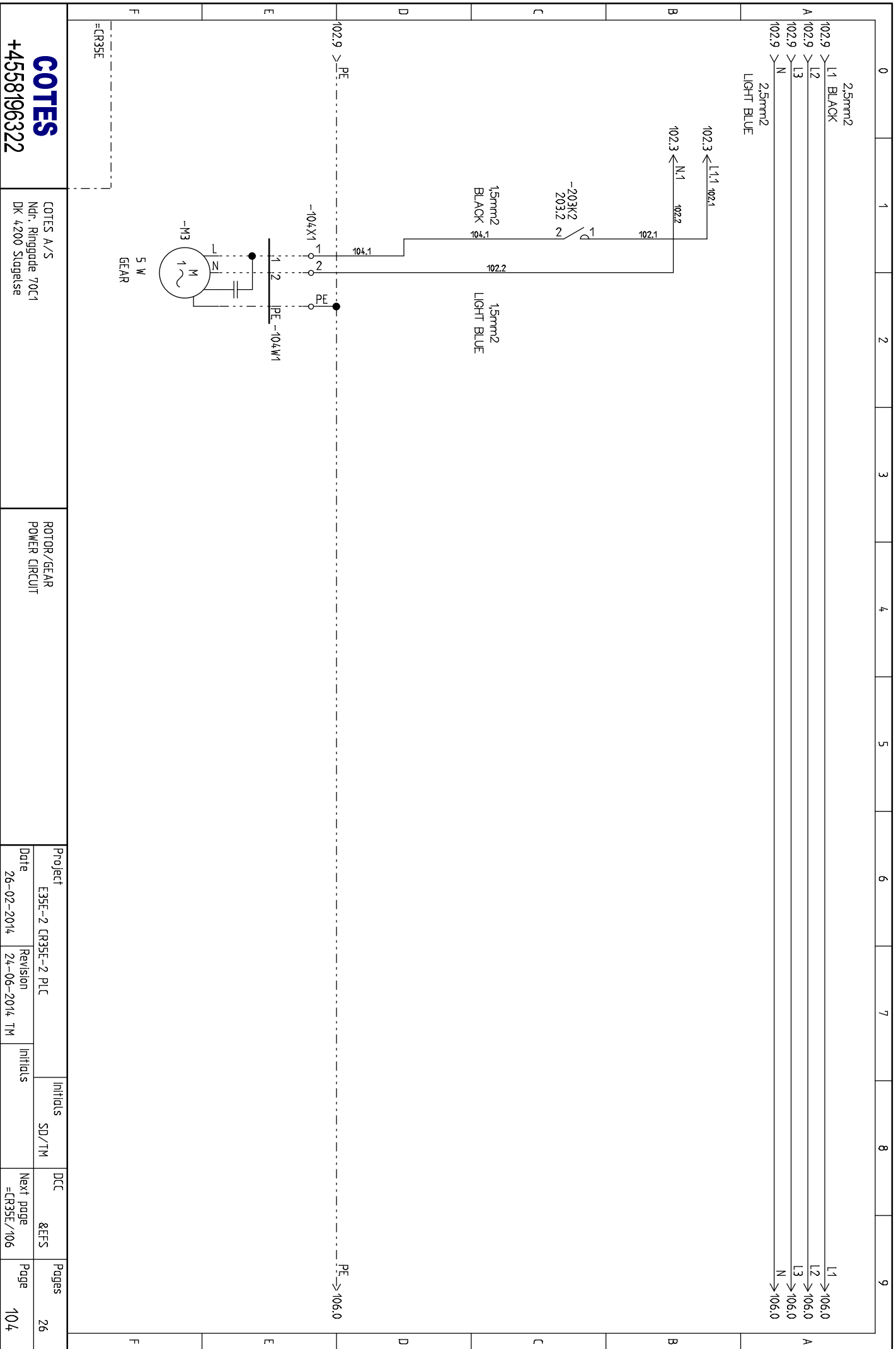


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	=CR35E	Date 05-12-2013	Revision 24-06-2014 TM	Initials	Next page =CR35E/100	Page 90	





<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		REG. AIR FAN POWER CIRCUIT		Project E35E-2 CR35E-2 PLC		Pages 26	
	=CR35E		SETPOINT REG. AIR FAN		Date 26-02-2014		DCC &EFS	
					Revision 24-06-2014 TM		Next page =CR35E/104	
					Initials		Page 102	



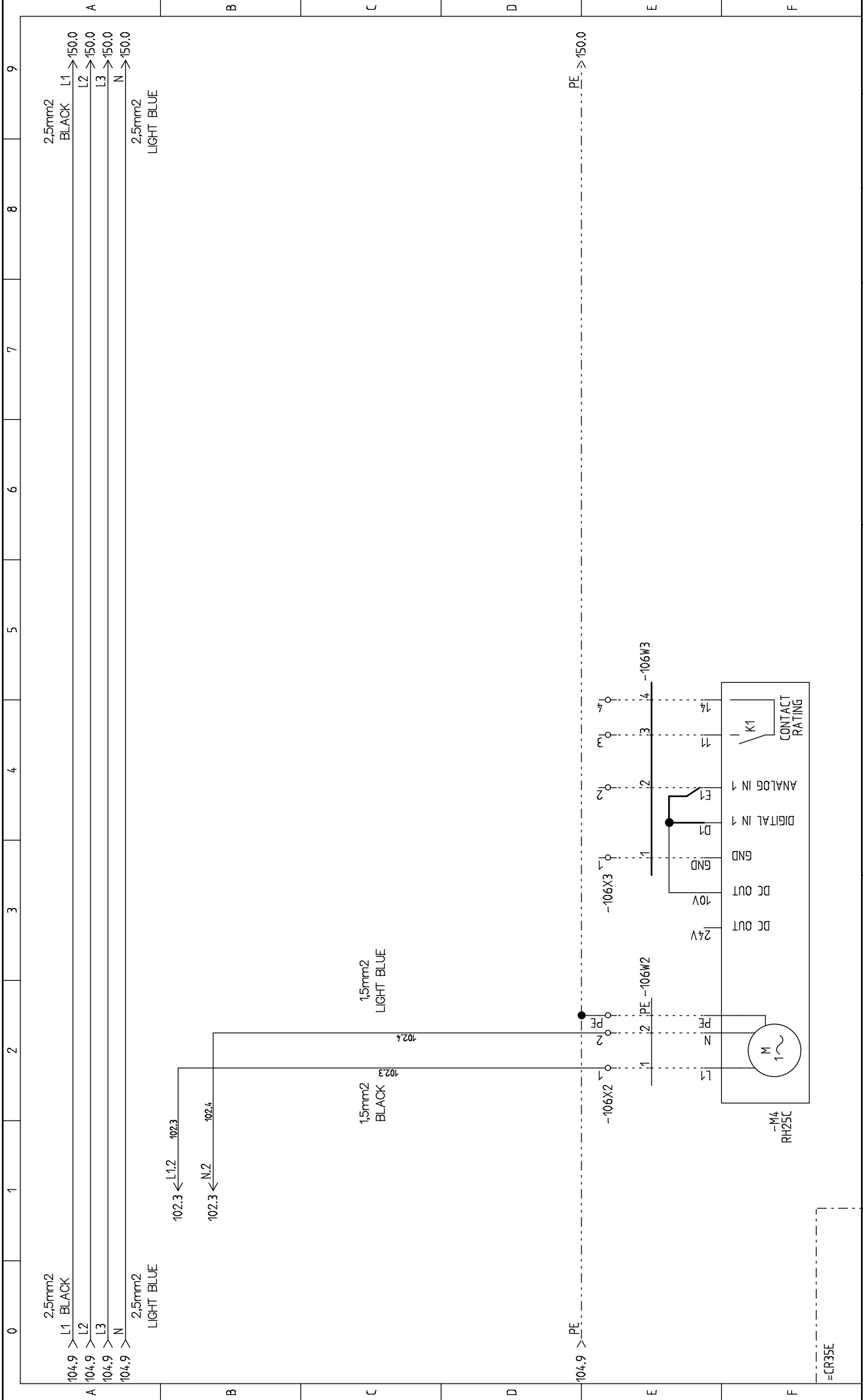
**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

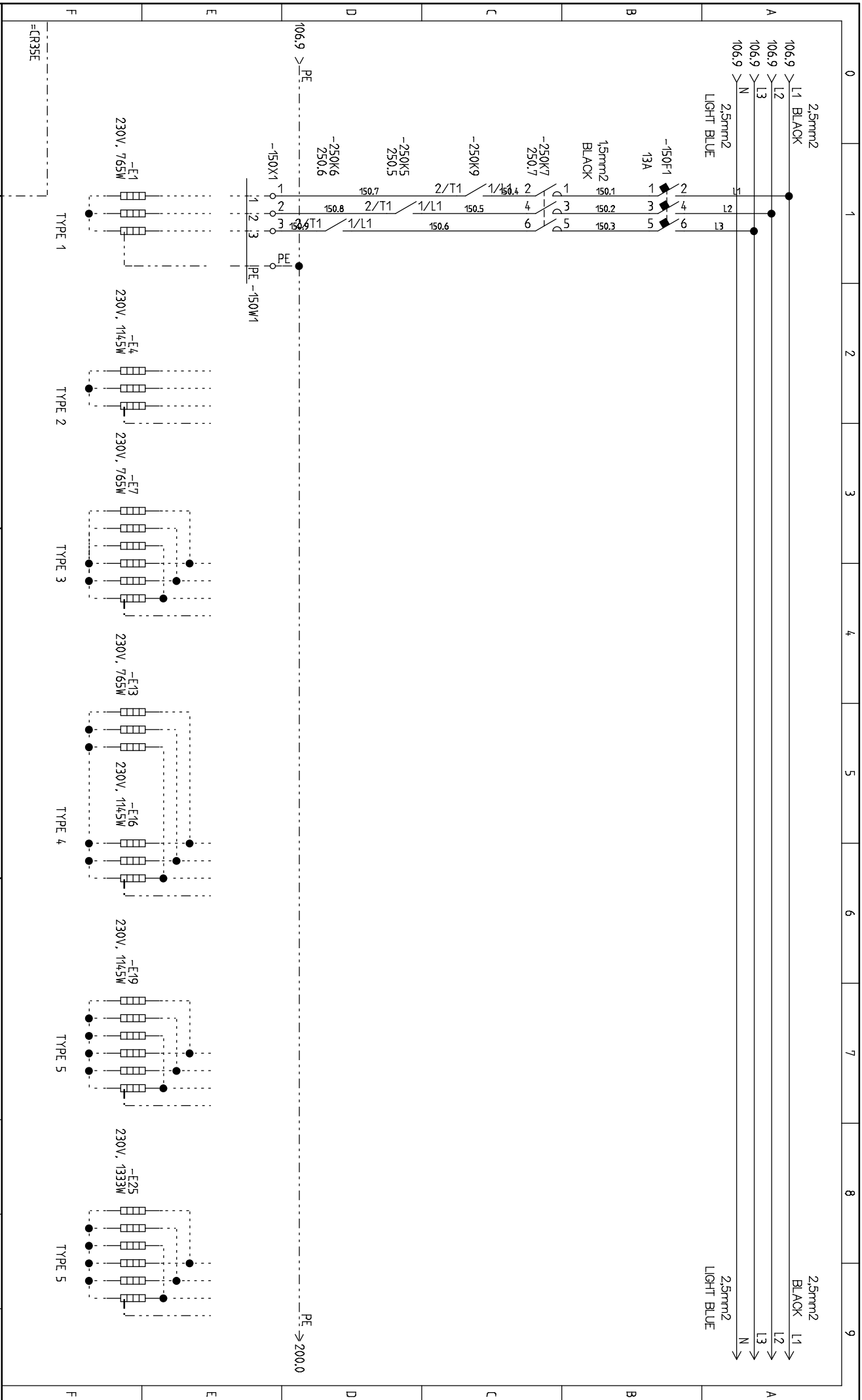
ROTOR/GEAR  
POWER CIRCUIT

Project		Initials		DC		Pages	
Date	26-02-2014	Revision	24-06-2014 TM	SD/TM	&EFS	Next page	104
E35E-2 CR35E-2 PLC						=CR35E/106	26





<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		FAN LK MODEL POWER CIRCUIT		Project E35E-2 CR35E-2 PLC	Initials SD/TM	DCC &EFS	Pages 26
	=CR35E				Date 26-02-2014	Revision 24-06-2014 TM	Next page =CR35E/150	Page 106

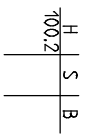
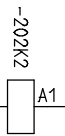
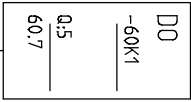


<b>COTES</b> +4558196322		COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		HEATING POWER CIRCUIT		Project E35E-2 CR35E-2 PLC		Date 05-12-2013		Revision 24-06-2014 TM		Initials SD/TM		DCC Next page =CR35E/200		Pages 26 Page 150	
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0 1 2 3 4 5 6 7 8 9

200.9 > 24VDC 24VDC > 203.0



START COMMAND  
PROCESS AIR FAN

=CR35E

**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
PROCESS AIR FAN

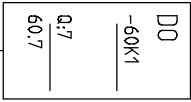
Project		Initials		DCC		Pages	
E35E-2 CR35E-2 PLC		SD/TM		&EFS		26	
Date	Revision	Initials	Next page	Pages			
05-12-2013	05-02-2014 TM		=CR35E/203	202			

E 200.9 > 0VDC 0VDC > 203.0  
200.9 > PE PE > 203.0

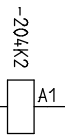


0 1 2 3 4 5 6 7 8 9

2039 > 24VDC 24VDC > 205.0

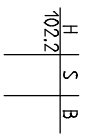


204.1



0VDC

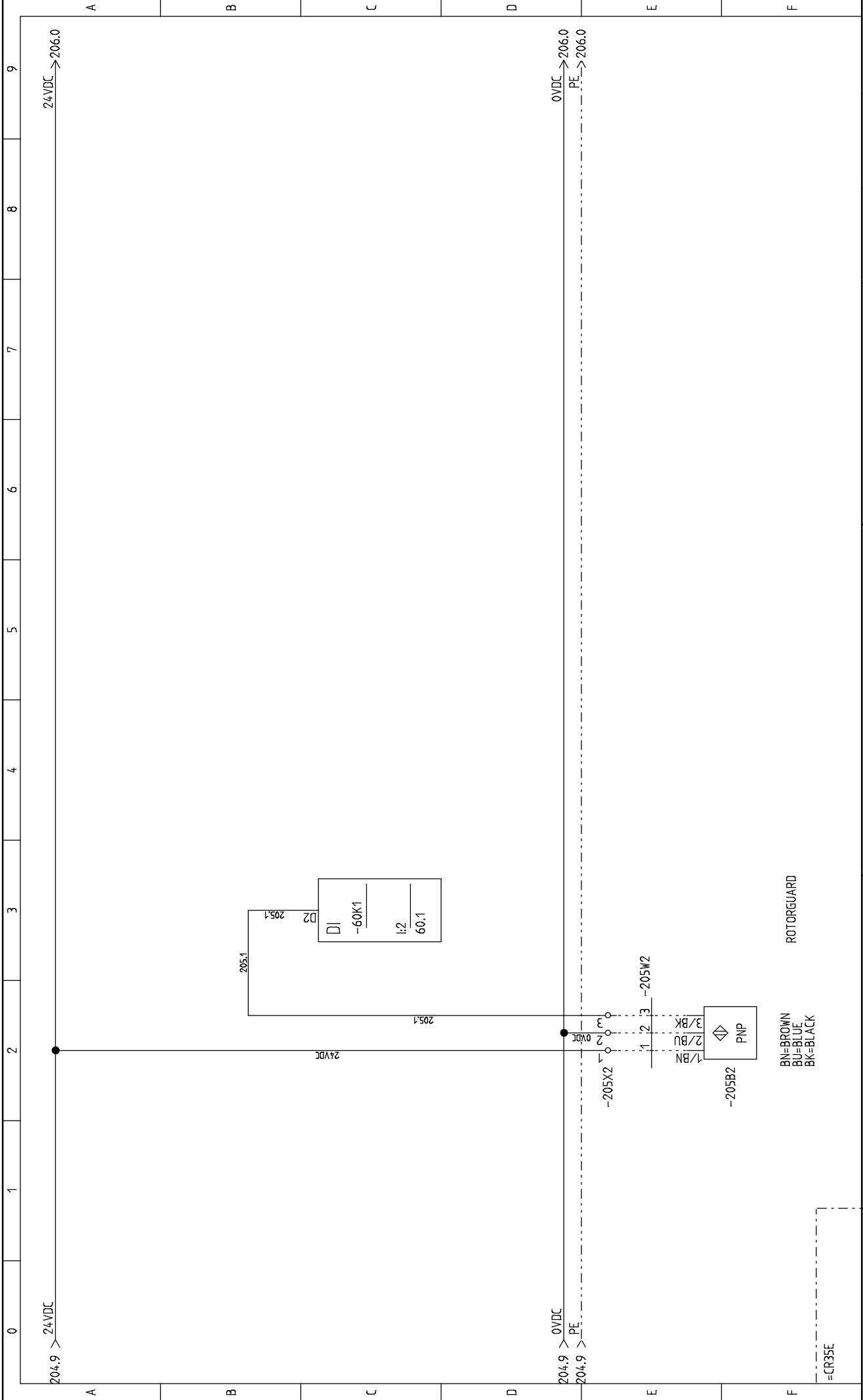
E 2039 > 0VDC 0VDC > 205.0  
 2039 > PE PE > 205.0



START COMMAND  
REG. AIR FAN

=CR35E

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		CONTROL CIRCUIT START REG. AIR FAN START REG. AIR FAN LK		Project E35E-2 CR35E-2 PLC	Revision 24-06-2014 TM	Initials SD/TM	DCC &EFS	Pages 26
	Date 26-02-2014		Initials SD/TM		Next page =CR35E/205		Page 204		



204.9 > 24VDC → 24VDC → 206.0

204.9 > 0VDC → 0VDC → 206.0  
 204.9 > PE → PE → 206.0

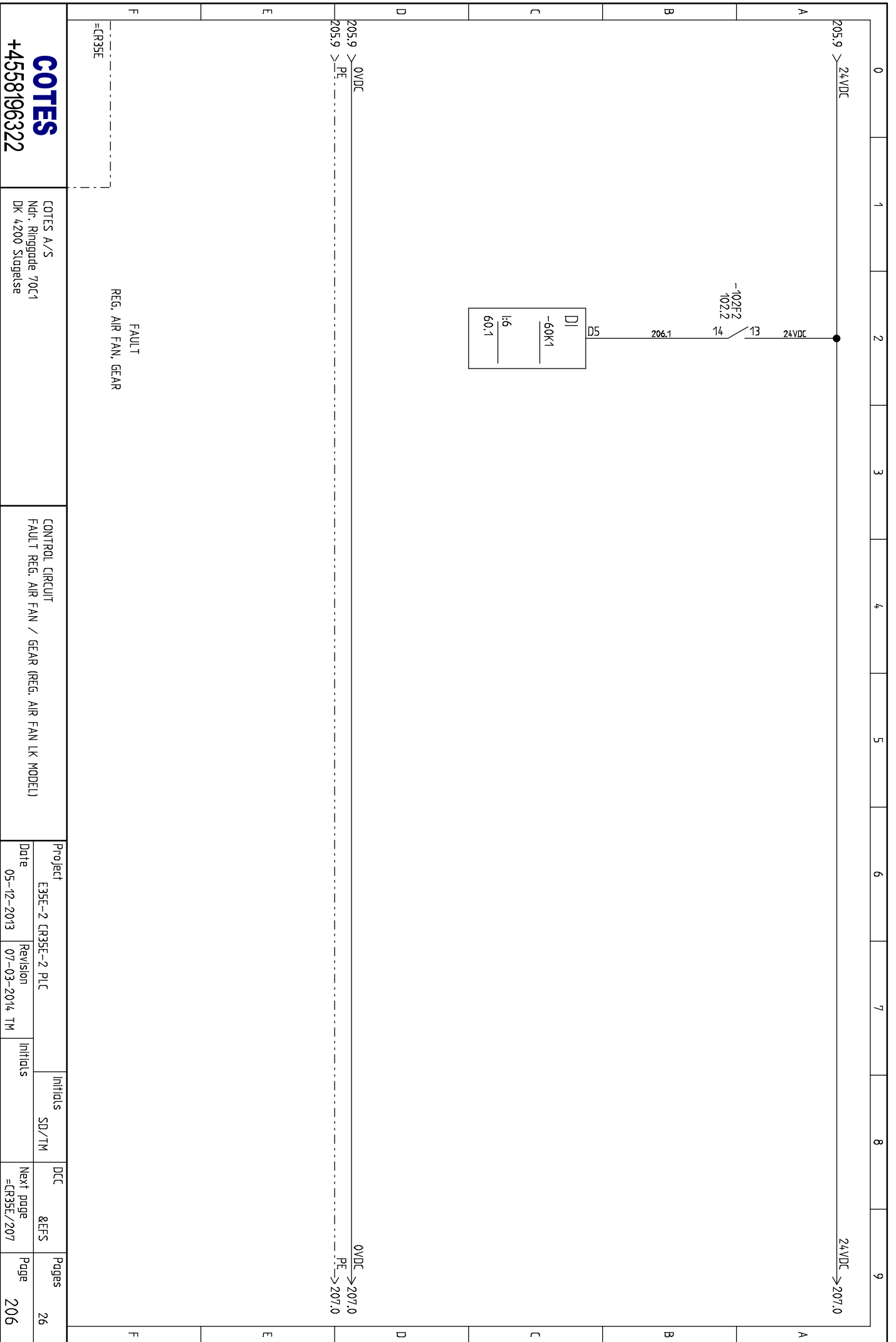
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**COTES**  
 +4558196322

COTES A/S  
 Ndr. Ringgade 70C1  
 DK 4200 Slagelse

CONTROL CIRCUIT  
 GEAR/ROTOR, ROTORGUARD

Project	E35E-2 CR35E-2 PLC	Initials	SD/TM	DCC	&EFS	Pages	26
Date	05-12-2013	Revision	26-02-2014 TM	Next page	=CR35E/206	Page	205



**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
FAULT REG. AIR FAN / GEAR (REG. AIR FAN LK MODEL)

Project	E35E-2 CR35E-2 PLC	Initials	SD/TM	DCC	&EFS	Pages
Date	05-12-2013	Revision	07-03-2014 TM	Initials	Next page	26
				=CR35E/207		206

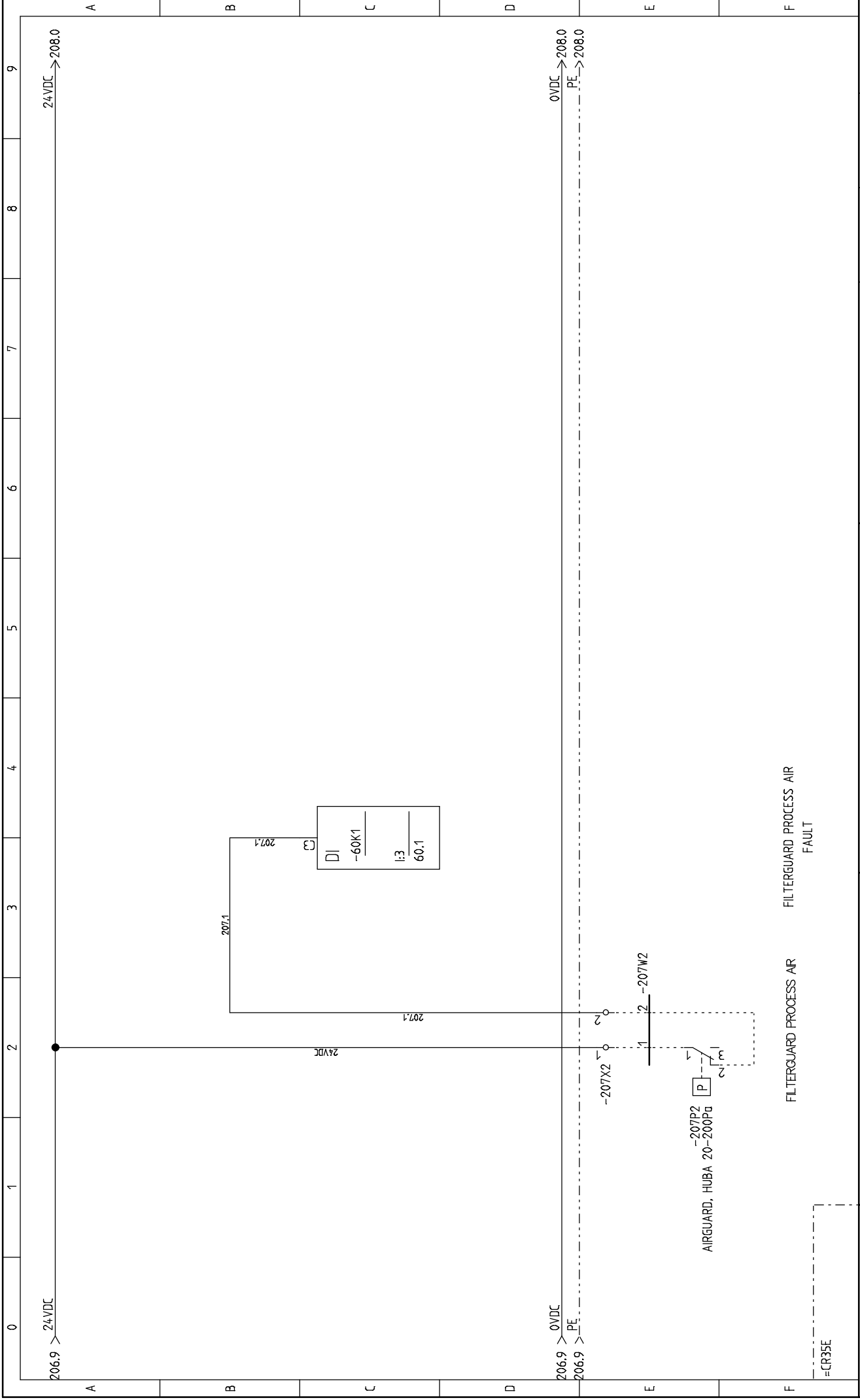
REG. AIR FAN, GEAR  
FAULT  
REG. AIR FAN, GEAR

0VDC  
PE  
205.9

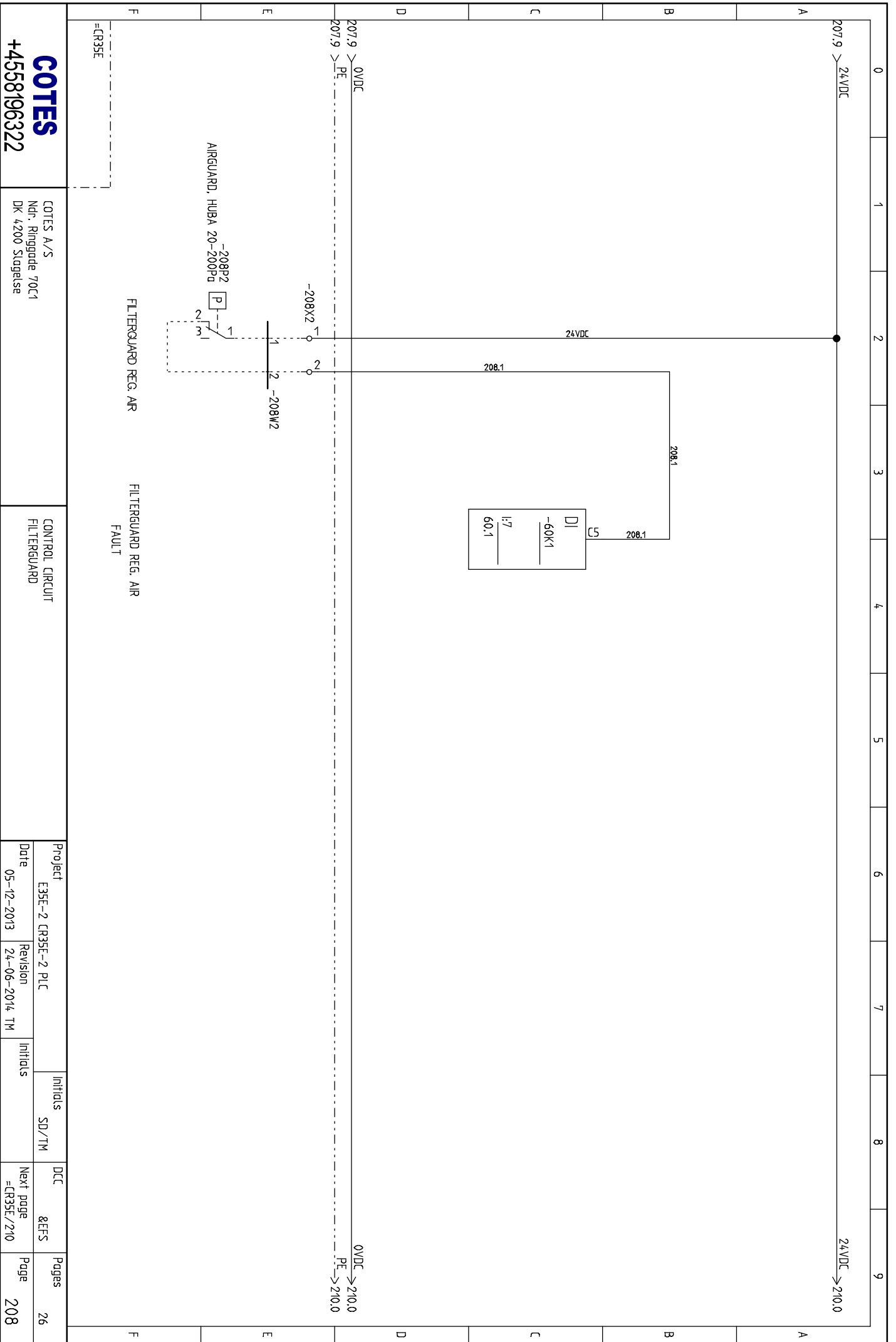
206.1  
D5  
DI  
-60K1  
i:6  
60.1

24VDC  
13  
14  
-102F2  
102.2  
24VDC  
207.0  
PE  
0VDC  
207.0





<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		CONTROL CIRCUIT FILTERGUARD		Project E35E-2 CR35E-2 PLC	Initials SD/TM	DCC &EFS	Pages 26
	=CR35E		FILTERGUARD PROCESS AIR FILTERGUARD PROCESS AIR FAULT		Date 05-12-2013	Initials	Next page =CR35E/208	Page 207

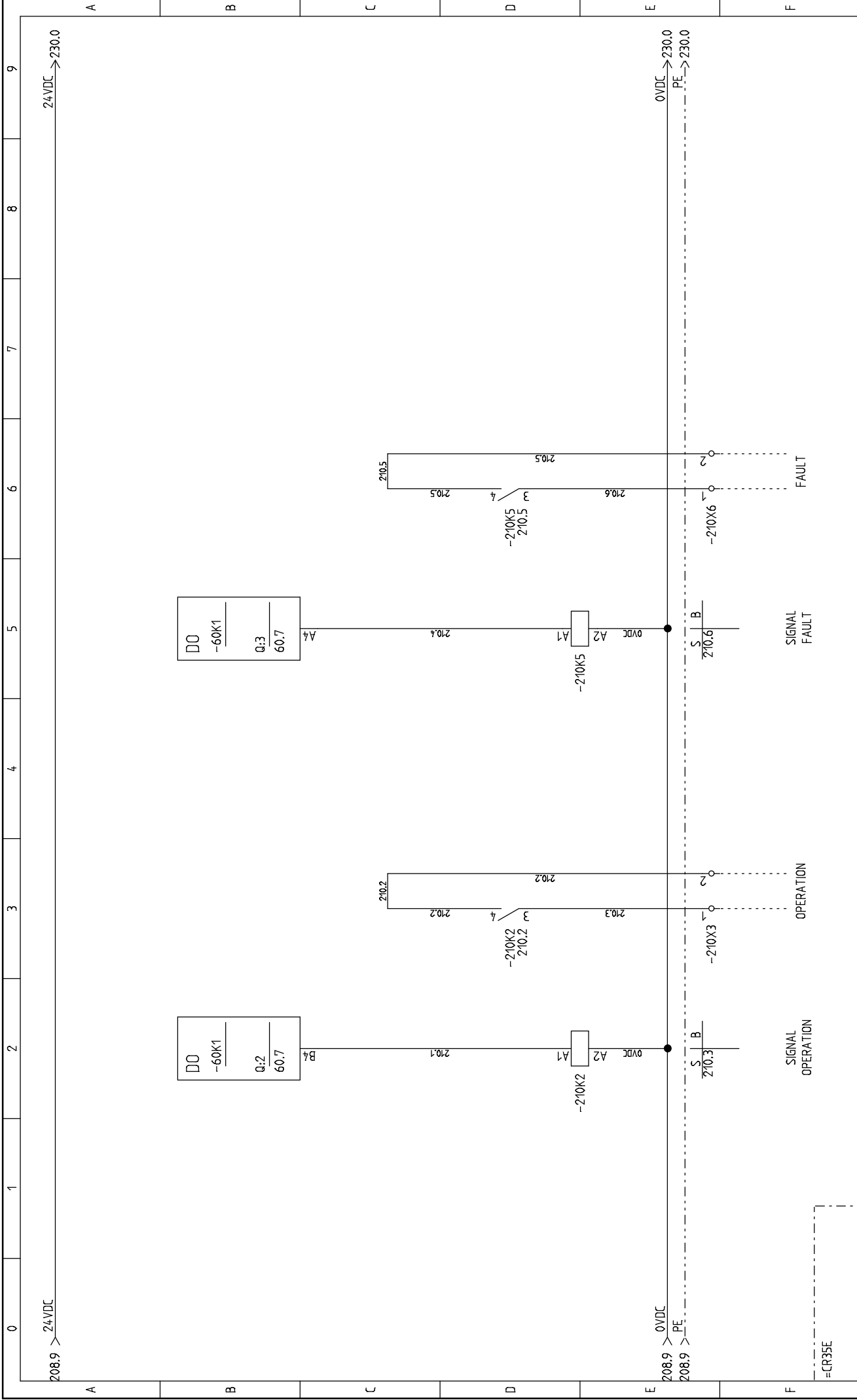


**COTES**  
+4558196322

COTES A/S  
Ngr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
FILTERGUARD

Project	E35E-2 CR35E-2 PLC		Initials	SD/TM	DCC	&EFS	Pages
Date	05-12-2013		Revision	24-06-2014 TM			26
							208

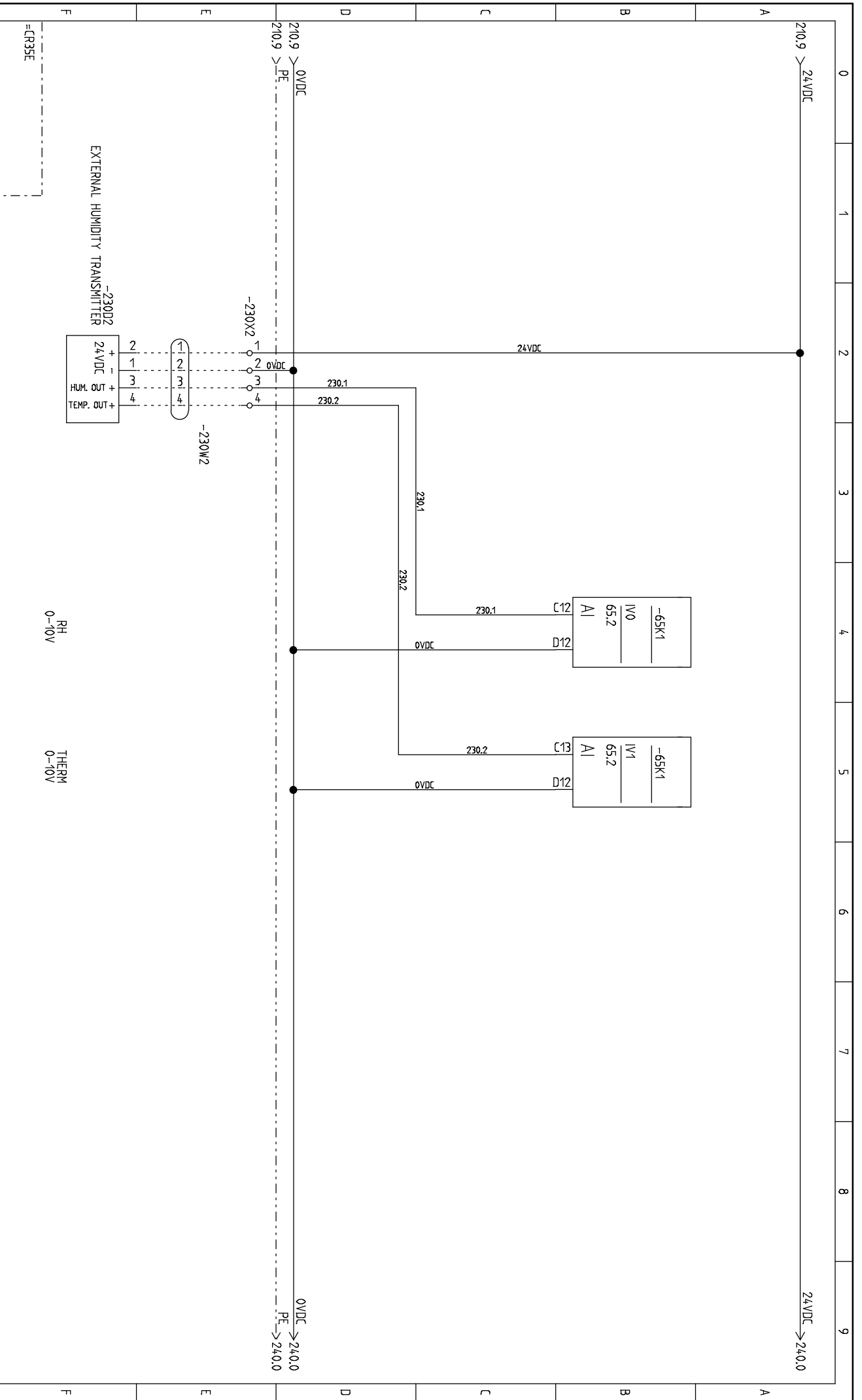


**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
SIGNALS TO EXTERNAL CLIENT

Project	E35E-2 CR35E-2 PLC	DCC	&EFS	Pages	26
Date	05-12-2013	Revision	05-02-2014 TM	Next page	=CR35E/230
		Initials		Page	210

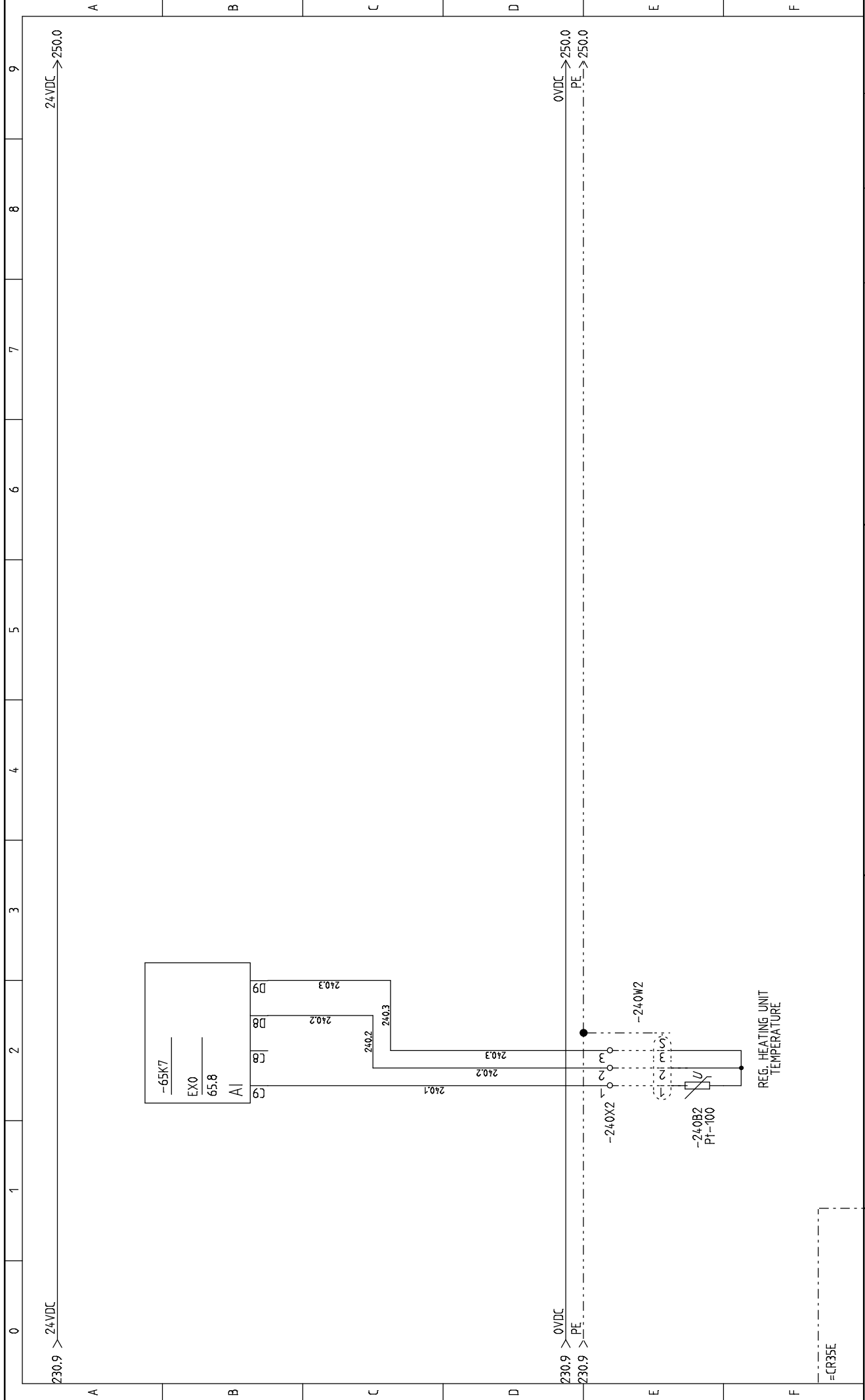


**COTES**  
+4558196322

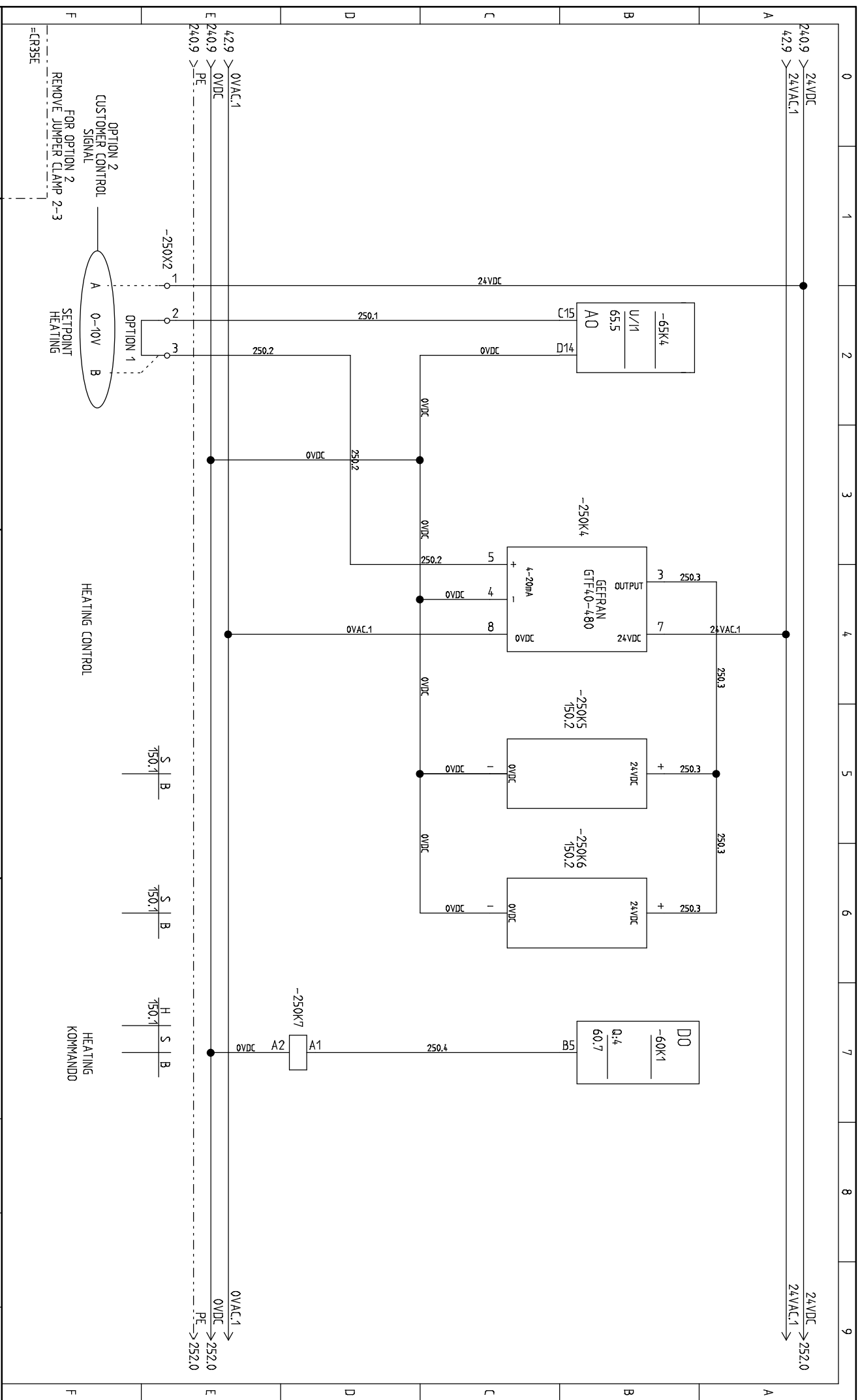
COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
INTERNAL HUMIDITY TRANSMITTER

Project	E35E-2 CR35E-2 PLC	Initials	SD/TM	DCC	&EFS	Pages
Date	05-12-2013	Revision	05-02-2014 TM			26
		Initials		Next page	=CR35E/240	Page
						230



<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		CONTROL CIRCUIT TEMPERATURE HEATING UNIT		Project E35E-2 CR35E-2 PLC	Initials SD/TM	DCC &EFS	Pages 26
	=CR35E		Date 05-12-2013		Revision 24-06-2014 TM	Initials	Next page =CR35E/250	Page 240





# Documentliste

Function (=)	Page	Documenttype	Documenttype	Audit date
	1	Dokumentliste		11-08-2014
	2	Dokumentliste		11-08-2014
	1	Kredsskema	PLATE	11-08-2014
=CR35E	10	Kredsskema	POWER CIRCUIT	05-12-2013
=CR35E	42	Kredsskema	CONTROL CIRCUIT	28-07-2014
=CR35E	50	Kredsskema	PLC CONFIGURATION	05-12-2013
=CR35E	60	Kredsskema	PLC CONFIGURATION	24-06-2014
=CR35E	65	Kredsskema	PLC CONFIGURATION	05-12-2013
=CR35E	70	Kredsskema	PCB	24-06-2014
=CR35E	90	Kredsskema	COOLING FAN CABINET	24-06-2014
=CR35E	100	Kredsskema	PROCESS AIR FAN	03-07-2014
=CR35E	102	Kredsskema	REG. AIR FAN	07-03-2014
=CR35E	104	Kredsskema	ROTOR/GEAR	24-06-2014
=CR35E	106	Kredsskema	FAN LK MODEL	24-06-2014
=CR35E	150	Kredsskema	HEATING	24-06-2014
=CR35E	200	Kredsskema	CONTROL CIRCUIT	11-08-2014
=CR35E	202	Kredsskema	CONTROL CIRCUIT	05-02-2014
=CR35E	203	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	204	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	205	Kredsskema	CONTROL CIRCUIT	26-02-2014
=CR35E	206	Kredsskema	CONTROL CIRCUIT	07-03-2014
=CR35E	207	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	208	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	210	Kredsskema	CONTROL CIRCUIT	05-02-2014
=CR35E	230	Kredsskema	CONTROL CIRCUIT	05-02-2014
=CR35E	240	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	250	Kredsskema	CONTROL CIRCUIT	05-02-2014
=CR35E	252	Kredsskema	CONTROL CIRCUIT	24-06-2014
=CR35E	1	PLC IO-liste		
=CR35E	2	Produktliste		


<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	Project	Initials	DCC	Pages
		E35E-2 CR35E-2 PLC		REAB	2
Date	Revision	Initials	Next page	Page	
11-08-2014			2	1	





## Productlist

Function (=)	Location (+)	Product (-)	Type	Description	Manufacturer	Documenttype	Page	Circuit
=CR35E		-E1	111503	230V, 765W		Kredsskema	150	1
=CR35E		-E2	111503	230V, 765W		Kredsskema	150	1
=CR35E		-E3	111503	230V, 765W		Kredsskema	150	1
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=CR35E		-E5	111504	230V, 1145W		Kredsskema	150	2
=CR35E		-E6	111504	230V, 1145W		Kredsskema	150	2
=CR35E		-E7	111503	230V, 765W		Kredsskema	150	3
=CR35E		-E8	111503	230V, 765W		Kredsskema	150	3
=CR35E		-E9	111503	230V, 765W		Kredsskema	150	3
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=CR35E		-E17	111504	230V, 1145W		Kredsskema	150	6
=CR35E		-E18	111504	230V, 1145W		Kredsskema	150	6
=CR35E		-E19	111504	230V, 1145W		Kredsskema	150	7
=CR35E		-E20	111504	230V, 1145W		Kredsskema	150	7
=CR35E		-E21	111504	230V, 1145W		Kredsskema	150	7
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=CR35E		-E23	111504	230V, 1145W		Kredsskema	150	7
=CR35E		-E24	111504	230V, 1145W		Kredsskema	150	7
=CR35E		-E25	111506	230V, 1333W		Kredsskema	150	8
=CR35E		-E26	111506	230V, 1333W		Kredsskema	150	8
=CR35E		-E27	111506	230V, 1333W		Kredsskema	150	8
=CR35E		-E28	111506	230V, 1333W		Kredsskema	150	9
=CR35E		-E29	111506	230V, 1333W		Kredsskema	150	9
=CR35E		-E30	111506	230V, 1333W		Kredsskema	150	9

 <b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	Project E35E-2 CR35E-2 PLC				Date 28-07-2014	Revision	Initials	DCC Next page =CR35E/3	Pages 3
		Initials								

# Productlist

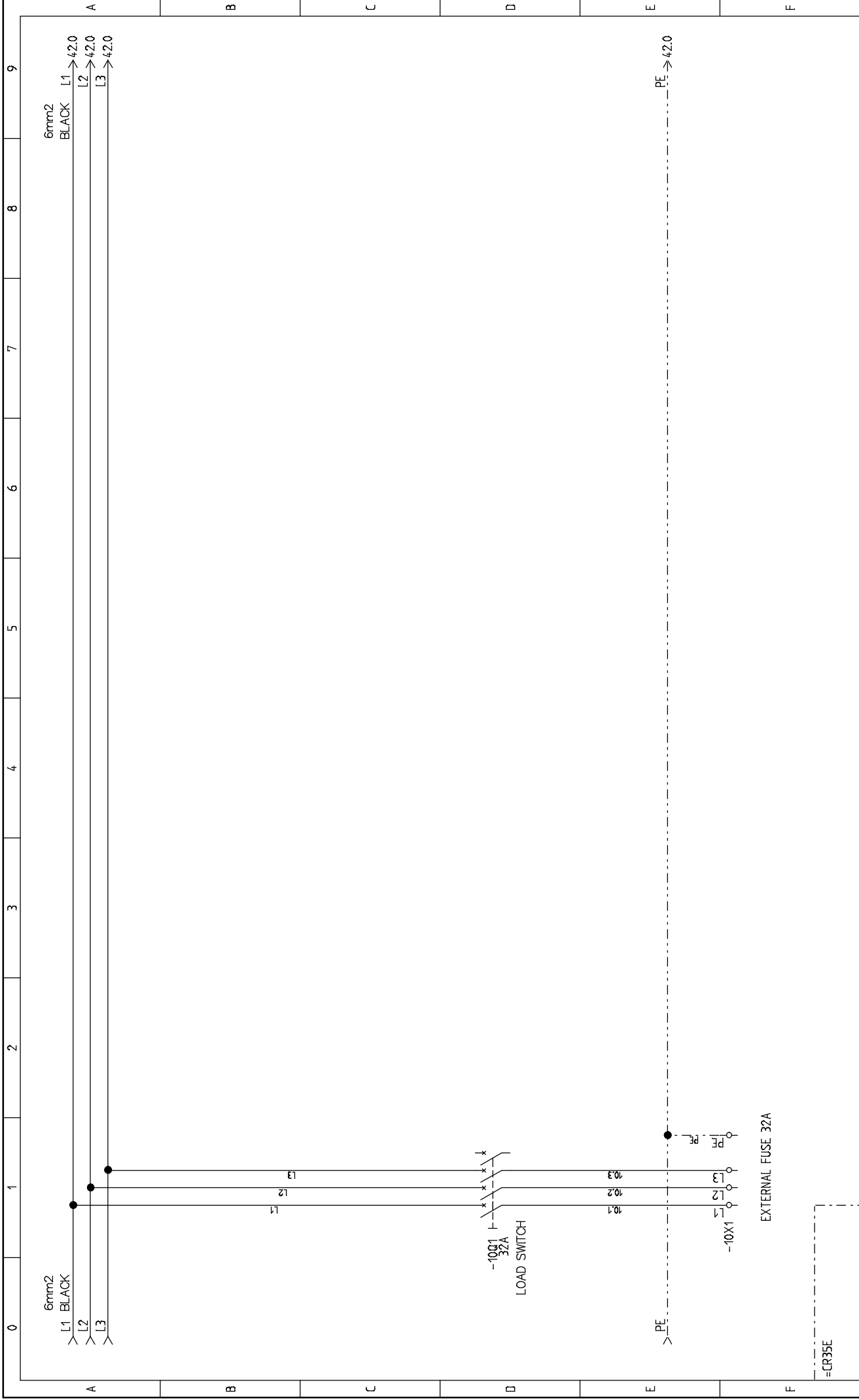
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=CR35E		-M3	110400	SAIA UFR40, 230V/50, 5W		Kredsskema	104	1
=CR35E		-M4	801668	RH25C		Kredsskema	106	2
=CR35E		-10Q1	110355	SIEMENS 3LD2 113-1TL, 25A		Kredsskema	10	1
=CR35E		-42F1	110178	BM017603 MCB 3A		Kredsskema	42	1
=CR35E		-42F2	101130 WSI 6 SIKRINGSKL 10-36V	GLASS FUSE SAND FILLED 3A	Weidmüller	Kredsskema	42	2
=CR35E		-42T2	823050	SIEMENS PSU100C, 24VDC 4A		Kredsskema	42	2
=CR35E		-42T4	XX	XXXXX		Kredsskema	42	4
=CR35E		-60K1	140620	Pro-Face LT-4201TM		Kredsskema	60	1
=CR35E		-65K1	140620	Pro-Face LT-4201TM		Kredsskema	65	1
=CR35E		-65K4	140620	Pro-Face LT-4201TM		Kredsskema	65	4
=CR35E		-65K7	140620	Pro-Face LT-4201TM		Kredsskema	65	7
=CR35E		-70K1	112086	PCB		Kredsskema	70	1
=CR35E		-90M2	111785	FAN FOR COOLING OF E-BOX, 230V		Kredsskema	90	2
=CR35E		-102F2	110178 / 110177	SCHRACK 3A-N, BM017303 MCB / BM900001		Kredsskema	102	2
=CR35E		-104C2	110430	CAPACTOR, 0,22µF		Kredsskema	104	2
=CR35E		-150F1	110172	SCHRAK 13A, BM617313 MCB		Kredsskema	150	1
=CR35E		-200K5	823051 / 823052	OMRON G2R-2-SND(S) 24VDC 2P / P2RF-08-E		Kredsskema	200	5
=CR35E		-202K2	823055	SCHNEIDER LP1SK0600BD 12A, 24VDC		Kredsskema	202	2
=CR35E		-203K2	823056	CELDUC SSR, XKA20420		Kredsskema	203	2
=CR35E		-204K2	823055	SCHNEIDER LP1SK0600BD 12A, 24VDC		Kredsskema	204	2
=CR35E		-205B2	111216	AE1-AP-1A - Inductive proximity sensor, 10-30 VDC		Kredsskema	205	2
=CR35E		-207P2	126843	AIRGUARD, HUBA 20-200Pa		Kredsskema	207	2
=CR35E		-208P2	126843	AIRGUARD, HUBA 20-200Pa		Kredsskema	208	2
=CR35E		-210K2	823051 / 823052	OMRON G2R-2-SND(S) 24VDC 2P / P2RF-08-E		Kredsskema	210	2
=CR35E		-210K5	823051 / 823052	OMRON G2R-2-SND(S) 24VDC 2P / P2RF-08-E		Kredsskema	210	5
=CR35E		-230D2	140547	EXTERNAL HUMIDITY TRANSMITTER		Kredsskema	230	2
=CR35E		-240B2	111234	PT-100		Kredsskema	240	2
=CR35E		-250K4		GEFRAN GT0-480-2-1-01BS2		Kredsskema	250	4

<b>COTES</b> +4558196322	COTES A/S Ndr., Ringgade 70C1 DK 4200 Slagelse		Project E35E-2 CR35E-2 PLC		Initials		DCC		Pages	
			Date 28-07-2014		Revision		Next page =CR35E/4		Page	
										3
										3

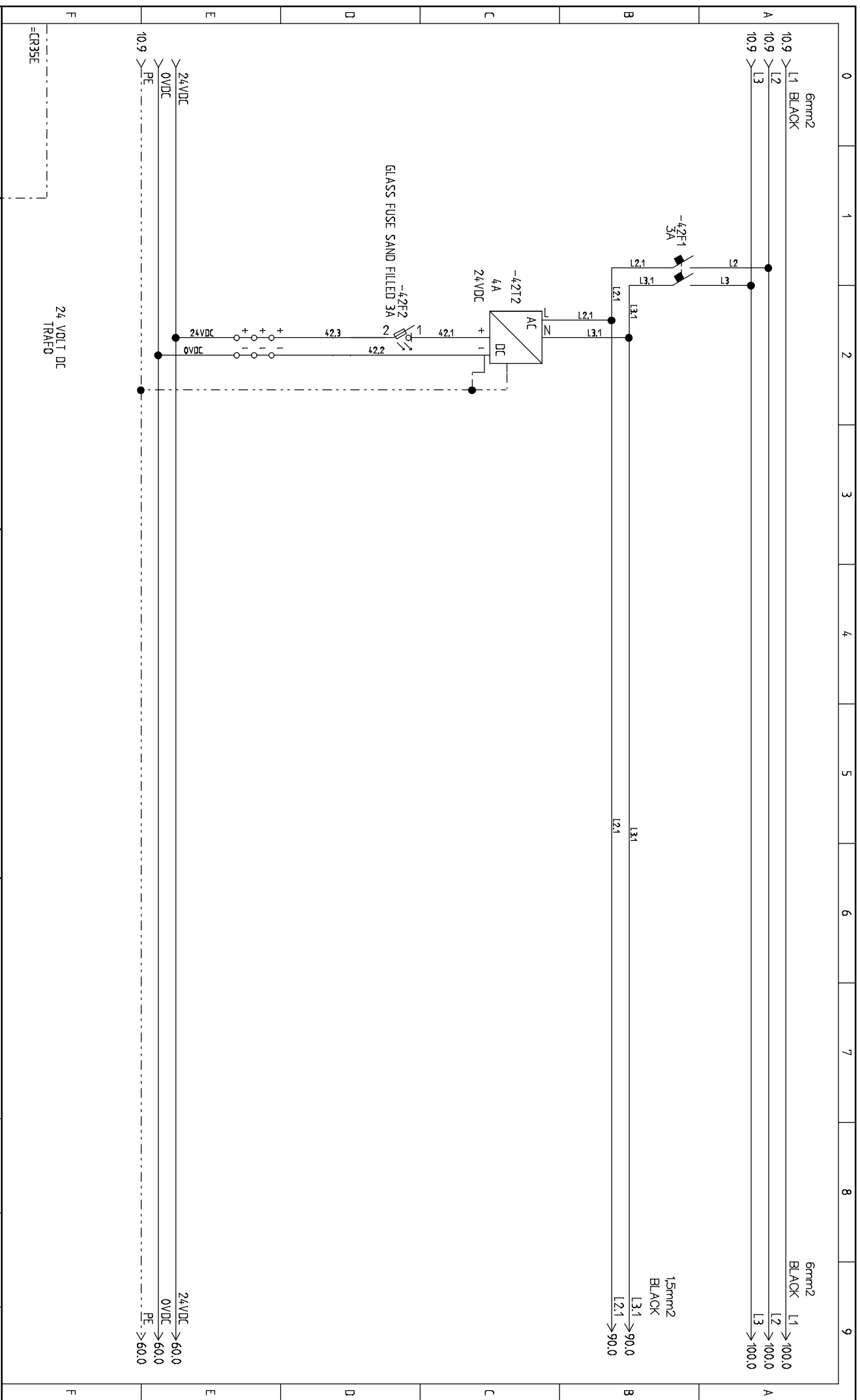








<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	POWER CIRCUIT 3X230V, 50HZ	Project E35E-3 CR35E-3 PLC 3X230V		Initials SD/TM	DCC &EFS	Pages 26
			Date 05-05-2014	Revision 03-07-2014 TM	Initials	Next page =CR35E/42	Page 10



**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
24VDC

Project		Initials	SD/TM	DCC	&EFS	Pages
Date	05-05-2014	Revision	08-09-2014 TM			26
E35E-3 CR35E-3 PLC 3X230V						
Next page	=CR35E/50					42



0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F				

# PLC

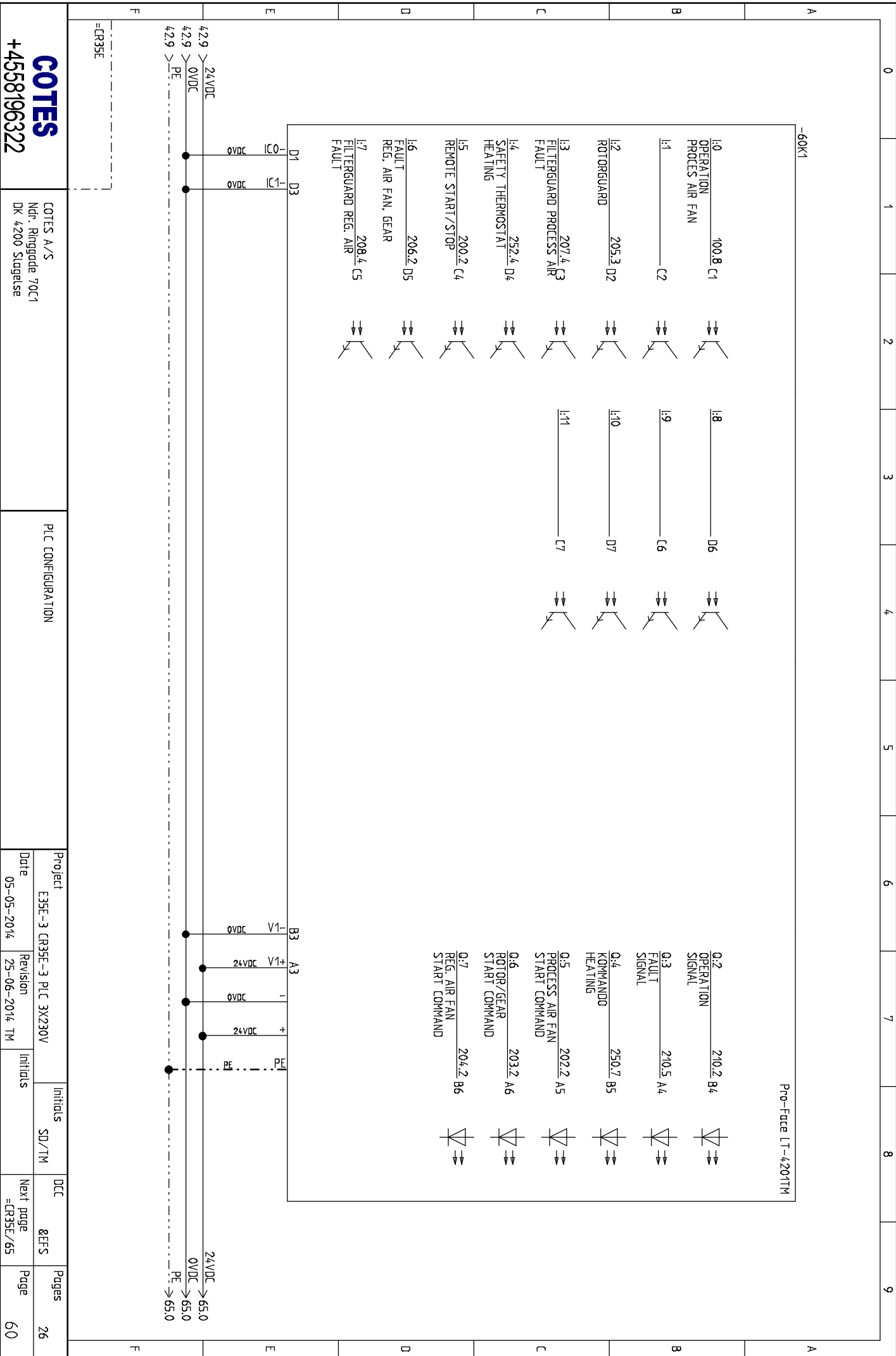
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	A3	V1+		B3	V1-
STANDARD OUTPUT	A4	V1+	STANDARD OUTPUT	B4	V1-
	A5	Q3		B5	Q2
	A6	Q5		B6	Q4

GROUP	PIN	SIGNAL NAME	GROUP	PIN	SIGNAL NAME
FAST INPUT/STANDARD INPUT	C1	I0	FAST INPUT/STANDARD INPUT	D1	I0
	C2	I1		D2	I2
STANDARD INPUT	C3	I3	STANDARD INPUT	D3	I1
	C4	I5		D4	I4
	C5	I7		D5	I6
	C6	I9		D6	I8
	C7	I11		D7	I10
	C8	MS0+		D8	MS0-
TEMPERATURE INPUT	C9	EX0+	TEMPERATURE INPUT	D9	EX0-
	C10	MS1+		D10	MS1-
	C11	EX1+		D11	EX1-
ANALOG INPUT	C12	IV0	ANALOG INPUT	D12	AIC
	C13	IV1		D13	IA0
	C14	IA1		D14	ADC
ANALOG OUTPUT	C15	U/10	ANALOG OUTPUT	D15	U/11

Pro-Face LT-420TM

=CR35E

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		PLC CONFIGURATION		Project E35E-3 CR35E-3 PLC 3X230V	DCC Next page =CR35E/60	Pages 26
					Date 05-05-2014	Revision Initials	Initials SD/TM

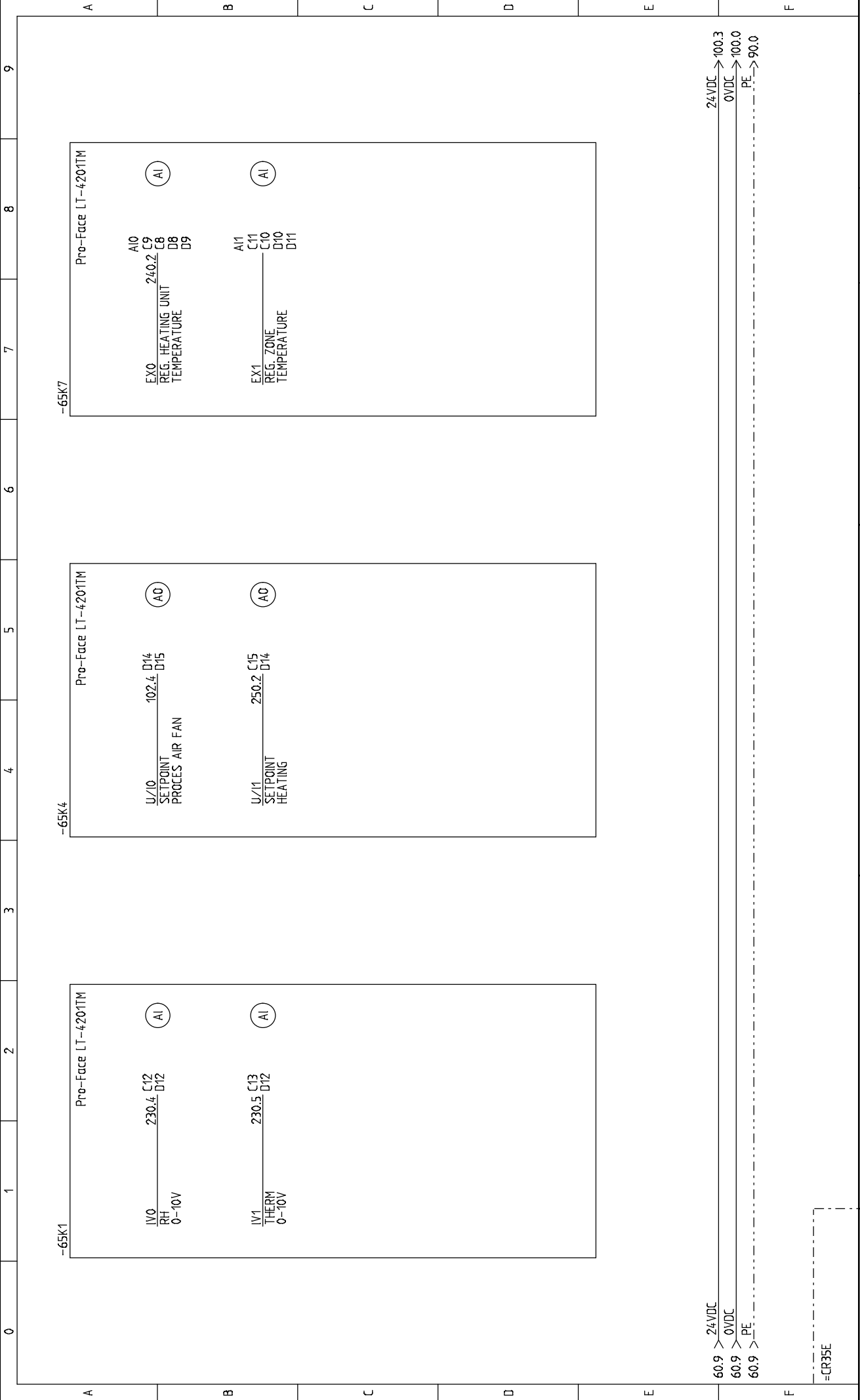


**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

PLC CONFIGURATION

Project		Initials		Pages	
Date	05-05-2014	Revision	25-06-2014 TM	SD/TM	26
E35E-3 CR35E-3 PLC 3X230V		Initials		DCC	26
				&EFS	
				Next page	60
				=CR35E/65	



0 1 2 3 4 5 6 7 8 9

A B C D E F

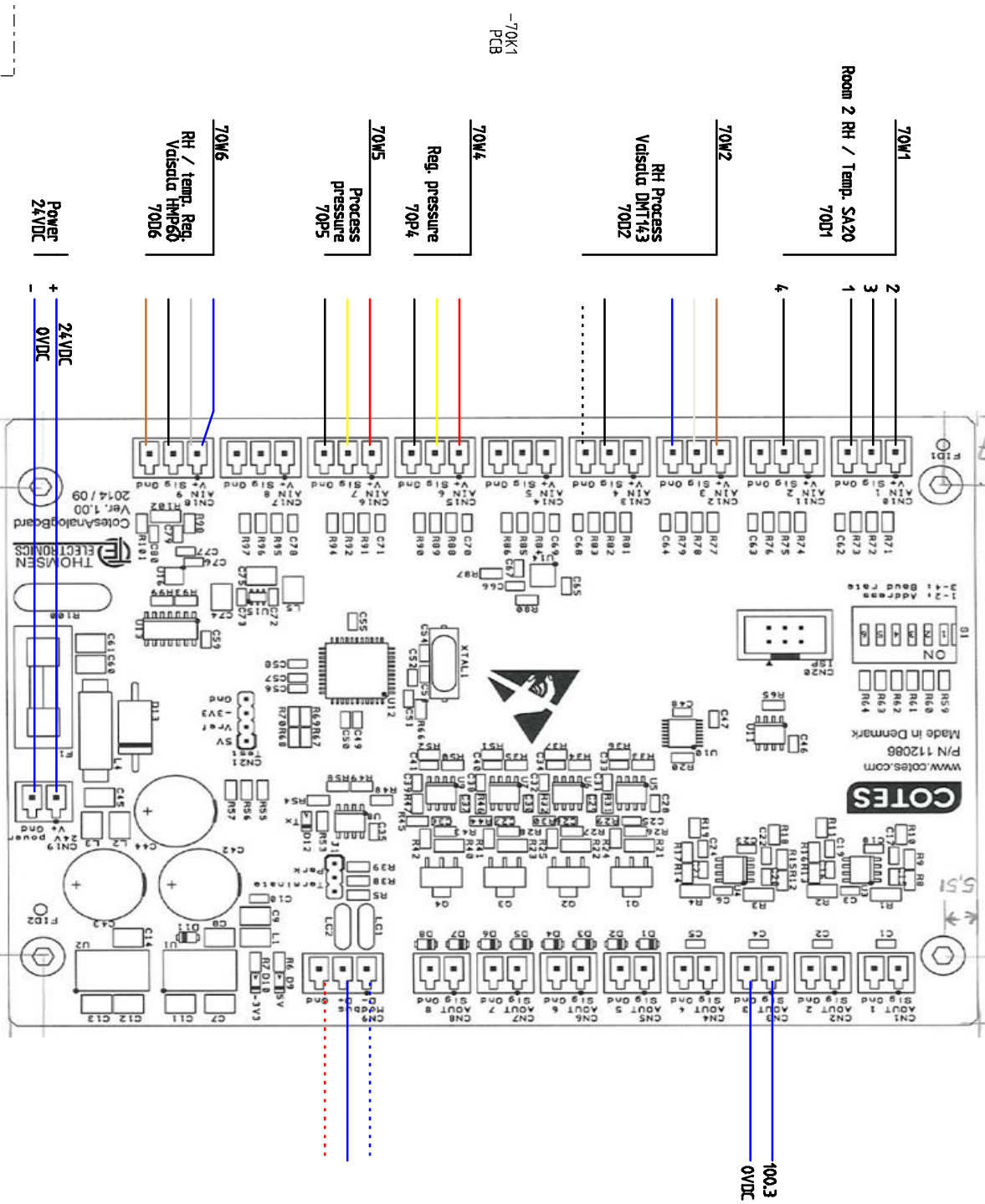
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	Date 05-05-2014		Revision	Initials	SD/TM Initials	Next page =CR35E/70	Page 65

60.9 > 24VDC → 100.3  
 60.9 > 0VDC → 100.0  
 60.9 > PE → 90.0

=CR35E

0 1 2 3 4 5 6 7 8 9

# OPTION C-D



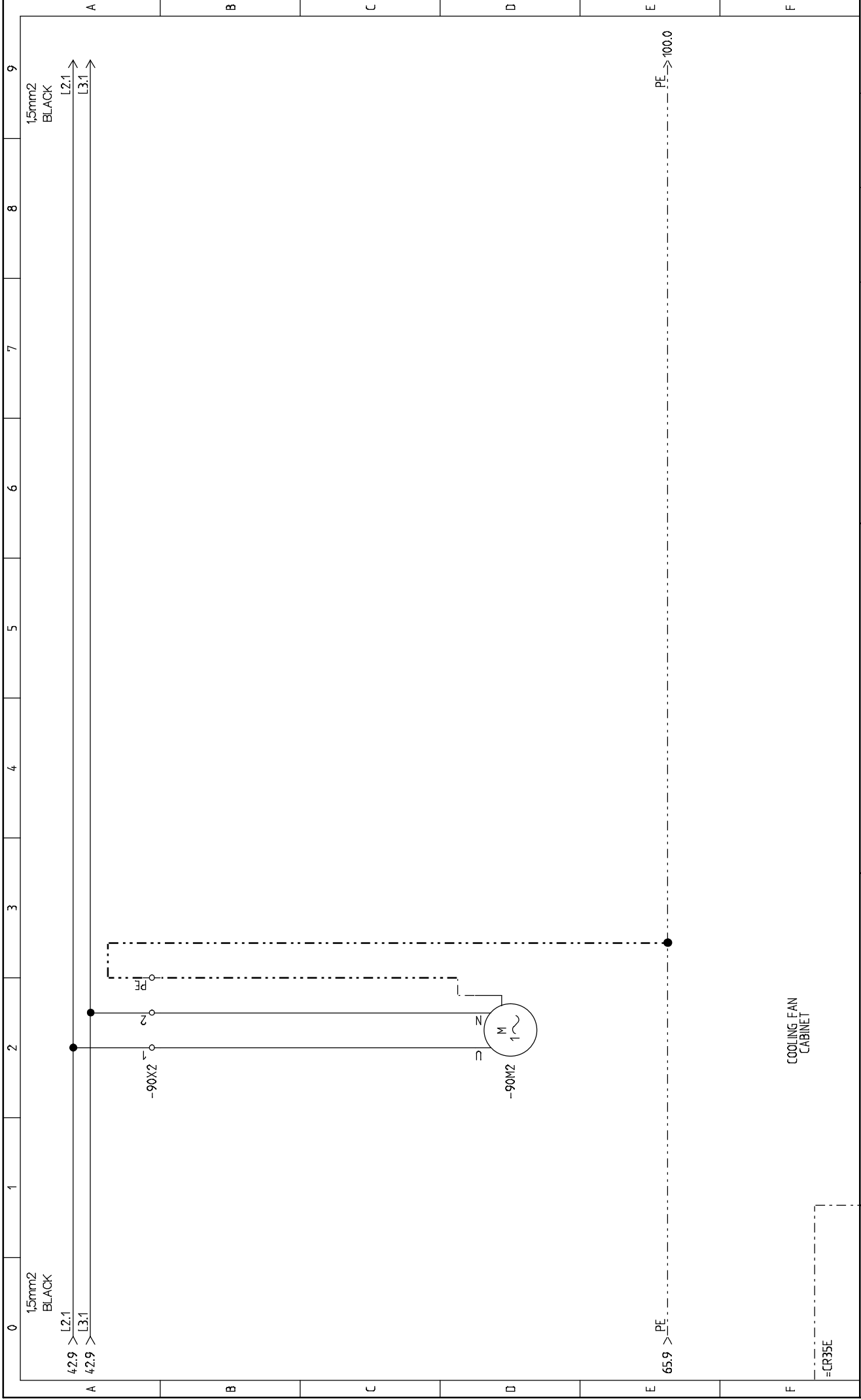
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**COTES**  
+4558196322

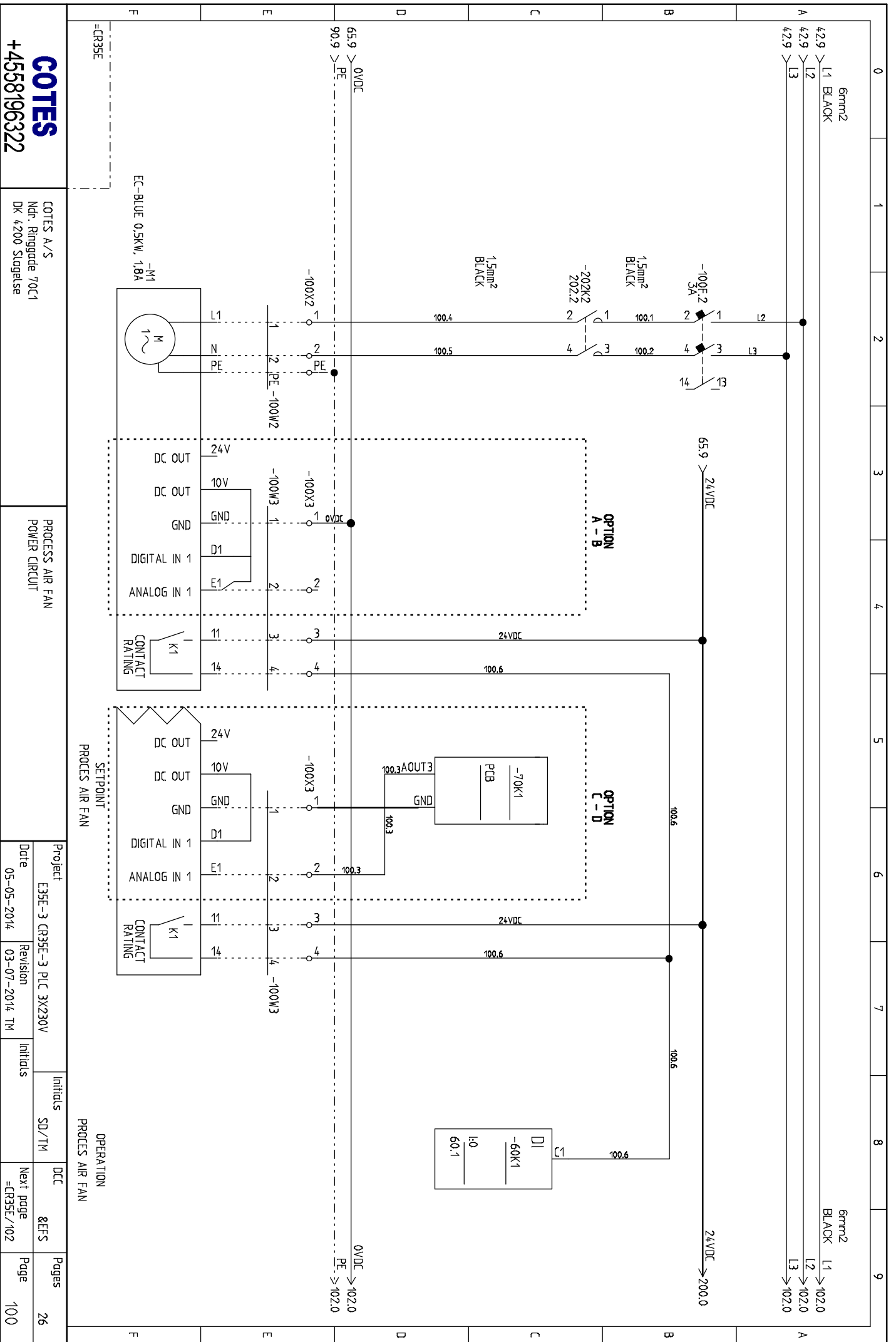
COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

PCB

Project	E35E-3 CR35E-3 PLC 3X230V	Initials	SD/TM	DCC	&EFS	Pages
Date	25-06-2014	Revision	Initials	Next page	=CR35E/90	26
						70



<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	COOLING FAN CABINET CONTROL CIRCUIT		Project E35E-3 CR35E-3 PLC 3X230V	Initials SD/TM	DCC &EFS	Pages 26
				Date 05-05-2014	Initials TM	Next page =CR35E/100	Page 90



**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

PROCESS AIR FAN  
POWER CIRCUIT

Project  
E35E-3 CR35E-3 PLC 3X230V  
Date  
05-05-2014

Revision  
03-07-2014 TM

Initials

SD/TM

DC

&EFS

Pages  
26

EC-BLUE 0,5KW, 1,8A  
-M1

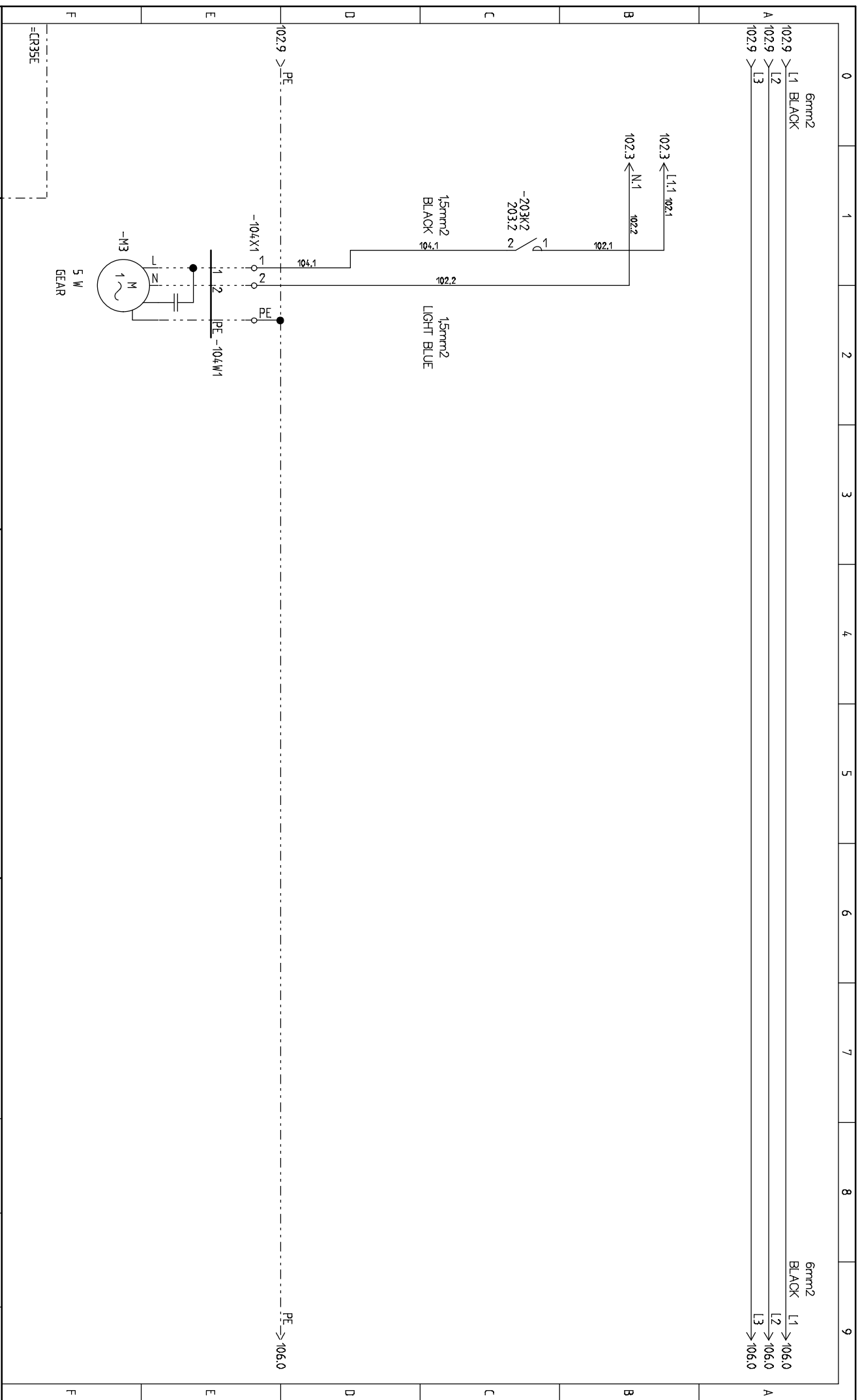
OPTION A - B  
OPTION C - D  
SETPOINT  
PROCESS AIR FAN

OPERATION  
PROCES AIR FAN

DC

Pages  
100





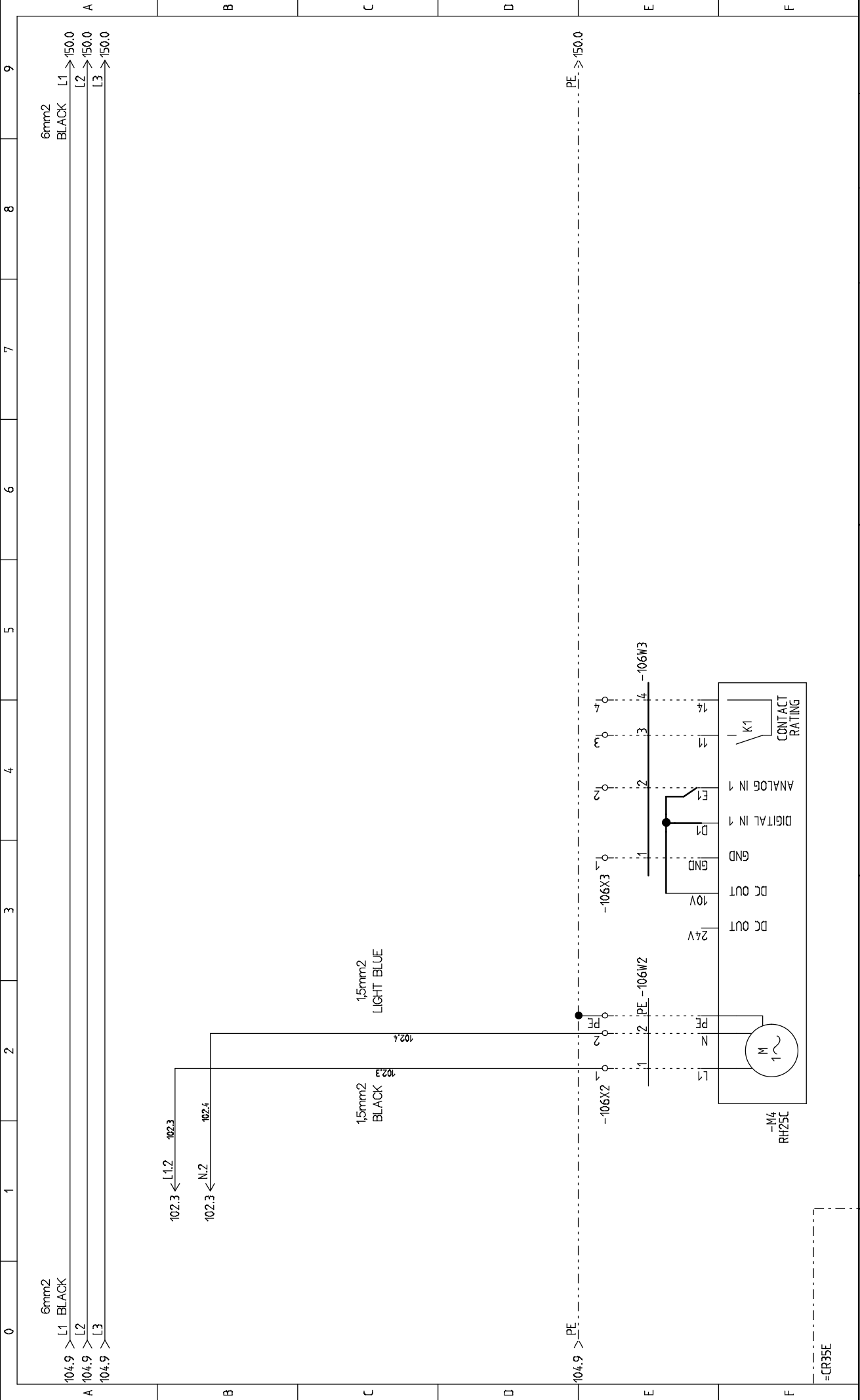
**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

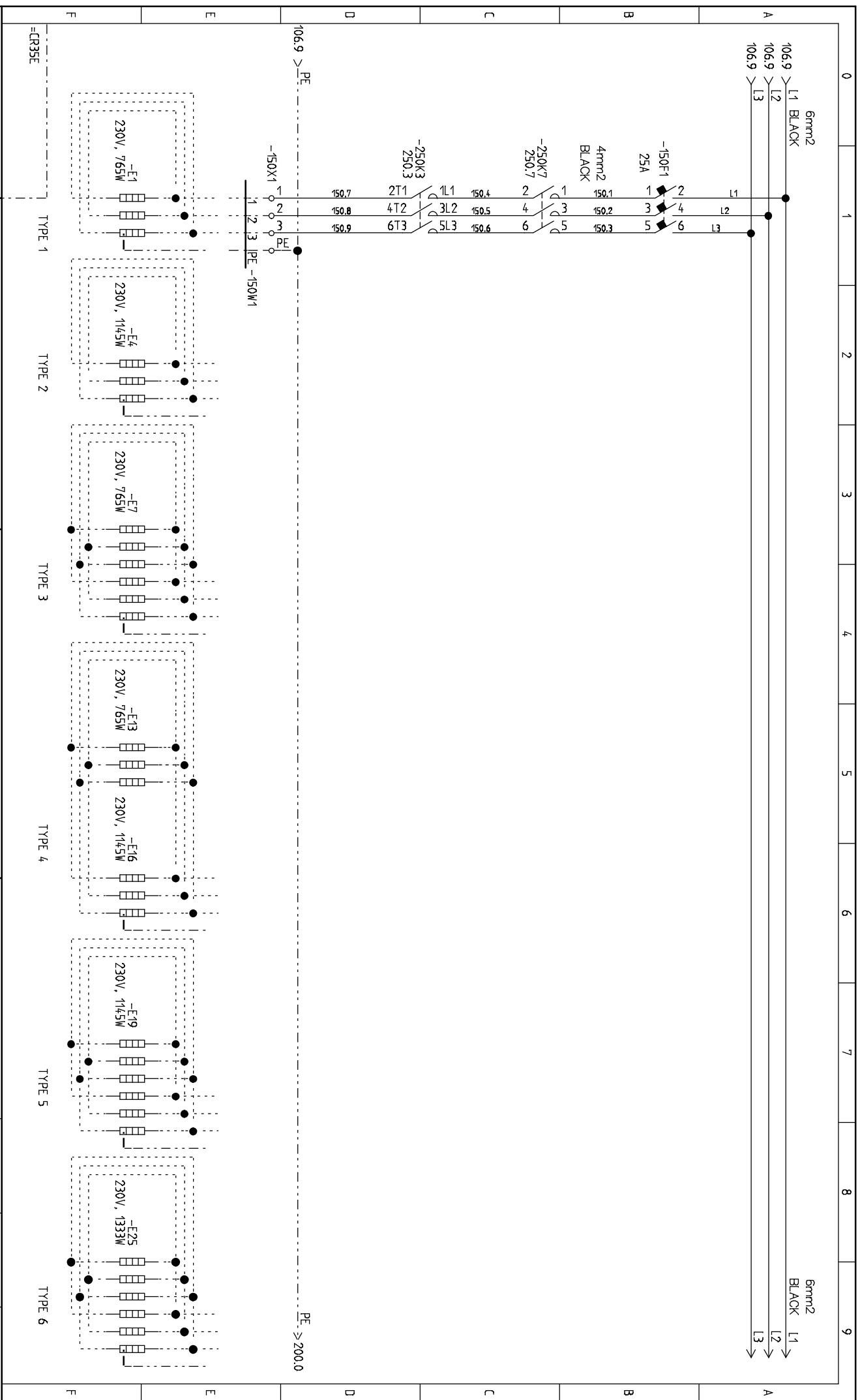
ROTOR/GEAR  
POWER CIRCUIT

Project		Initiails		DC		Pages	
Date	05-05-2014	Revision	25-06-2014 TM	SD/TM		&EFS	26
E35E-3 CR35E-3 PLC 3X230V				Next page =CR35E/106		Page 104	



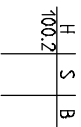
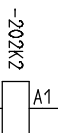
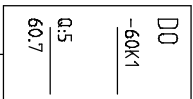


<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		FAN LK MODEL POWER CIRCUIT		Project E35E-3 CR35E-3 PLC 3X230V	Initials SD/TM	DCC &EFS	Pages 26
					Date 05-05-2014	Revision 25-06-2014 TM	Next page =CR35E/150	Page 106



<b>COTES</b>		COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		HEATING POWER CIRCUIT	
<b>+4558196322</b>					
Project		Revision		Initials	
E35E-3 CR35E-3 PLC 3X230V		03-07-2014 TM		SD/TM	
Date		Next page		Pages	
05-05-2014		=CR35E/200		26	
				Page	
				150	





START COMMAND  
 PROCESS AIR FAN

=CR35E

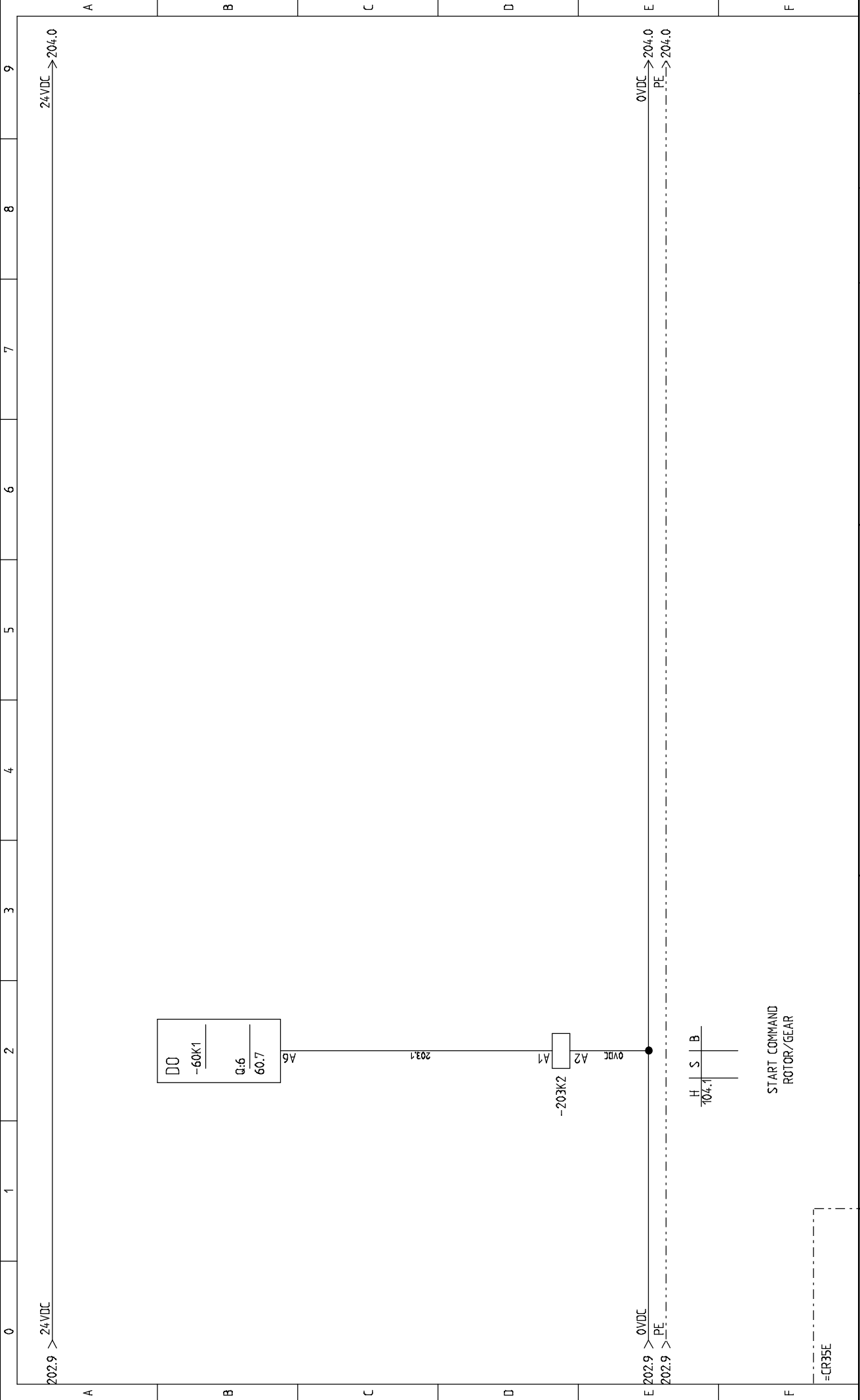
**COTES**  
 +4558196322

COTES A/S  
 Ndr. Ringgade 70C1  
 DK 4200 Slagelse

CONTROL CIRCUIT  
 PROCESS AIR FAN

Project		Initials		DCC		Pages	
E35E-3 CR35E-3 PLC 3X230V		SD/TM		EFS		26	
Date	Revision	Initials	Next page	Page			
05-05-2014			=CR35E/203	202			

E 200.9 > 0VDC  
 200.9 > PE  
 0VDC > 203.0  
 PE > 203.0



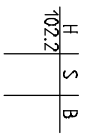
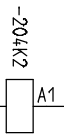
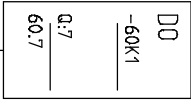
202.9 > 24VDC → 204.0

0VDC → 204.0  
PE → 204.0

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	CONTROL CIRCUIT PROCESS ROTOR/GEAR	Project E35E-3 CR35E-3 PLC 3X230V	Initials SD/TM	DCC Next page =CR35E/204	Pages 26
			Date 05-05-2014	Initials	Revision 25-06-2014 TM	Page 203

0 1 2 3 4 5 6 7 8 9

203.9 > 24VDC 24VDC > 205.0



START COMMAND  
REG. AIR FAN

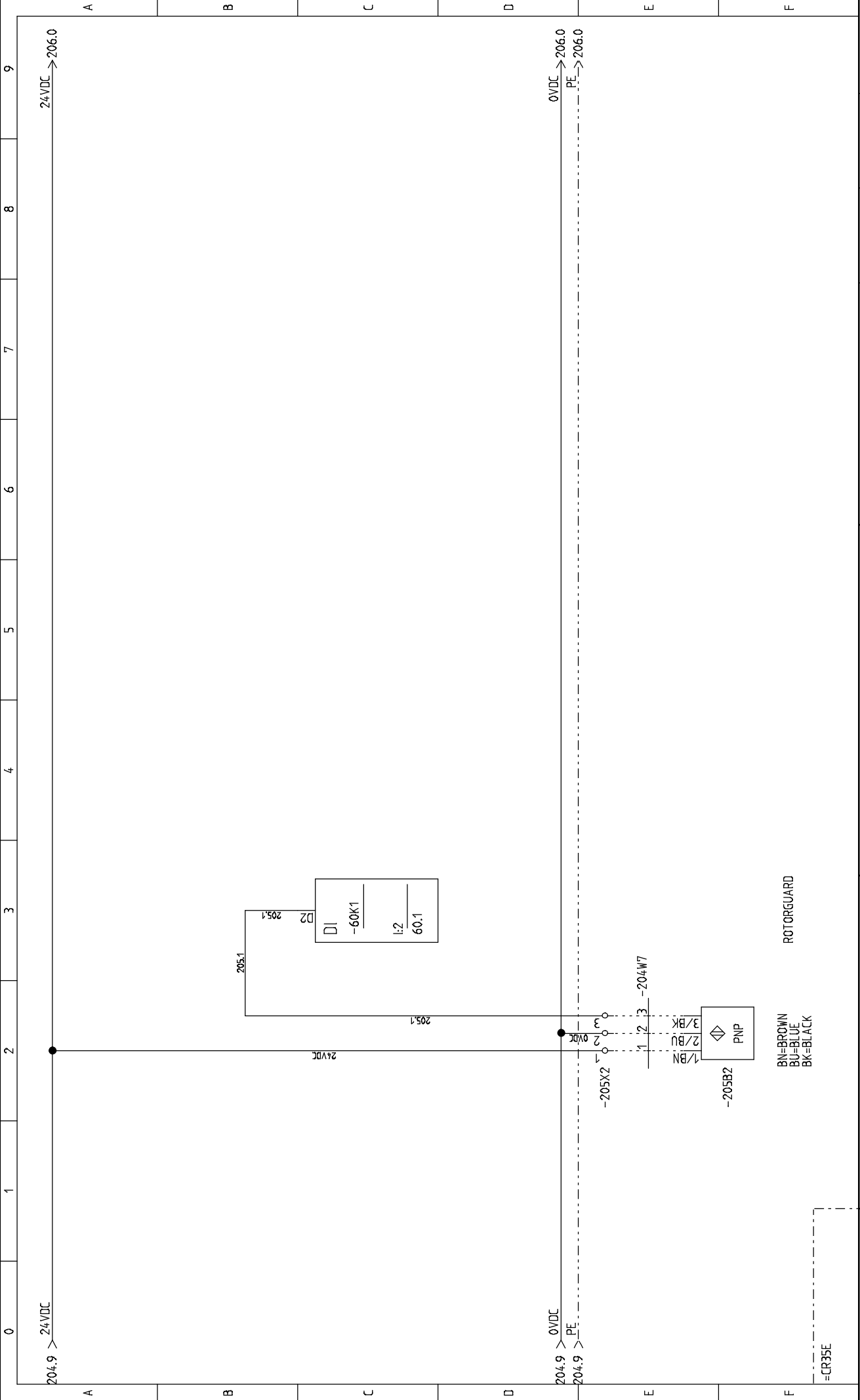
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**COTES**  
+4558196322

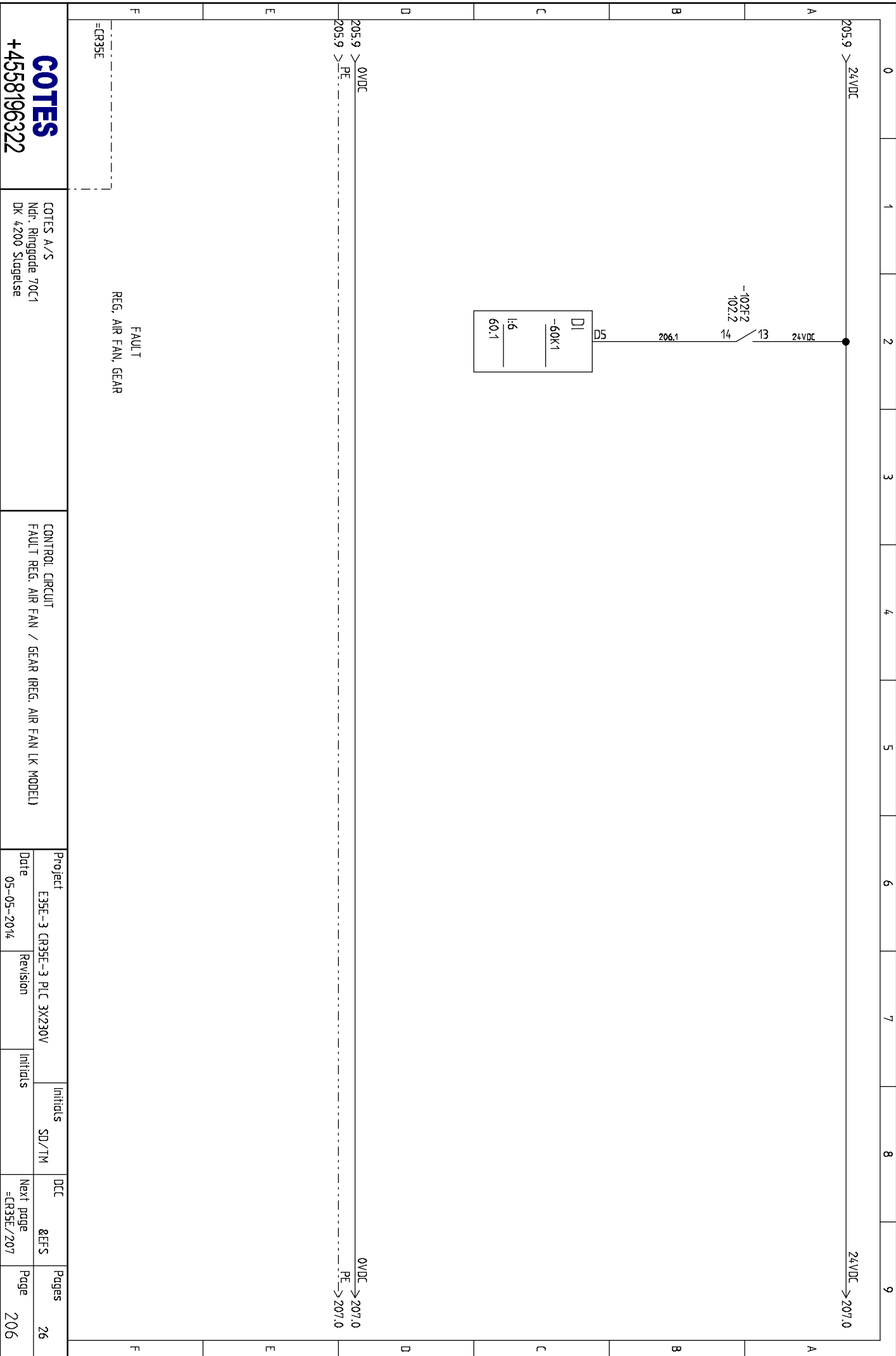
COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
START REG. AIR FAN  
START REG. AIR FAN LK

Project		Initials		DCC		Pages	
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Date	Revision	Initials	Next page	Page			
05-05-2014	25-06-2014 TM		=CR35E/205	204			



<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		CONTROL CIRCUIT GEAR/ROTOR, ROTORGUARD		Project E35E-3 CR35E-3 PLC 3X230V		DCC Next page =CR35E/206		Pages 26	
	Date 05-05-2014		Revision Initials		Initials SD/TM		Next page =CR35E/206		Page 205	

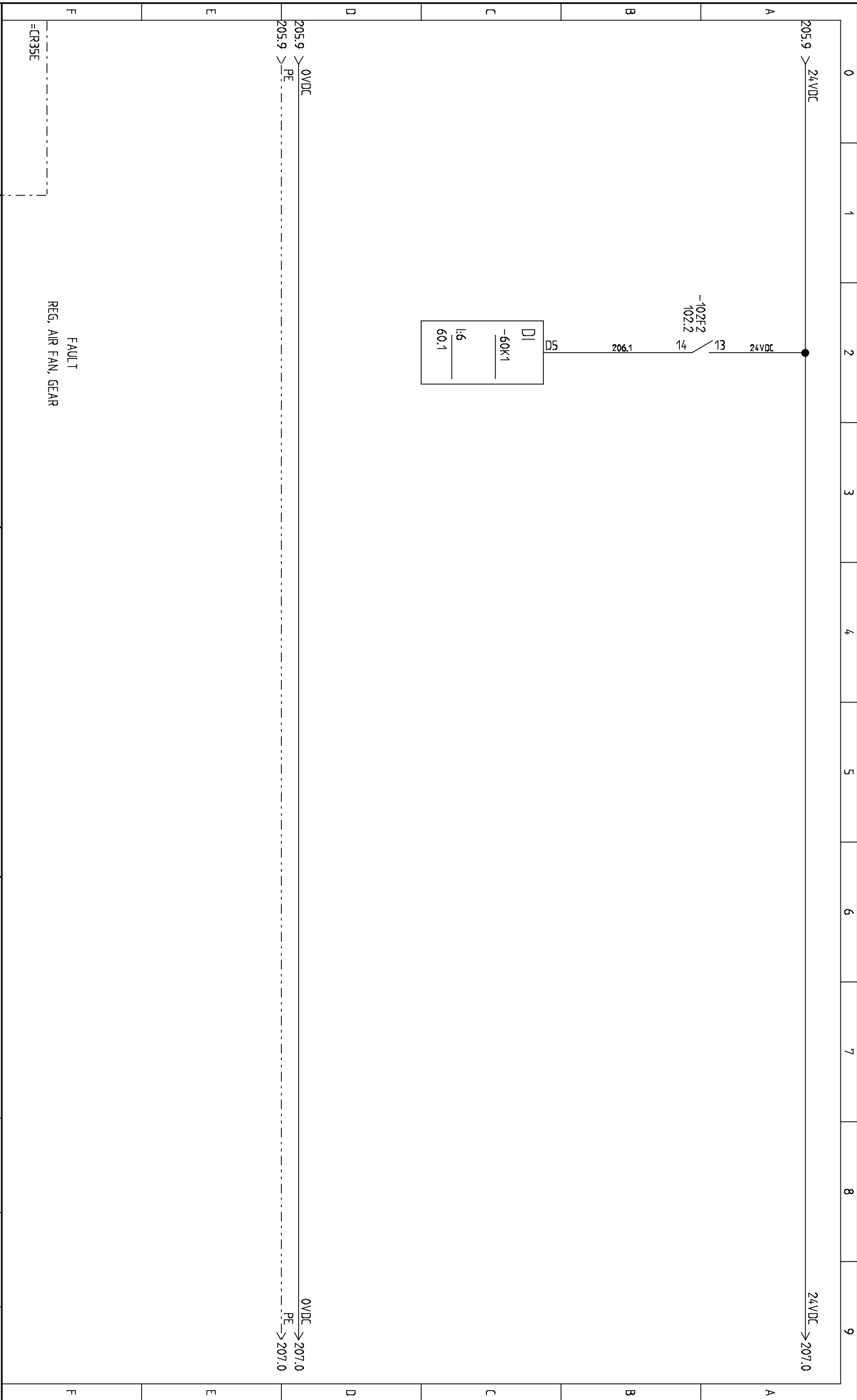


**COTES**  
+4558196322

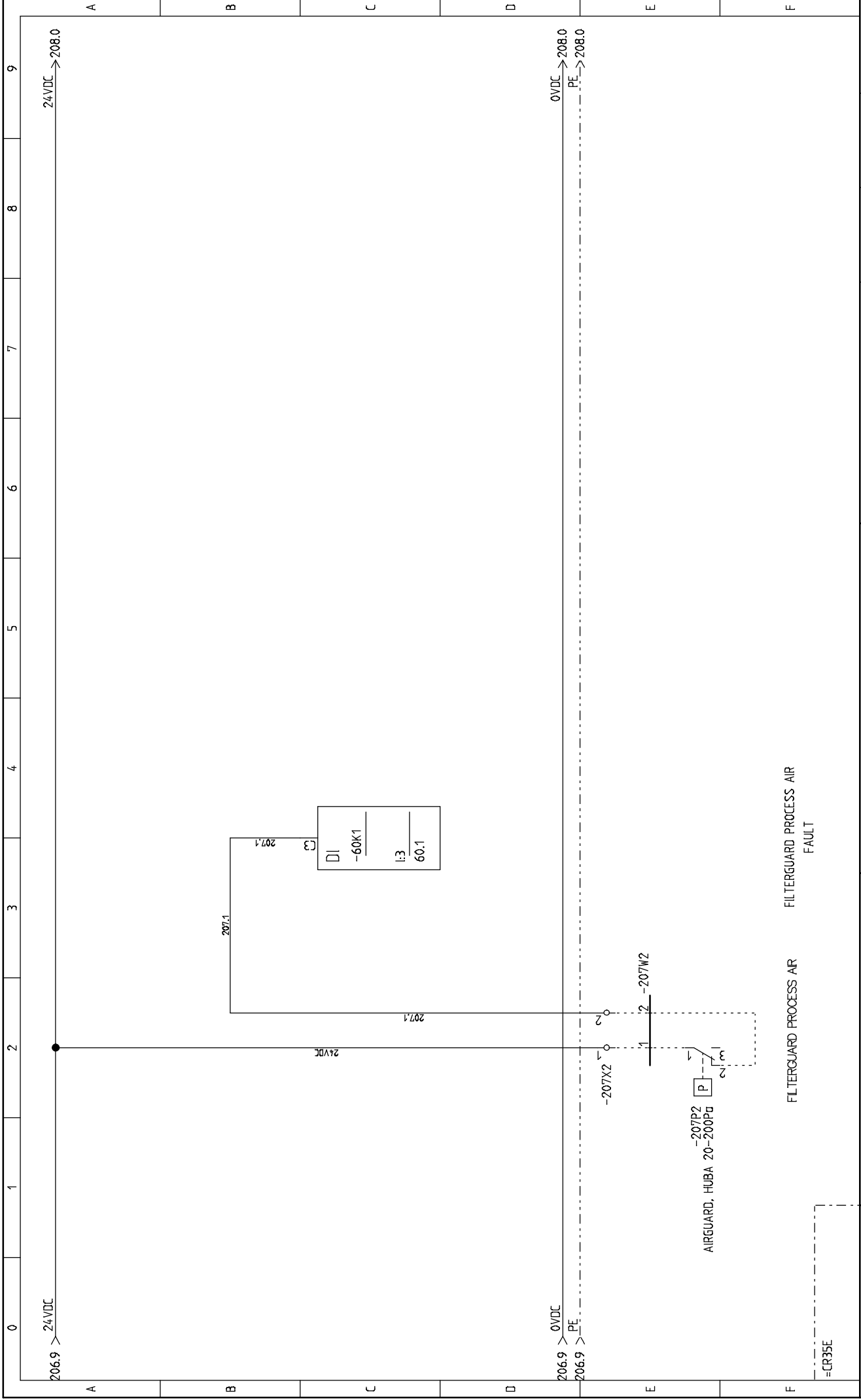
COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
FAULT REG. AIR FAN / GEAR (REG. AIR FAN LK MODEL)

Project		Initials		DCC		Pages	
Date	05-05-2014	Revision		SD/TM		&EFS	26
						Next page	
						=CR35E/207	206







206.9 > 24VDC → 208.0

206.9 > 0VDC

0VDC → 208.0  
PE → 208.0

206.9 > 0VDC  
206.9 > PE

AIRGUARD, HUBA 20-200Pa

DI  
-60K1  
1:3  
60.1

FILTERGUARD PROCESS AIR  
FAULT

FILTERGUARD PROCESS AIR

=CR35E

**COTES**  
+4558196322

COTES A/S  
Ndr. Ringgade 70C1  
DK 4200 Slagelse

CONTROL CIRCUIT  
FILTERGUARD

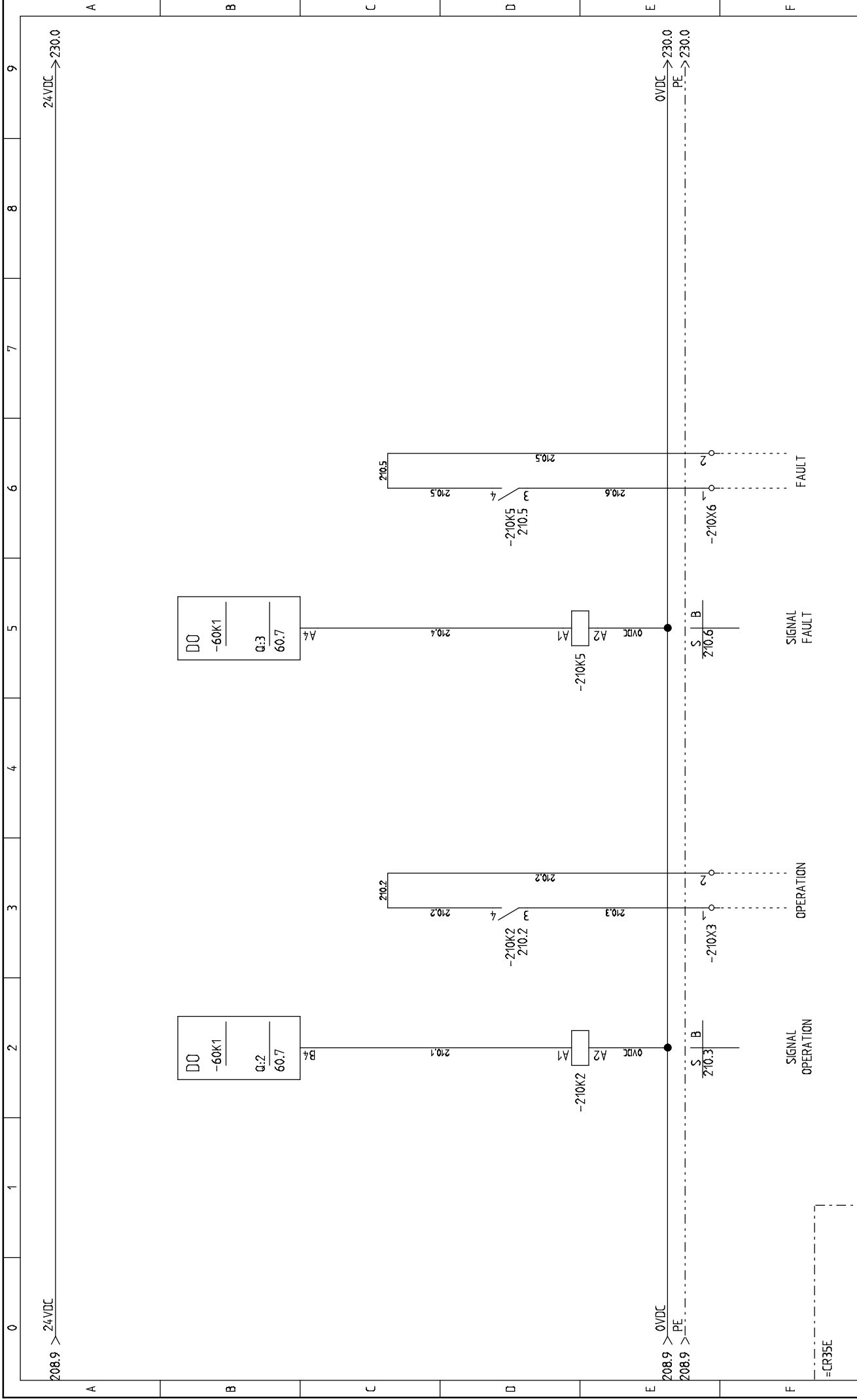
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E35E-3 CR35E-3 PLC 3X230V  
Date  
05-05-2014

Revision  
25-06-2014 TM

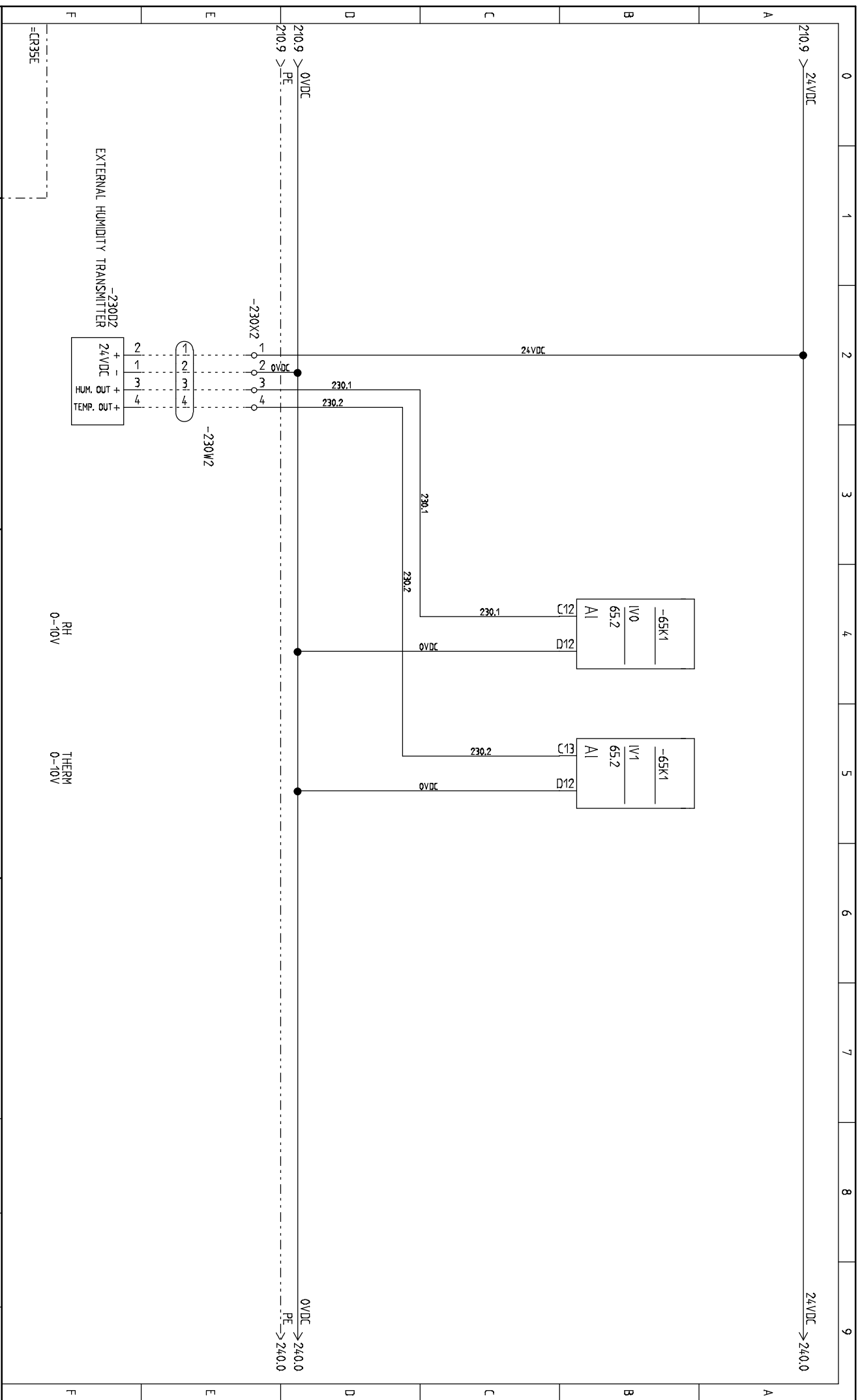
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SD/TM  
Initials  
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Pages  
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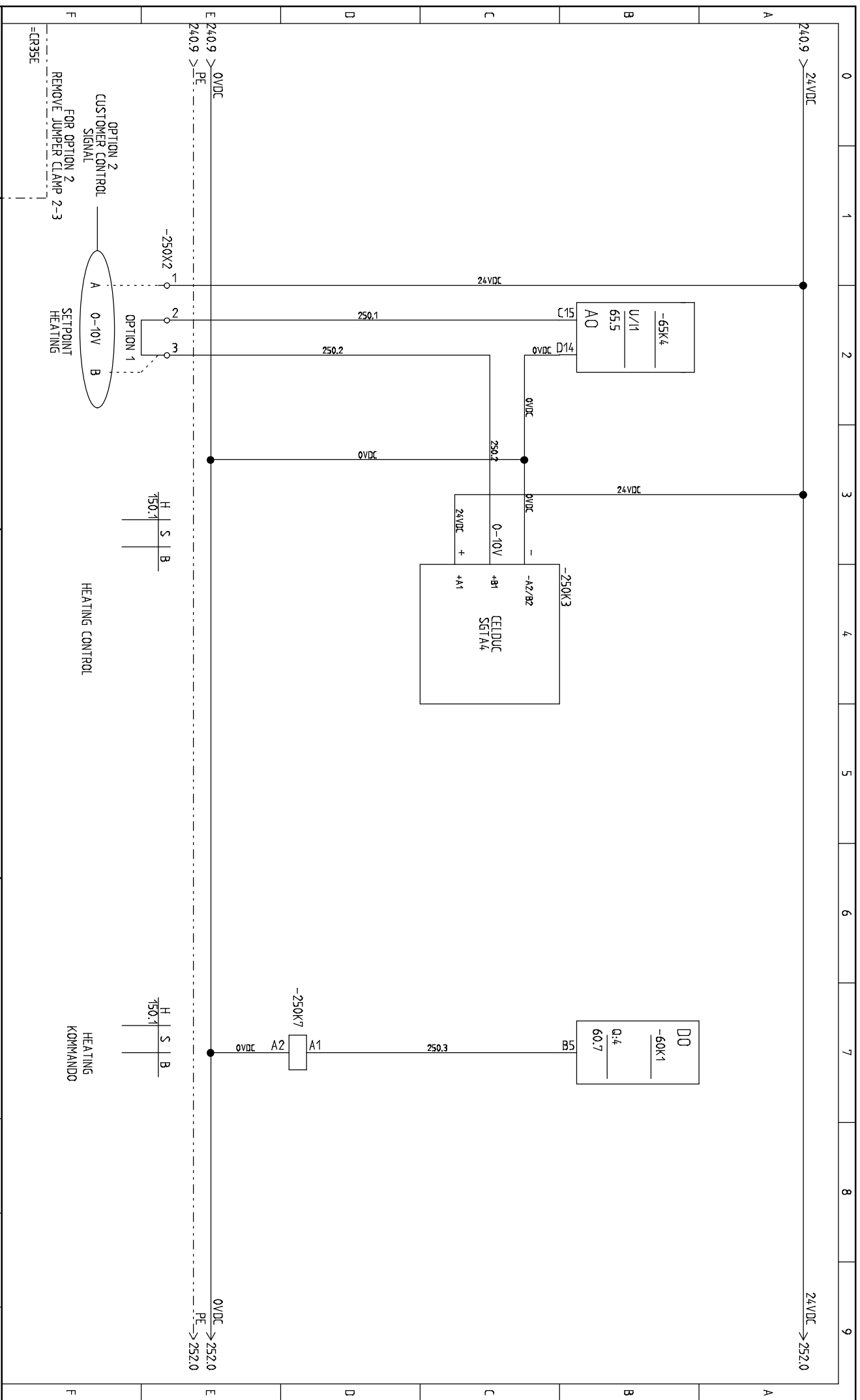


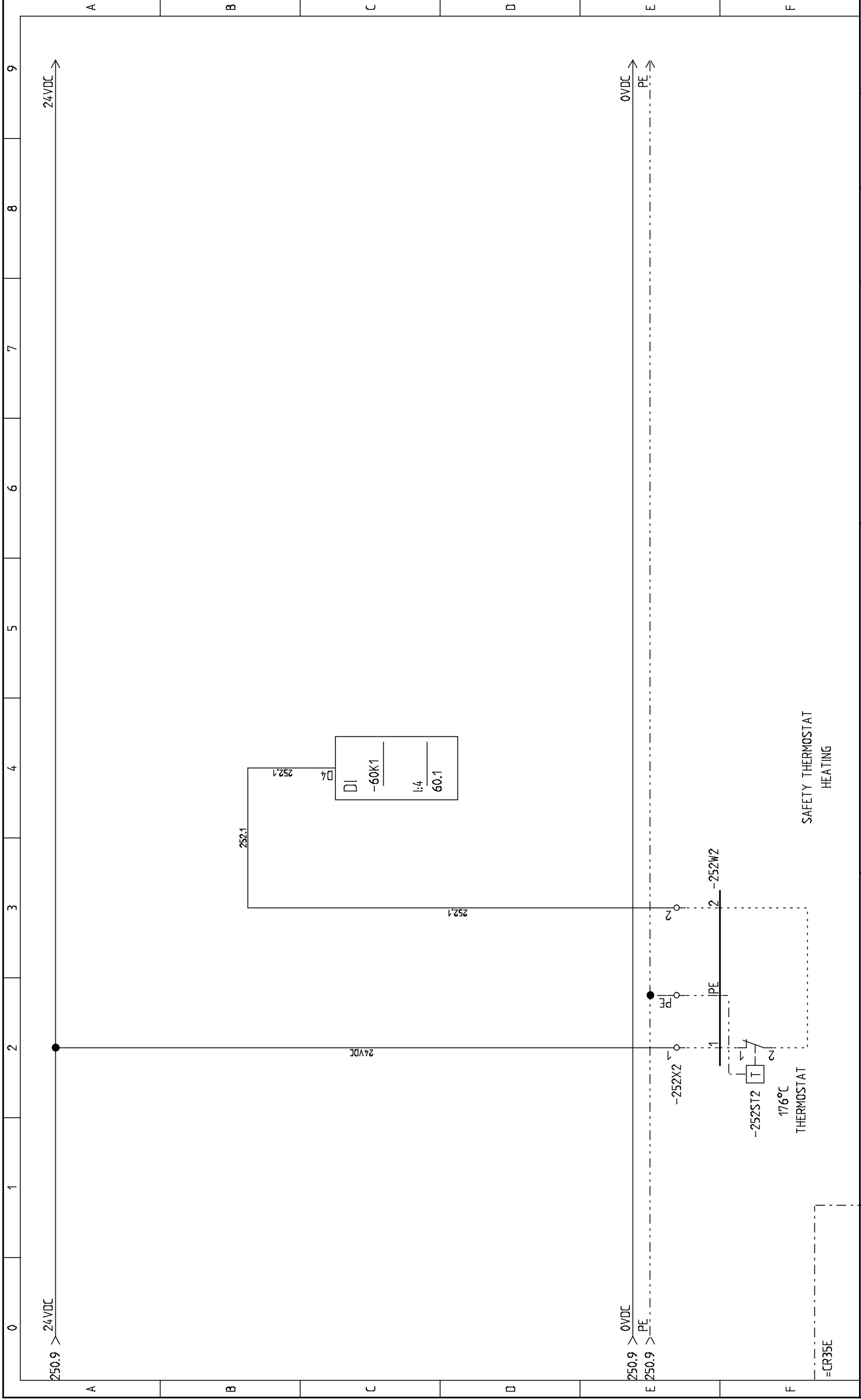


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	Date 05-05-2014		Revision		Initials SD/TM		Initials		Page 210	









<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		CONTROL CIRCUIT HEATING		Project E35E-3 CR35E-3 PLC 3X230V		Initials SD/TM		DCC Next page		Pages 26	
					Date 05-05-2014		Initials TM		Revision 25-06-2014		Page 252	

# Documentliste

Function (=)	Page	Documenttype	Documenttype	Audit date
	1	Dokumentliste		08-09-2014
	2	Dokumentliste		08-09-2014
	1	Kredsskema	PLATE	03-07-2014
=CR35E	10	Kredsskema	POWER CIRCUIT	03-07-2014
=CR35E	42	Kredsskema	CONTROL CIRCUIT	08-09-2014
=CR35E	50	Kredsskema	PLC CONFIGURATION	05-05-2014
=CR35E	60	Kredsskema	PLC CONFIGURATION	25-06-2014
=CR35E	65	Kredsskema	PLC CONFIGURATION	05-05-2014
=CR35E	70	Kredsskema	PCB	25-06-2014
=CR35E	90	Kredsskema	COOLING FAN CABINET	25-06-2014
=CR35E	100	Kredsskema	PROCESS AIR FAN	25-06-2014
=CR35E	102	Kredsskema	REG. AIR FAN	08-09-2014
=CR35E	104	Kredsskema	ROTOR/GEAR	25-06-2014
=CR35E	106	Kredsskema	FAN LK MODEL	25-06-2014
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=CR35E	200	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	202	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	203	Kredsskema	CONTROL CIRCUIT	25-06-2014
=CR35E	204	Kredsskema	CONTROL CIRCUIT	25-06-2014
=CR35E	205	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	206	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	207	Kredsskema	CONTROL CIRCUIT	25-06-2014
=CR35E	208	Kredsskema	CONTROL CIRCUIT	25-06-2014
=CR35E	210	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	230	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	240	Kredsskema	CONTROL CIRCUIT	25-06-2014
=CR35E	250	Kredsskema	CONTROL CIRCUIT	08-09-2014
=CR35E	252	Kredsskema	CONTROL CIRCUIT	05-05-2014
=CR35E	1	PLC I/O-liste		
=CR35E	2	Produktliste		

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	Project	Initials	DCC	Pages
		E35E-3 CR35E-3 PLC 3X230V Date 08-09-2014	E35E-3 CR35E-3 PLC 3X230V Audit	Document	&EAB Next page 2






# Productlist

Function (=)	Location (+)	Product (-)	Type	Description	Manufacturer	EAN Number	Page	Circuit
=CR35E		-E1	111503				150	1
=CR35E		-E2	111503				150	1
=CR35E		-E3	111503				150	1
=CR35E		-E4	111504				150	2
=CR35E		-E5	111504				150	2
=CR35E		-E6	111504				150	2
=CR35E		-E7	111503				150	3
=CR35E		-E8	111503				150	3
=CR35E		-E9	111503				150	4
=CR35E		-E10	111503				150	4
=CR35E		-E11	111503				150	4
=CR35E		-E12	111503				150	4
=CR35E		-E13	111503				150	5
=CR35E		-E14	111503				150	5
=CR35E		-E15	111503				150	5
=CR35E		-E16	111504				150	6
=CR35E		-E17	111504				150	6
=CR35E		-E18	111504				150	6
=CR35E		-E19	111504				150	7
=CR35E		-E20	111504				150	7
=CR35E		-E21	111504				150	7
=CR35E		-E22	111504				150	7
=CR35E		-E23	111504				150	7
=CR35E		-E24	111504				150	8
=CR35E		-E25	111506				150	9
=CR35E		-E26	111506				150	9
=CR35E		-E27	111506				150	9
=CR35E		-E28	111506				150	9
=CR35E		-E29	111506				150	9
=CR35E		-E30	111506				150	9

 <b>COTES</b>	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse	Project		Initials		DCC		Pages	
		Date	08-09-2014	Audit	Document	E35E-3 CR35E-3 PLC 3X230V	Next page	=CR35E/3	Page

+4558196322	2
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# Productlist

Function (=)	Location (+)	Product (-)	Type	Description	Manufacturer	EAN, Number	Page	Circuit
=CR35E		-M1	801633				100	2
=CR35E		-M2	801668				102	2
=CR35E		-M3	110400				104	1
=CR35E		-M4	801668				106	2
=CR35E		-10Q1	110355				10	1
=CR35E		-42F1	110178				42	1
=CR35E		-42F2	101130 WSI 6 SIKRINGSKL 10-36V	WSI 6, SIKRINGSKLEMME, 10-36V	Weidmüller	4008190076115	42	2
=CR35E		-42I2	823050				42	2
=CR35E		-60K1	140620				60	1
=CR35E		-65K1	140620				65	1
=CR35E		-65K4	140620				65	4
=CR35E		-65K7	140620				65	7
=CR35E		-70K1	112086				70	1
=CR35E		-90M2	111785				90	2
=CR35E		-100F.2	110178 / 110177				100	2
=CR35E		-102F2	110178 / 110177				102	2
=CR35E		-104C2	110430				104	2
=CR35E		-150F1	110365				150	1
=CR35E		-200K5	823051 / 823052				200	5
=CR35E		-202K2	823055				202	2
=CR35E		-203K2	823056				203	2
=CR35E		-204K2	823055				204	2
=CR35E		-205B2	111216				205	2
=CR35E		-207P2	126843				207	2
=CR35E		-208P2	126843				208	2
=CR35E		-210K2	823051 / 823052				210	2
=CR35E		-210K5	823051 / 823052				210	5
=CR35E		-23002	140547				230	2
=CR35E		-240B2	111234				240	2
=CR35E		-250K3	823053				250	3

<b>COTES</b> +4558196322	COTES A/S Ndr. Ringgade 70C1 DK 4200 Slagelse		Project E35E-3 CR35E-3 PLC 3X230V		Initials	DCC	Pages
			Date 08-09-2014	Audit	Document	Next page =CR35E/4	Page



