

Integrated Circuit Selector for DIAM4100 CCRs for power up to 30kVA

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1 WARRANTY

1.1 Guarantee

AUGIER's goods are guaranteed for one year from delivery date on the signed delivery note, and are guaranteed to be free from defects in materials used, design and manufacture. The guarantee covers repair, modification or replacement of parts or products recognised to be defective, in the shortest possible time, at AUGIER's cost, provided always that the goods have been properly handled and stored prior installation, properly installed and properly operated after installation.

Unless otherwise specifically laid down in contract, the guarantee does not cover:

- Costs of consignment to factory and re-consignment of defective goods to Buyer
- If these are repaired in AUGIER's factory;
- Travelling & sojourn expenses of AUGIER's personnel if goods have to be repaired on site; assembly and dismantling of any goods other than those recognised to be defective; expenses incurred for waiting times by AUGIER's personnel on site for reasons independent of their will;
- Unjustified travel expenses.

Guarantee shall not apply in the following cases:

- Defects in materials supplied by Buyer or from any designs imposed by them;
- Repairs or replacements due to normal wear and tear, or damages or accidents.
- Repairs or replacements due to damages or accidents resulting from negligence or lack of due care, inadequate supervision or maintenance, or erroneous use of the equipment or software;
- Any other causes for which AUGIER shall not be held responsible, e.g. resulting from an case of Force Majeure.
- When Buyer has replaced AUGIER's parts with other parts.

Buyer must inform AUGIER in writing and without delay of any defects in goods, giving all necessary information and detailed description of how equipment has been utilised, together with purchase date. Buyer undertakes not to have repairs carried out by third parties; any repairs carried out without AUGIER's express prior agreement shall invalidate the guarantee.

It is expressly agreed between the two parties that Buyer cannot avail himself of the beneficial dispositions contained in the guarantee without having first satisfied payment conditions laid down in contract

1.2 Disclaimers

This manual could contain technical or typographical errors. AUGIER reserves the right to make changes and revise this manual from time to time without obligation to notify any person or organisation of such changes or revision.

Values and measurements given in this manual are average values and are not binding. AUGIER disclaims any liability for damages suffered as a result of reliance on the information given in this manual, or the use of equipment or processes which this manual refers.

No guarantee is made that the use of the products, equipment, processes or information to which this manual refers will not infringe any third party's patent or rights. Information given does not release the buyer from making their own tests.

2 SAFETY

2.1 Safety precautions

This equipment is normally used or connected to circuits that may employ dangerous and lethal voltages. Extreme caution should be exercised by operating or maintenance people when working on or with this equipment.

See IEC 61820 & 61821 standard (CCR and CS type IEC), or FAA AC150/5340-26 advisory circular (CCR and CS type FAA), concerning safety rules and precautions. While practical safety precautions have been incorporated in this equipment, the following rules must be strictly observed :

- **KEEP AWAY FROM LIVE CIRCUITS :**
Operating and maintenance people must at all time observe all safety regulations. Do not change components nor perform maintenance inside equipment with power ON or the lighting loop energised.
- **RESUSCITATION :**
Operating and maintenance personnel should familiarise and keep themselves trained with resuscitation techniques found in widely published manuals about first aid instructions.
- **ELECTROSTATIC DISCHARGE (ESD) :**
Electronic sub-assemblies and boards should be touched only for unavoidable operation (replacement, for example). Before to operate, maintenance people must first of all eliminate unwanted electronic charges, discharging his own body while touching a conductive earthed object or part. Electronic boards and components as power semiconductors must be stored and carried in a conductive packing.
- **DESTRUCTION :**
In case of dismantling, scrapping or placing out of service, the user must follow all the required precautions for component, materials or equipment elimination, according to the local rules.

2.2 EEC directives



This equipment complies with the requirements of EC directives :

- 89/336/EEC, 92/31/EEC and 93/68/EEC with regard of Electromagnetic Compatibility
- 73/23/EEC with regard of Low Voltage Equipment

3 OVERVIEW:

Integrated selector circuit is intended to provide up to five alternate or simultaneous circuits selection. The power relays and interlock to avoid commutations in charge are driven by the CCR electronic. It is possible to choose the circuit in "local mode" by the CCR keyboard or in remote mode. In "remote mode" selection, two possibilities are offered to choose the circuit , by wires remote control or by serial link RS485 (an address is added to the JBUS CCR table).

The described version is compliant with ICAO requests and IEC standards

4 SOFTWARE VERSION:

Standard version.

5 INSTRUCTIONS FOR USE:

5.1 Selector option:

Check that the selector option is validated, displaying the "Option" menu:

Option Selector:Yes					
esc		←		→	

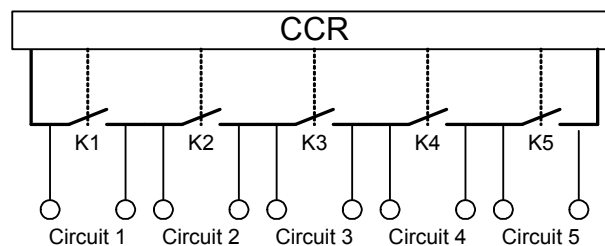
5.2 Number of circuits:

Integrated selector circuit is intended to provide 2 to 5 alternate or simultaneous circuits. The number of circuits must be set in the menu "Configuration":

Circuits quantity:5					
esc		←		→	modif

The quantity of circuits is saved in the CCR jbus table at the address **198**.

5.3 Alternate or simultaneous circuits selector:



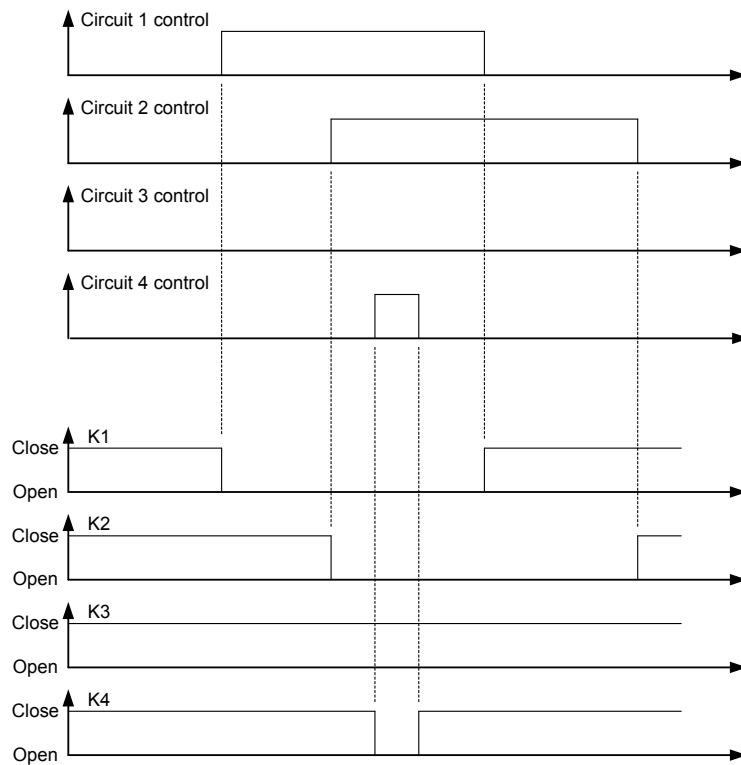
In simultaneous mode, the CCR output current can run through one, two, three or four circuits in the same time.

In alternate mode, the CCR output current can run through only one circuit at the same time (only one relay is opened).

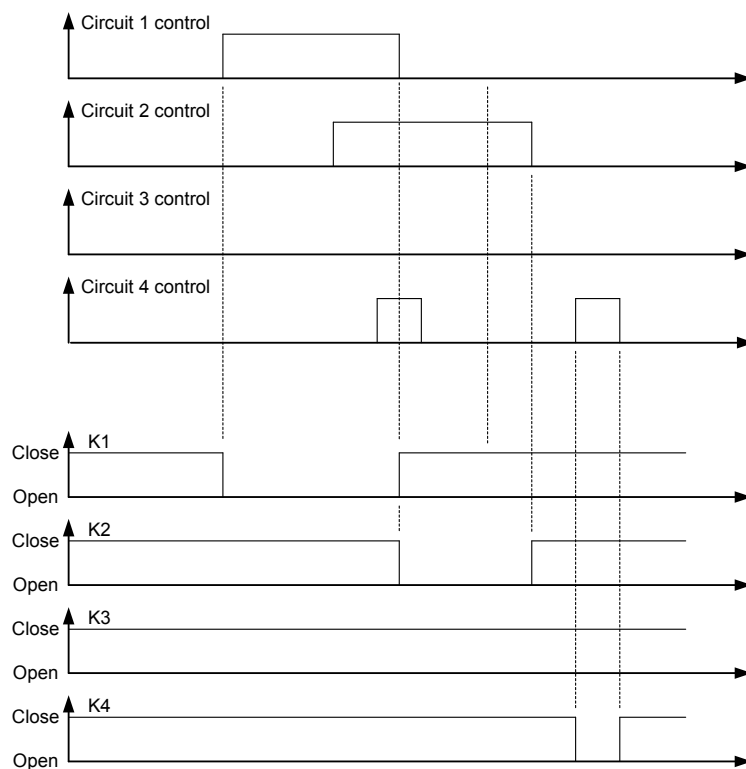
It is possible to choose the mode of the selector (Simultaneous or Alternate) in the Jbus table at the address 98 (Id 250):

- Bit 6 = 1: Simultaneous mode
- Bit 6 = 0: Alternate mode

5.3.1 Simultaneous circuits selector (4 circuits in example):



5.3.2 Alternate circuit selector (4 circuits in example):



5.4 Circuit selection in local mode:

In stop mode or local mode, you can select the circuit(s) connected to the CCR in the menu "Circuit selector":

Circuit selector				
esc		←	→	OK

Two possible selections:

5.4.1 Simultaneous circuit selector:

Circuit 1:Yes				
esc		←	→	modif

.

Circuit 5:No				
esc		←	→	modif

To select or unselect a circuit:

press the key **modif** **←** **→** to modify the value and press the key **OK** to confirm the choice.

5.4.2 Alternate circuit selector:

Circuit number:2				
esc		←	→	modif

Circuit number: 0
>> no circuit selected

To select a circuit number:

press the key **modif** **←** **→** to modify the value and press the key **OK** to confirm the choice.

5.5 Circuit selection in remote mode:

In remote mode it is possible to control the selector by serial link RS485 (CCR Jbus table) or multiwire control.

When the two remote control are used (serial link and wires), the serial link has the smallest priority.

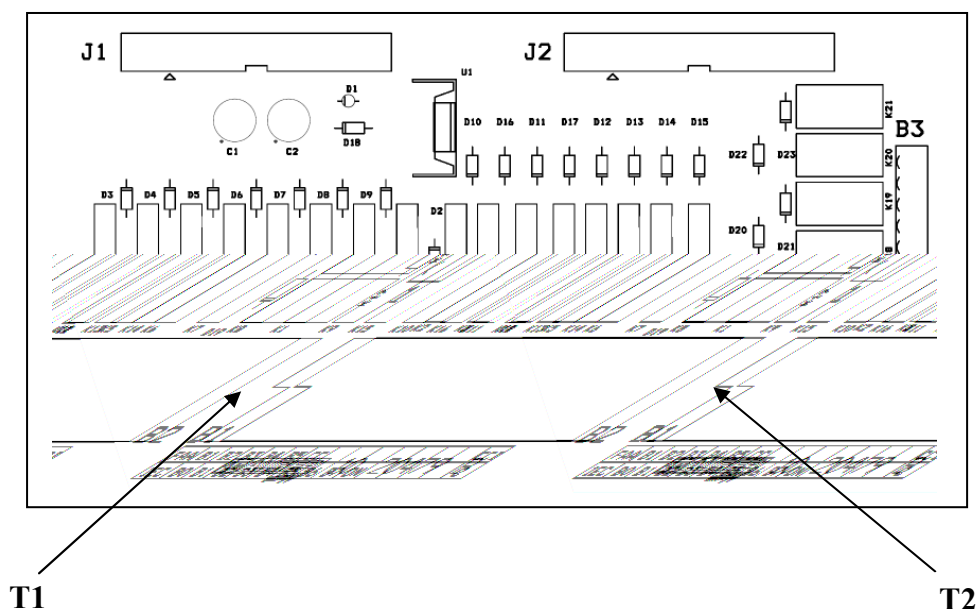
5.5.1 RS 485 serial link:

The address **199** in the CCR jbus table is used only to select the circuit(s) (grey boxes = circuit selected):

Value at address 199	Selected circuit(s)									
	Simultaneous					Alternate				
	5	4	3	2	1	5	4	3	2	1
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
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21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
Other value										

5.5.2 Multiwire remote control:

The multiwire selector control is on the CCR interface board : signals must be the same than CCR's brightness control (see "Operation and maintenance Diam4100" manual 60 21282).



Terminal bloc T1:

Pin	Function	Pin Type
7	Circuit 1 control	Input voltage or Contact with respect to C
8	Circuit 2 control	Input voltage or Contact with respect to C
9	Circuit 3 control	Input voltage or Contact with respect to C
10	Circuit 4 control	Input voltage or Contact with respect to C
11	Circuit 5 control	Input voltage or Contact with respect to C
14	C	Common to Pin7 to Pin 11** inputs

** See notice "Operation and maintenance Diam4100" Notice 60 21282 to configure the remote multiwire interface.

Terminal T2:

Pin	Function	Status		
		Not powered	CCR alive	output active
25*	Circuit 1 state return	Common	Common	Common
26*	(open= loop 1 powered)	Open	Closed	Open
27*	Circuit 2 state return	Common	Common	Common
28*	(open = loop 1 powered)	Open	Closed	Open
29*	Circuit 3 state return	Common	Common	Common
30*	(open = loop 1 powered)	Open	Closed	Open
31*	Circuit 4 state return	Common	Common	Common
32*	(open = loop 1 powered)	Open	Closed	Open
33*	Circuit 5 state return	Common	Common	Common
34*	(open = loop 1 powered)	Open	Closed	Open

Contact Relays: *125V/1A resistive load

① For IEC CCR with circuit selector, the multiwire remote control (control & monitoring) is an FAA multiwire remote control (see notice "DIAM4100 installation & maintenance").

5.6 Circuit selection display in the top menu:

To see immediately what are the loops connected or short circuited in stop, local or remote mode, press the key  in the top menu for 2 seconds, in order to select the following display:

1 -	2 -	3 ≈	4 -	5 -	STOP
stop		local		auto	menu

(loops 1, 2, 4, 5 short circuited, loop 3 connected)

1 -	2 ≈	3 ≈	4 -	5 -	STOP
stop		local		auto	menu

(loops 1, 4, 5 short circuited, loops 2, 3 connected)

1 ≈	2 ≈	3 ≈	4 ≈	5 ≈	STOP
stop		local		auto	menu

(all loops connected)

1 -	2 -	3 -	4 -	5 -	STOP
stop		local		auto	menu

(all loops short circuited)

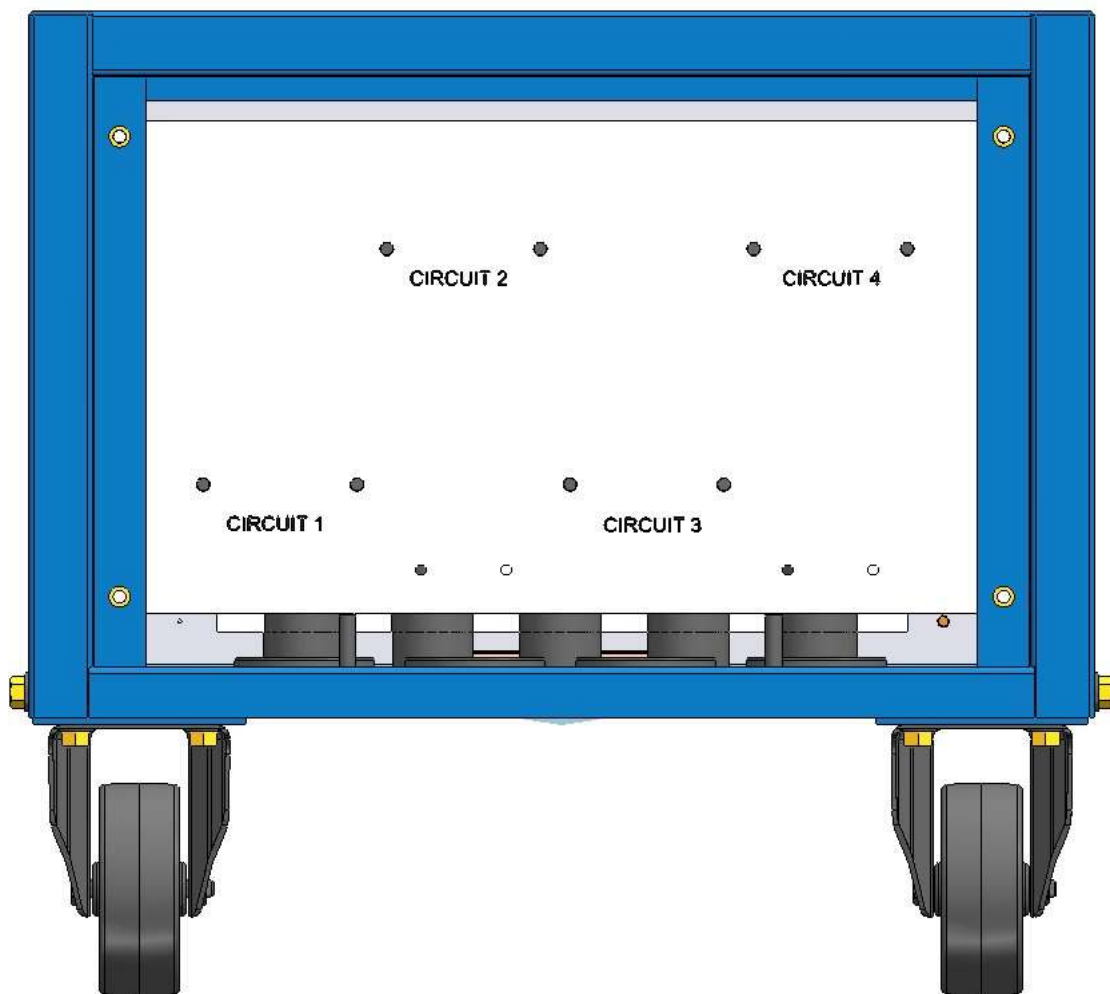
1 -	2 ≈				STOP
stop		local		auto	menu

(Circuits quantity=2, loop 1 short circuited
loop 2 connected)

5.7 Lighting loops connections:

5.7.1 2 to 4 circuits loops connections:

HV terminals can be accessed when dismantling the front plate of the cabinet :



- Pass lighting cables of circuit 1, 2, 3 and 4 through the holes of the bottom part of the frame.
- Connecting each circuit should be made by crimping lugs (Diam 6 mm) on the cable's core.
- Connect the screen of each cable (strapped or braided) to the frame ground (studs diam. 8mm)

Take care to let enough distance between the core and the screen.

5.7.2 5th circuit loop connections:

They can be accessed when dismantling the rear plate of the cabinet. Each HV terminal is placed on either side of the shielded route part of LV cables.



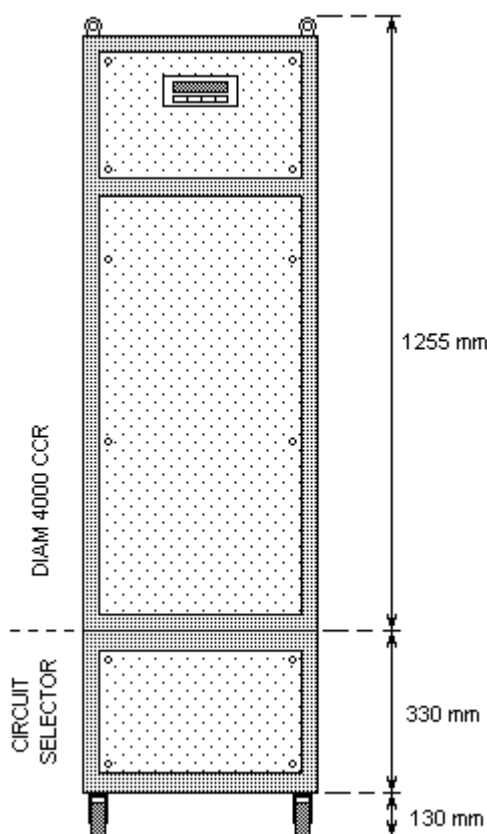
5.8 CCR low voltage and control connections:

All cables should pass through the CS cabinet, in side the shielded compartment see in the picture above. Refer to the “installation manual” of the CCR and at paragraph 5.5.2 for terminal connections.

6 Selector replacement parts:

Part Reference	Part Description	Augier code
PF1, PF2, PF3, PF4, PF5	Lighting arrestors (CCR from 2.5 to 10kVA)	10 17854
	Lighting arrestors (CCR from 15 to 20kVA)	10 17855
	Lighting arrestors (CCR from 25 to 30kVA)	10 17856
KC1, KC2, KC3, KC4	High voltage relay (CCR from 2.5 to 15kVA)	10 18707
	High voltage relay (CCR from 20 to 30kVA)	10 18710
AL	Power supply 24VDC	10 18732

7 DIMENSIONS



Weight :

ICS only, with 2 IEC ways : 25kg

ICS only, with 5 IEC ways : 28kg

8 ORDERING INFORMATION

The Integrated Circuit Selector is identified by a serialised ordering number which indicates its type and particularity. If needed, add all useful precision and options

Example : C41-IEC-1-4S1-50-15-400- 001 = ICS compliant to IEC, 6.6A, 4 simultaneous ways, 50Hz/400V for max. 15kVA CCRs, with lightning arrestors and 4 casters :

C	4	1	-	I	E	C	-	1	-	4	S	1	-	5	0	-	1	5	-	4	0	0	-	1	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

C41: ICS family C4100, (Integrated under regulators type DIAM4100)

IEC: Compliant with IEC regulation (no circuit isolator, -20°C +55°C, supply +/-10%, dielectric 2xUn + 2500V)

847: Compliant with FAA AC 150/5345-5 L-847

1: Rating 1 (nominal switchable current 6.6A)

2XX: 2 circuits	XAX: Alternate (only one circuit selected)	XX1: For use with an IEC type DIAM
3XX: 3 circuits		XX2: For use with a FAA type DIAM

4XX: 4 circuits

5XX: 5 circuits

50: 50Hz

60: 60Hz

15: For 15kVA max. CCRs and loops

30: For 30kVA max. CCRs and loops, or FAA type

XXX: One input single phase voltage : 208, 240, 277, 415, 480, or special voltage (supply voltage as CCR)

A22: Multi-input supply : 220/230V and 380/400V

0XX: No Lightning Arrestors

1XX: Lightning Arrestors (*)

X0X: No cut-out Plug

X1X: FAA cut-out Plug

XX0: support option defined by the CCR (**)

XX1: 4 unidirectional casters

XX2: 2 omni / 2 uni-directional casters

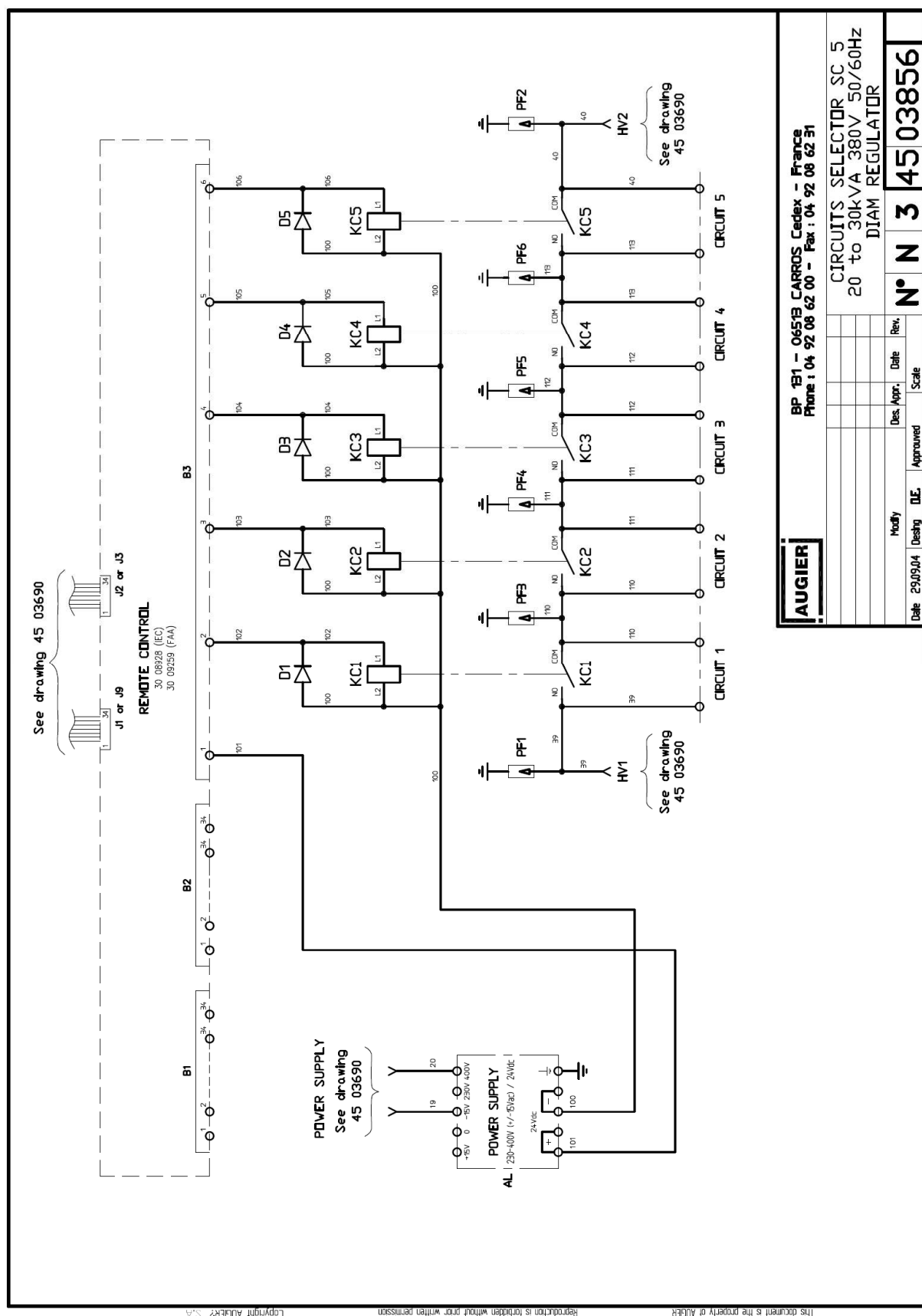
XX3: 4 steel legs

(*) : Not on FAA type. The CCR include 2 L.A on its each HV terminals
On IEC type, the number of included lightning arrestors = ((number of circuits) – 1), since the CCR must include one L.A. on each output terminal.

Example : for a CCR with 4 ways ICS with lightning arrestors, 2 are inside the CCR and 3 are inside the Circuit selector.

(**) : Options defined for the CCR (wheels, legs) are fitted at the bottom of the ICS cabinet

9 Diagrams:



PERSONAL NOTES

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