

1 2 3 4 5 6 7 8 9 10

A

B

C

D

E

F

G

H

ELECTRICAL CABINET

MODULE UNIT

TABLE OF CONTENTS	1
DATA	2
COMPONENT LAYOUT	3-5
MAIN CIRCUIT	101-102
CONTROL CIRCUIT	201-211
COMMUNICATION	301
EXTERNAL CONNECTIONS	401-411

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
 DELTA Frequency drive
 -
 Table of contents

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 1
DATE 2019-11-04	REV. R3	NEXT SHEET 2

ELECTRICAL DATA

MAIN VOLTAGE	3x400V AC +N
FREQUENCY	50Hz
SYSTEM	TN-S
CONTROL VOLTAGE	24V AC
MAIN POWER	x kW
MAIN FUSE	160 A/ 3,6/330 kA(1cm)

WIRE SIZE

WHERE NOTHING ELSE STATED

AC POWER CIRCUITS	1,5mm ²
AC CONTROL CIRCUITS	0,75mm ²
DC CONTROL CIRCUITS	0,75mm ²

GENERAL MARKING

WIRE COLOUR IDENTIFICATION

AC POWER CIRCUITS	BLACK (BK)
AC CONTROL CIRCUITS	RED (RD)
DC CONTROL CIRCUITS	DARK BLUE (DBU)
NEUTRAL AC	BLUE (BU)
GROUND	GREEN/YELLOW (GE/YE OR PE)
EXTERNAL VOLTAGE	ORANGE (OG)
CURRENT TRANSFORMER	BROWN (BN)
ANALOG SIGNAL	VIOLETT (VT)

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

-
Data

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

R3

SHEET

2

NEXT SHEET

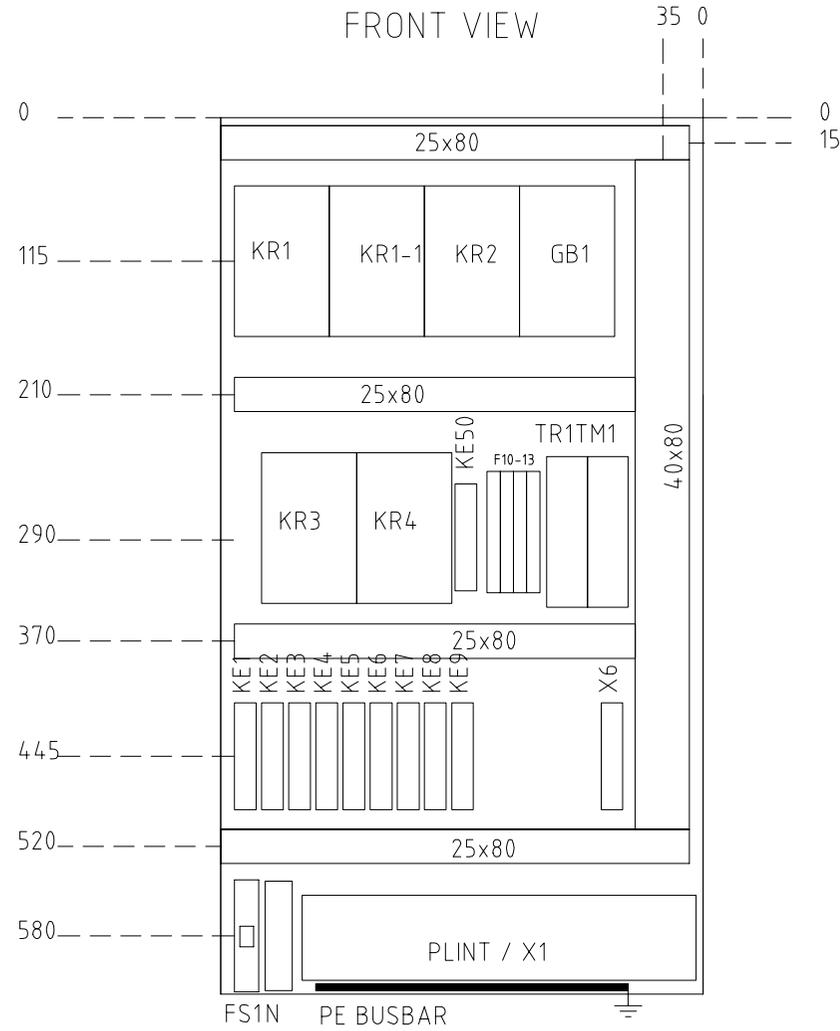
3

1 2 3 4 5 6 7 8 9 10

A
B
C
D
E
F
G
H

FRONT VIEW

SIDE VIEW



1:4

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

-

Component layout mounting plate

WORK NO.
O27994

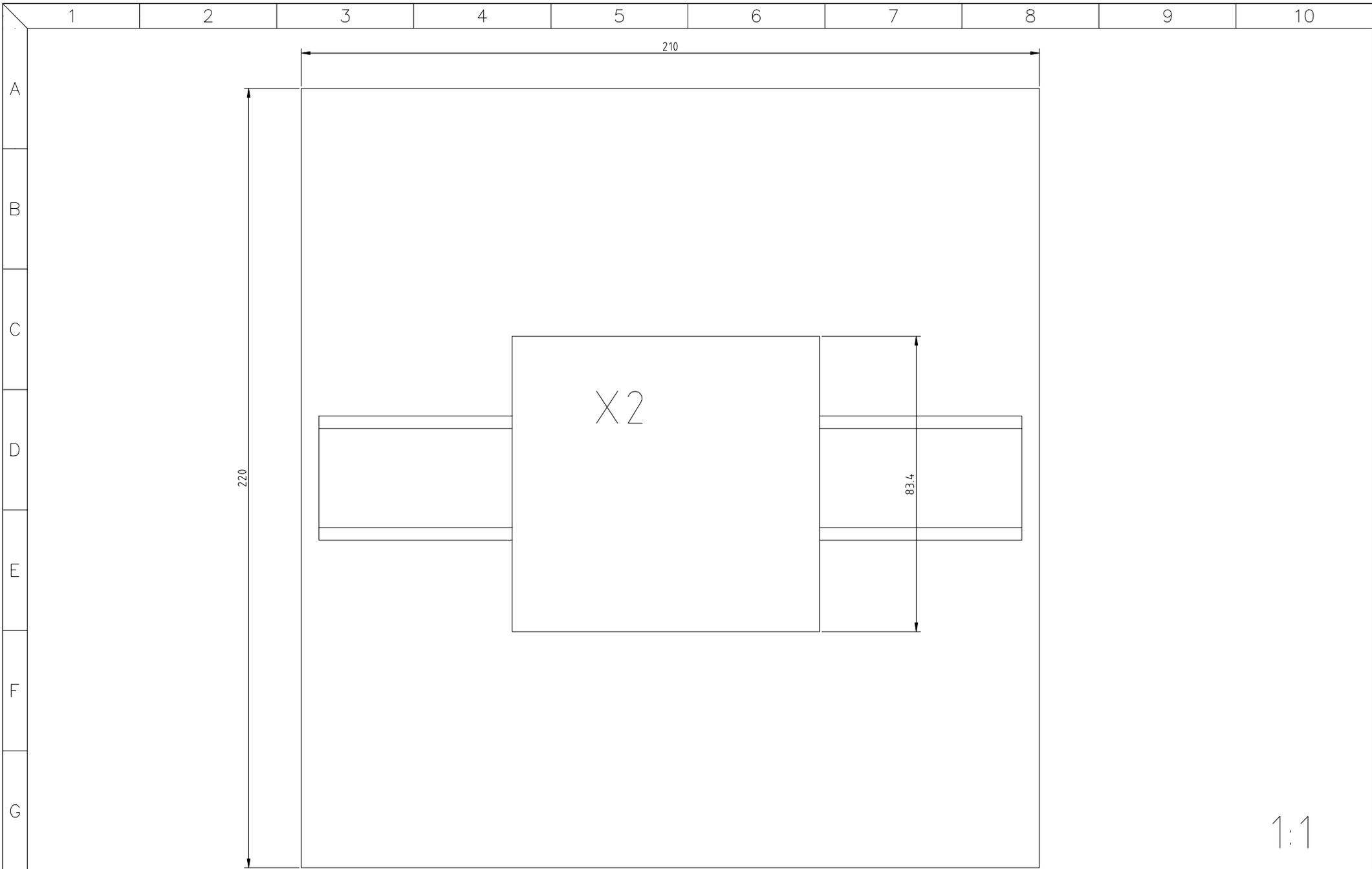
DESIGN BY
JW

DATE
2019-11-04

DRAWING NO.
S27994-1.2

DRAWN BY
NJ

REV. R3
SHEET 3
NEXT SHEET 4



1:1

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE

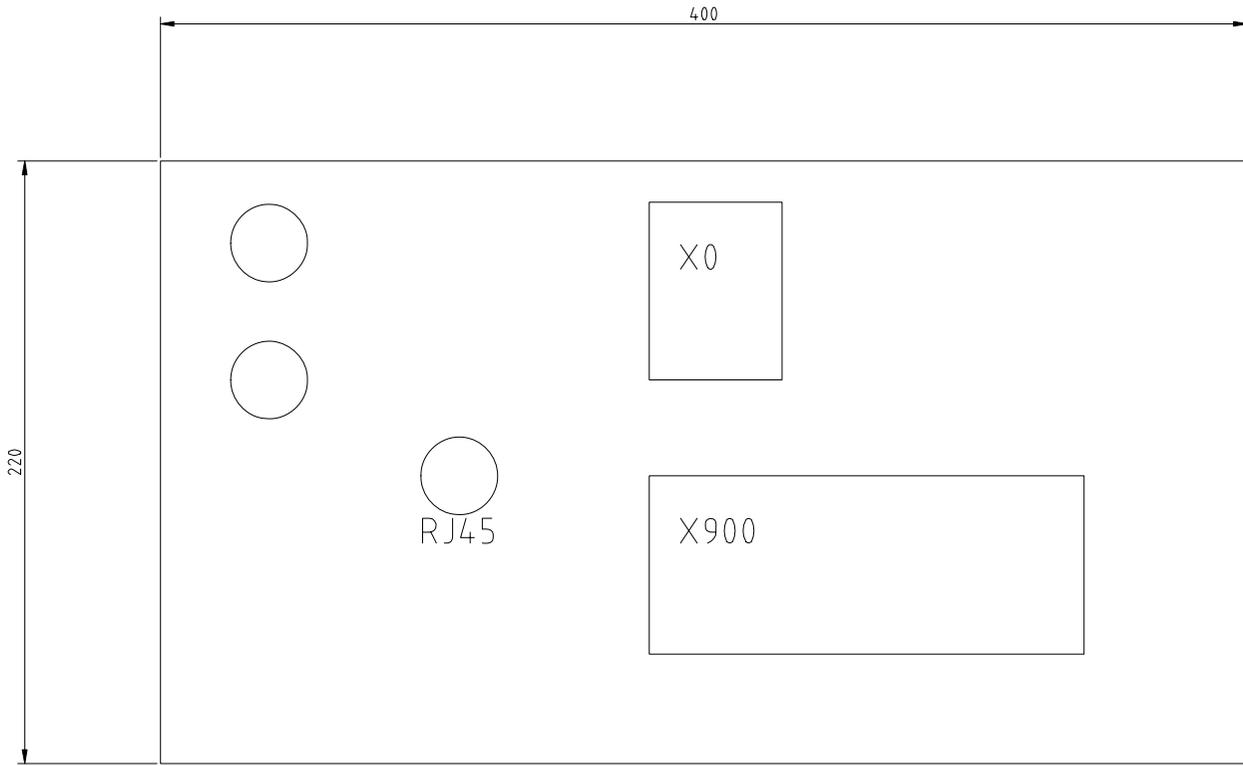


MODULE UNIT
 DELTA Frequency drive
 -
 Component layout connection box

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 4
DATE 2019-11-04	REV. R3	NEXT SHEET 5

1 2 3 4 5 6 7 8 9 10

A
B
C
D
E
F
G
H



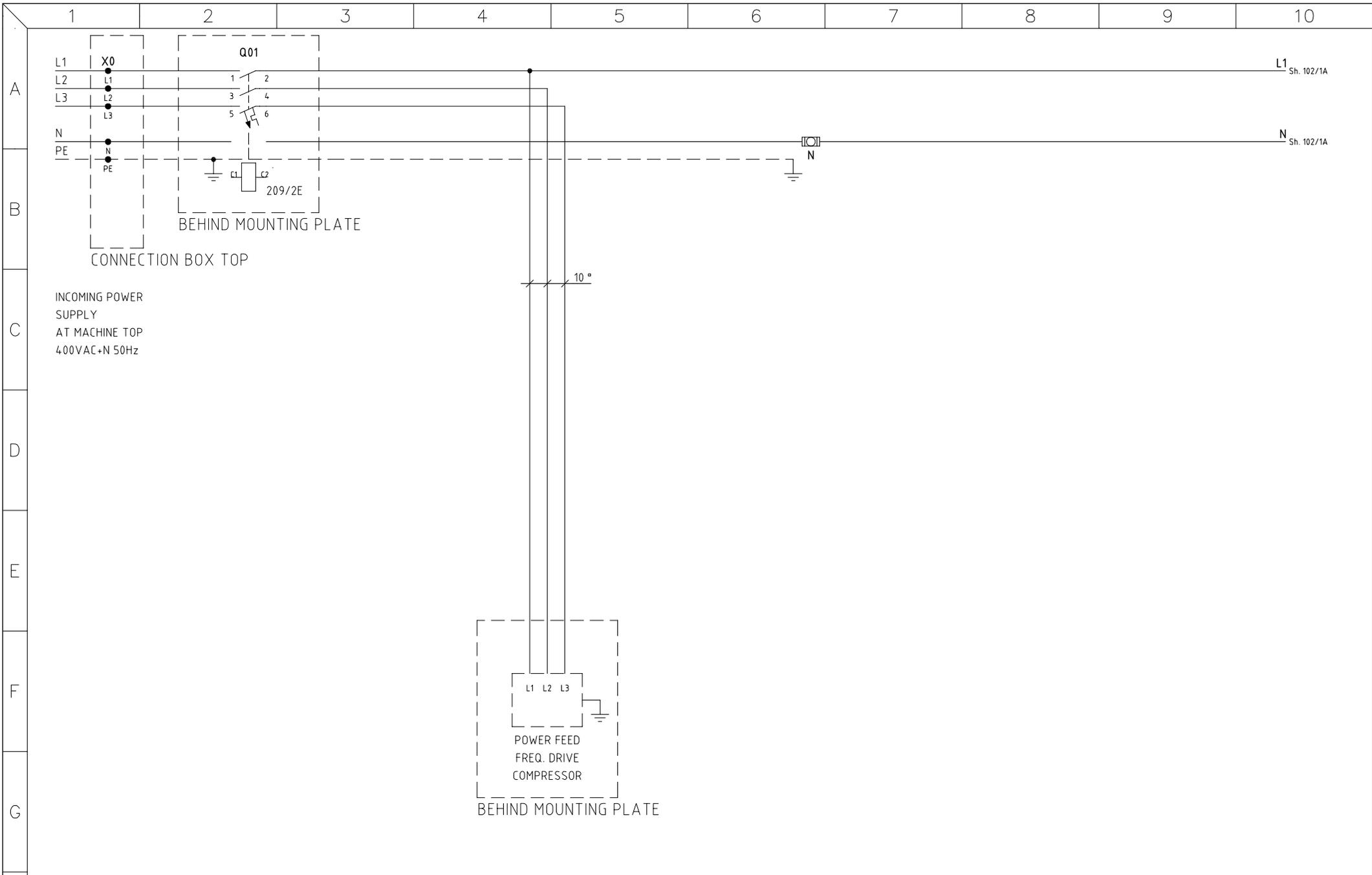
1:2

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
Component layout power feed

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 5
DATE 2019-11-04	REV. R3	NEXT SHEET 101

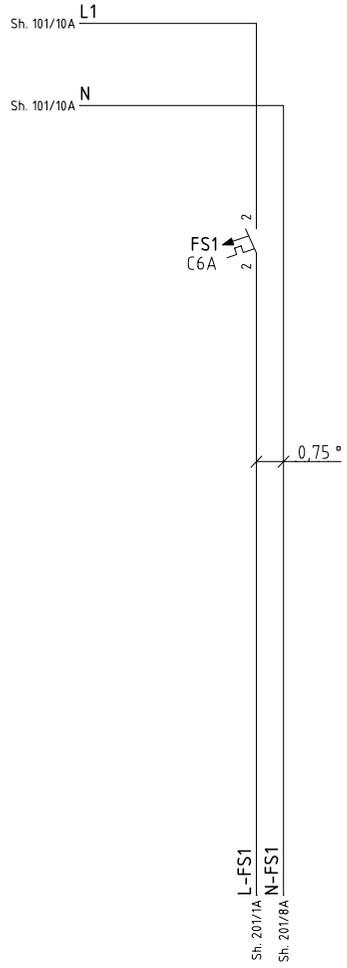


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
 DELTA Frequency drive
 -
 Main circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 101
DATE 2019-11-04	REV. R3	NEXT SHEET 102



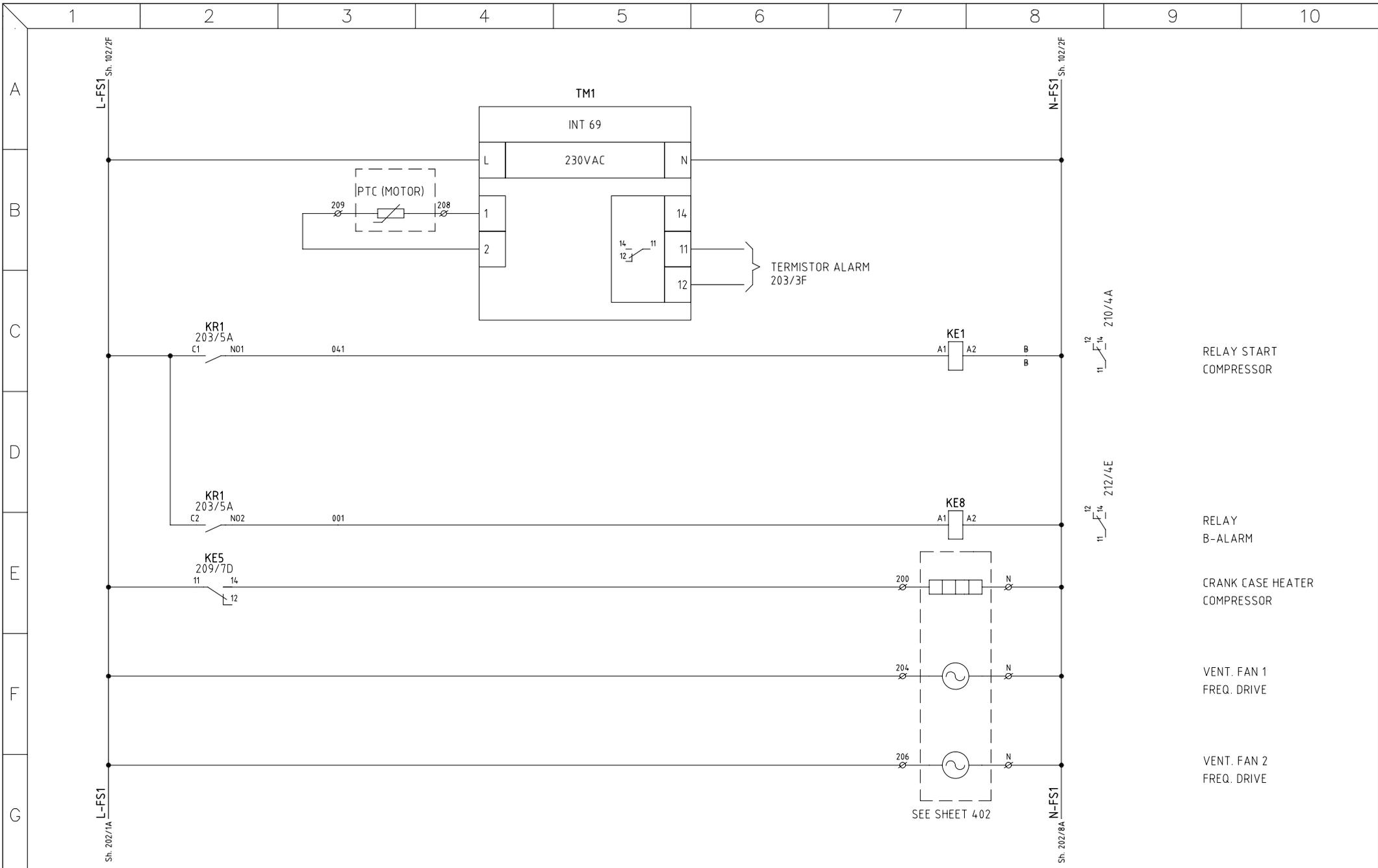
CONTROL POWER SUPPLY
REGULATORS

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
Main circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 102
DATE 2019-11-04	REV. R3	NEXT SHEET 201

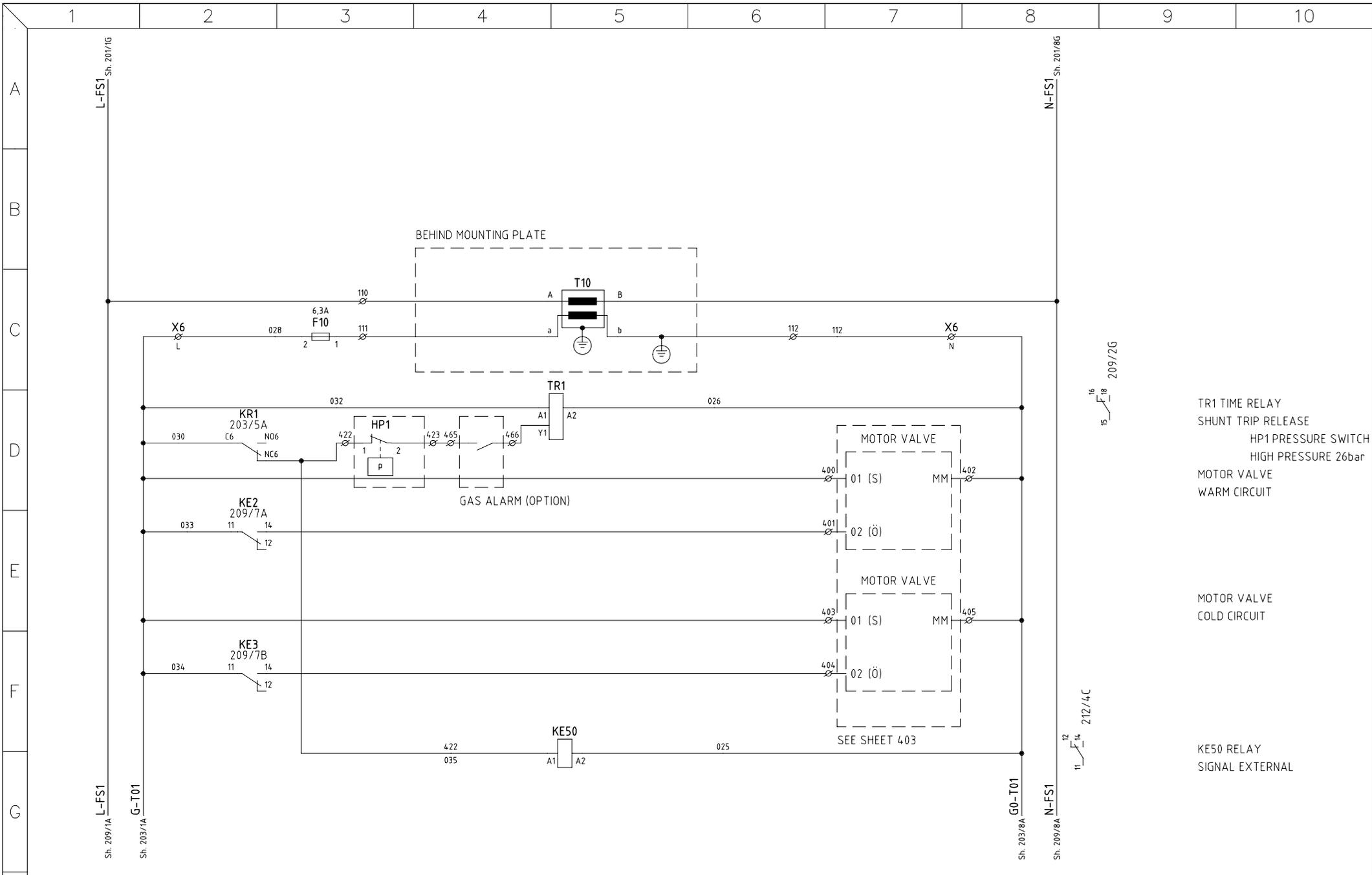


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
 DELTA Frequency drive
 -
 Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 201
DATE 2019-11-04	REV. R3	NEXT SHEET 202



R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

-

Control circuit

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

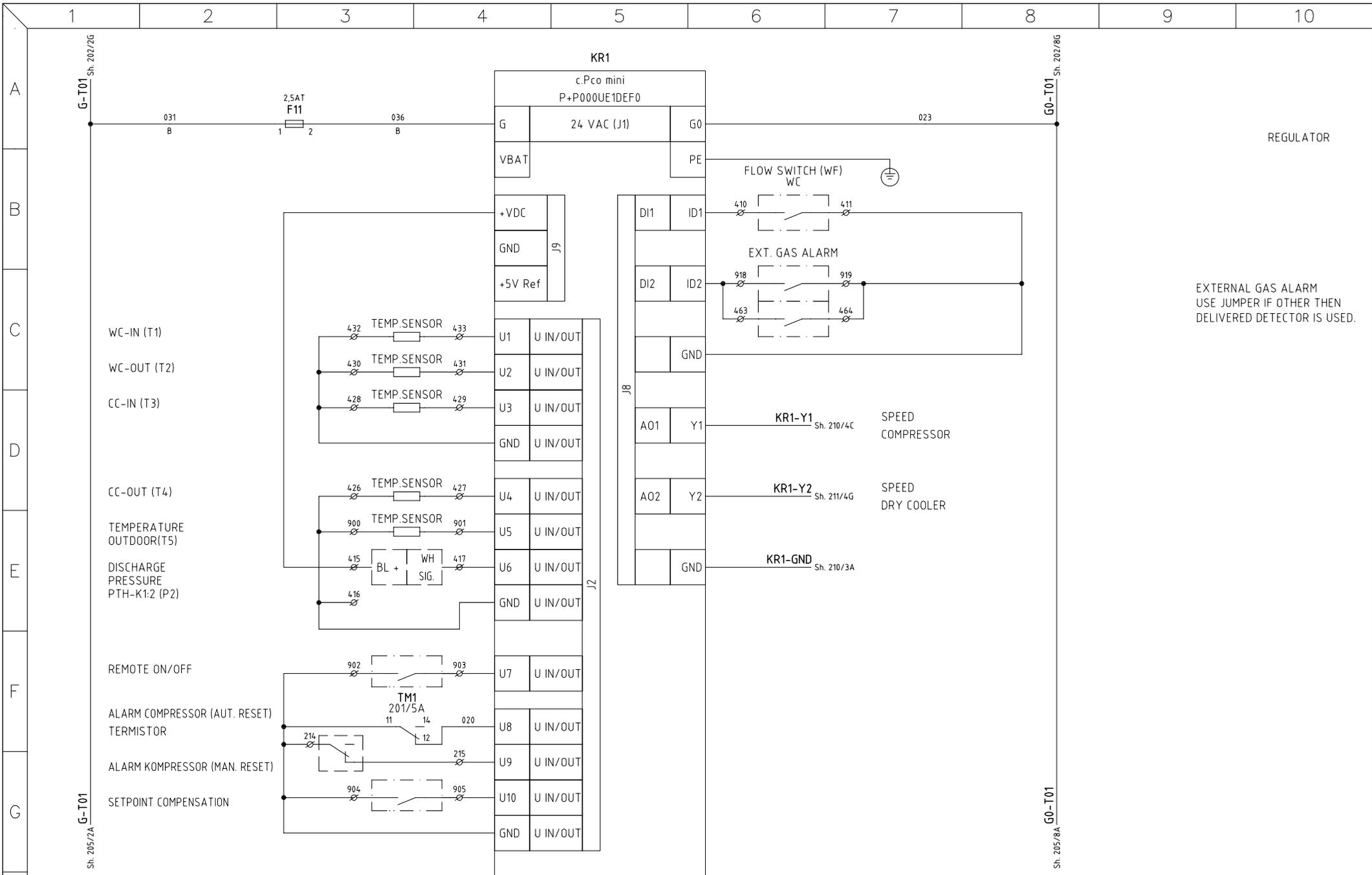
R3

SHEET

202

NEXT SHEET

203

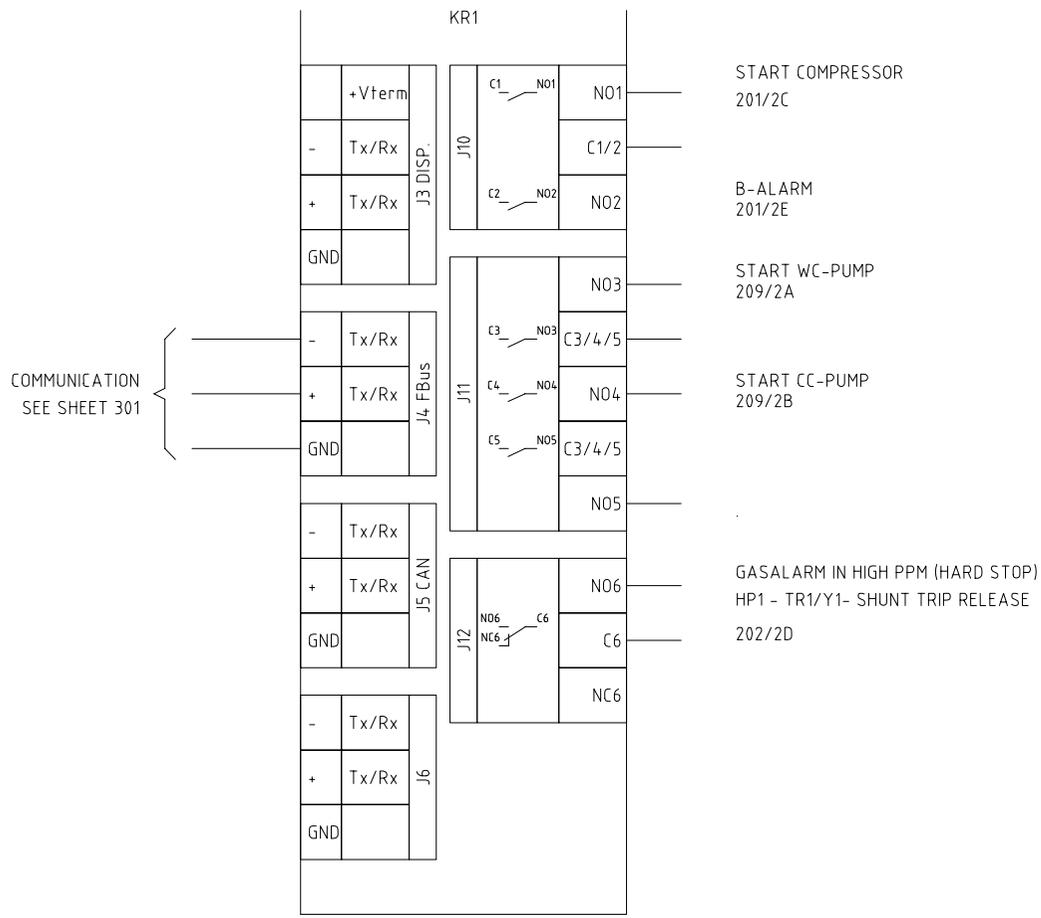


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 203
DATE 2019-11-04	REV. R3	NEXT SHEET 204



R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE

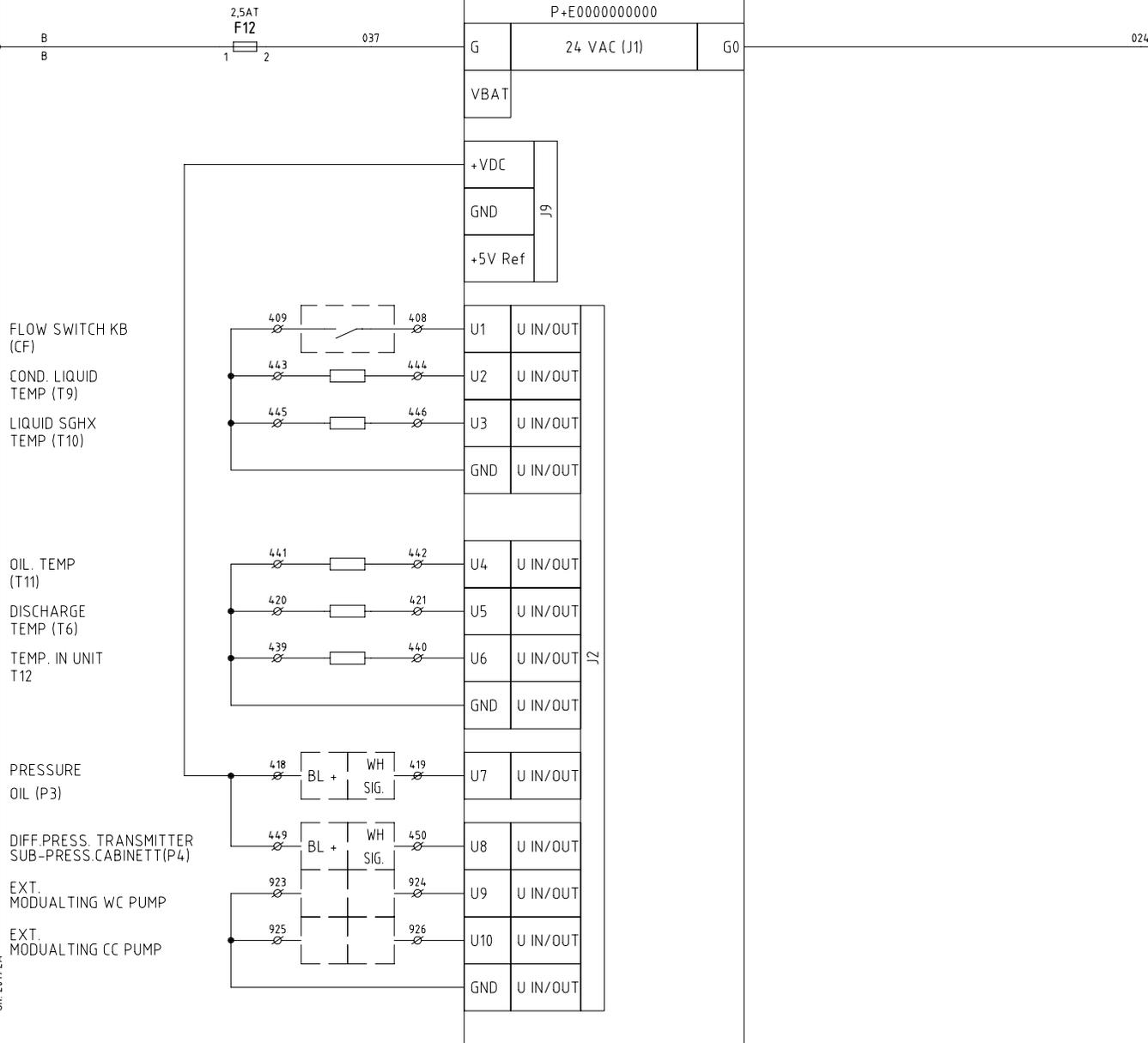


MODULE UNIT
DELTA Frequency drive
-
Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 204
DATE 2019-11-04	REV. R3	NEXT SHEET 205

G-T01 Sh. 203/1G
G-T01 Sh. 207/2A

G0-T01 Sh. 203/8G
G0-T01 Sh. 207/8A



I/O MODULE

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

-

Control circuit

WORK NO.
O27994

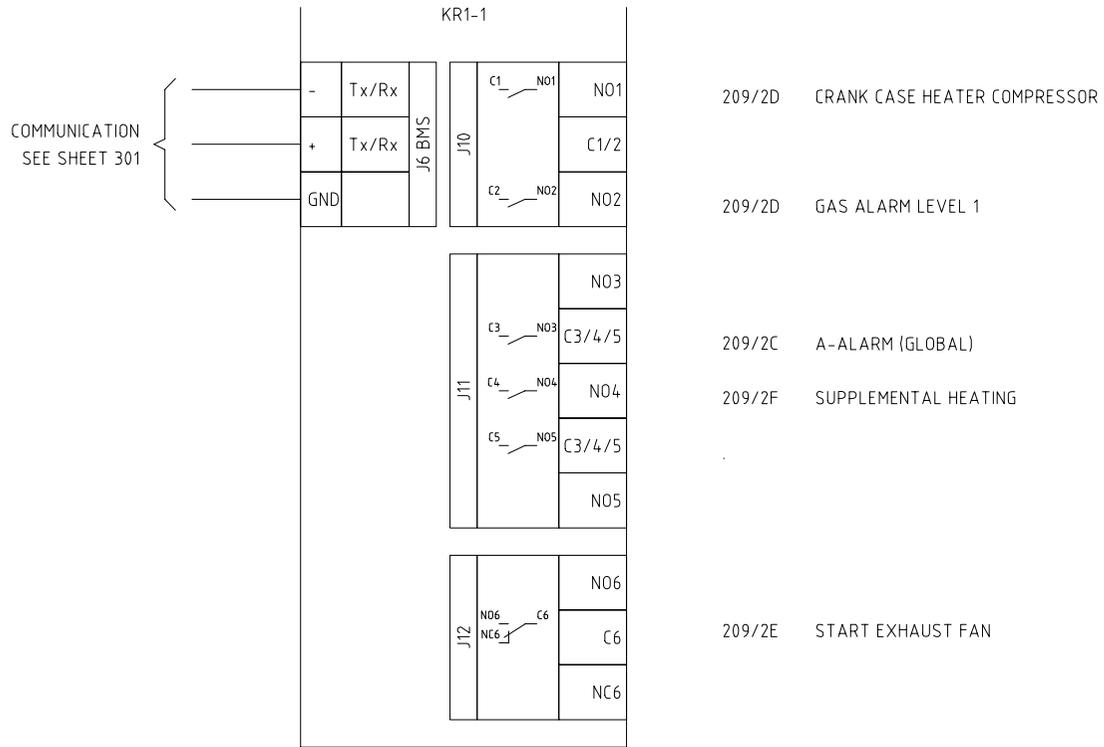
DESIGN BY
JW

DATE
2019-11-04

DRAWING NO.
S27994-1.2

DRAWN BY
NJ

REV. R3
NEXT SHEET 206

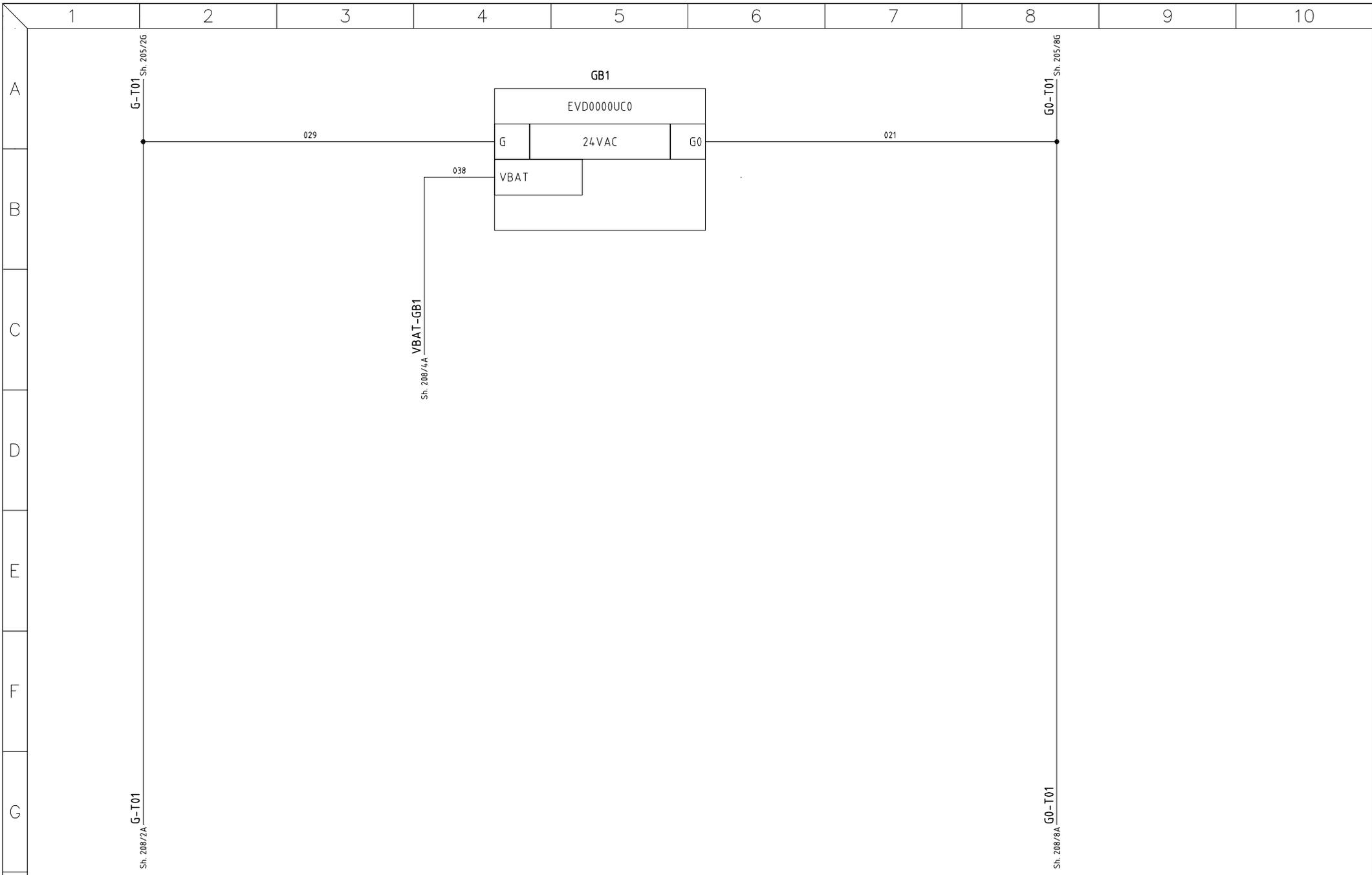


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 206
DATE 2019-11-04	REV. R3	NEXT SHEET 207

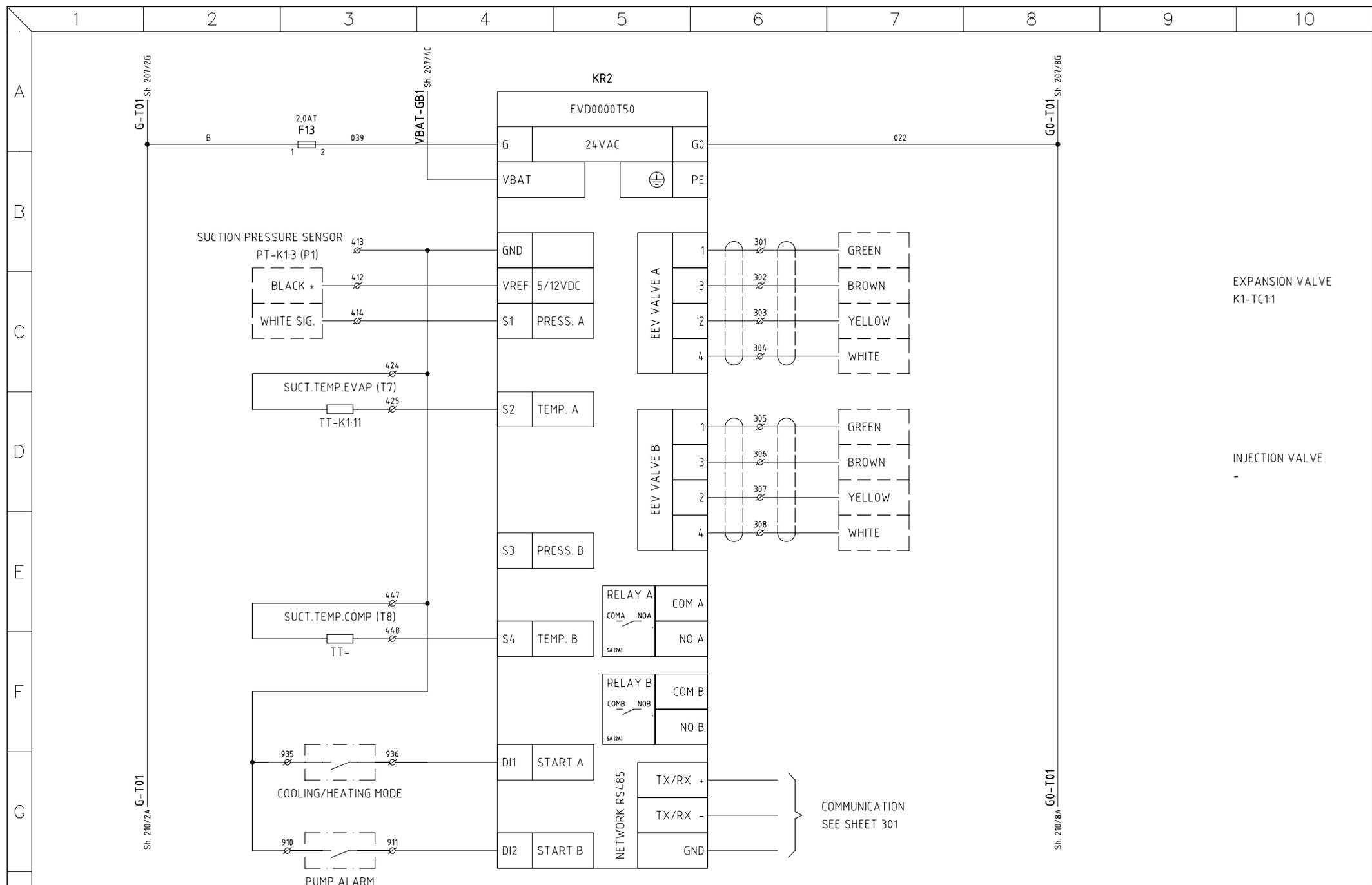


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
 DELTA Frequency drive
 -
 Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 207
DATE 2019-11-04	REV. R3	NEXT SHEET 208



EXPANSION VALVE
K1-TC1:1

INJECTION VALVE

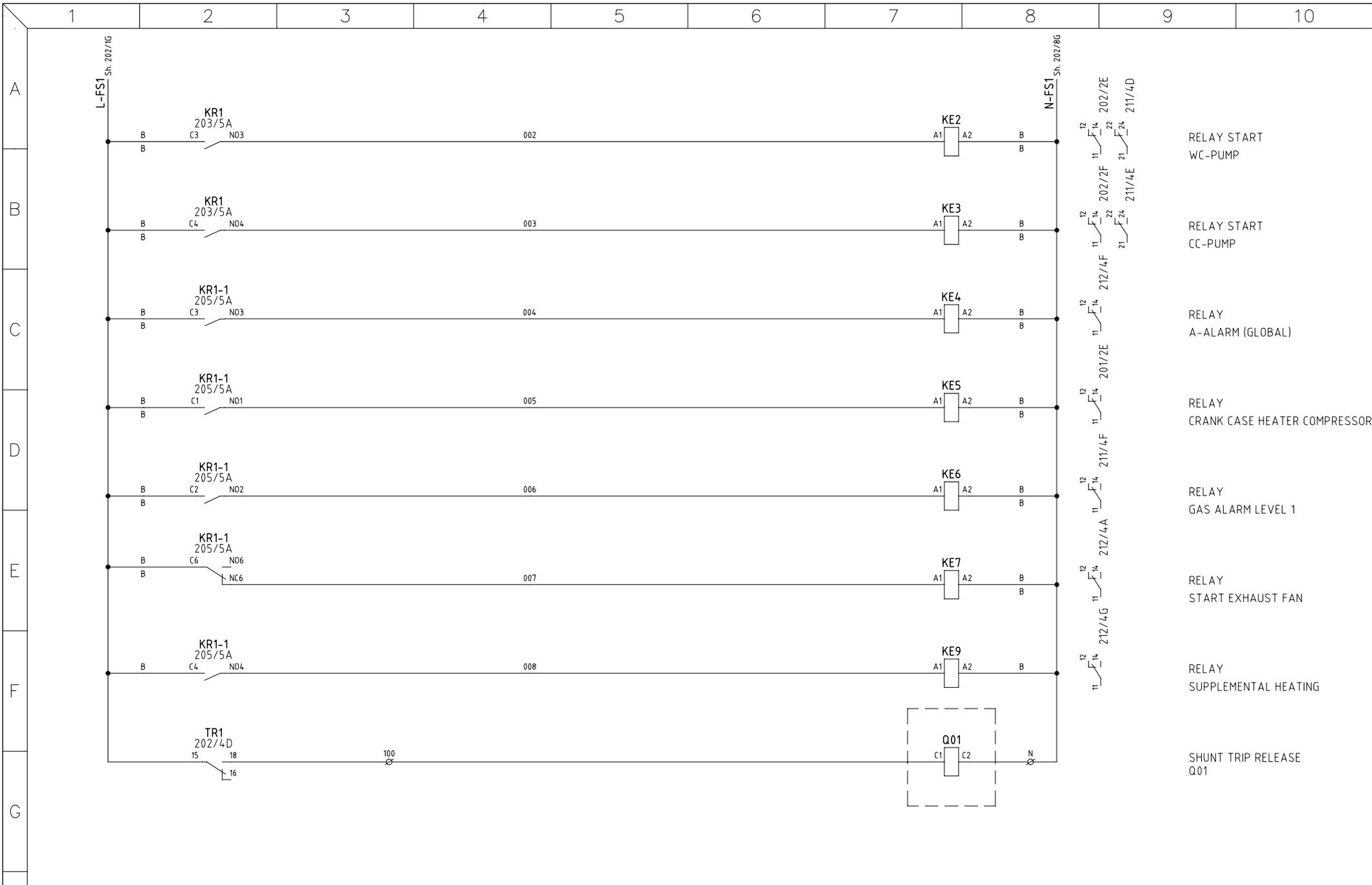
COMMUNICATION
SEE SHEET 301

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 208
DATE 2019-11-04	REV. R3	NEXT SHEET 209

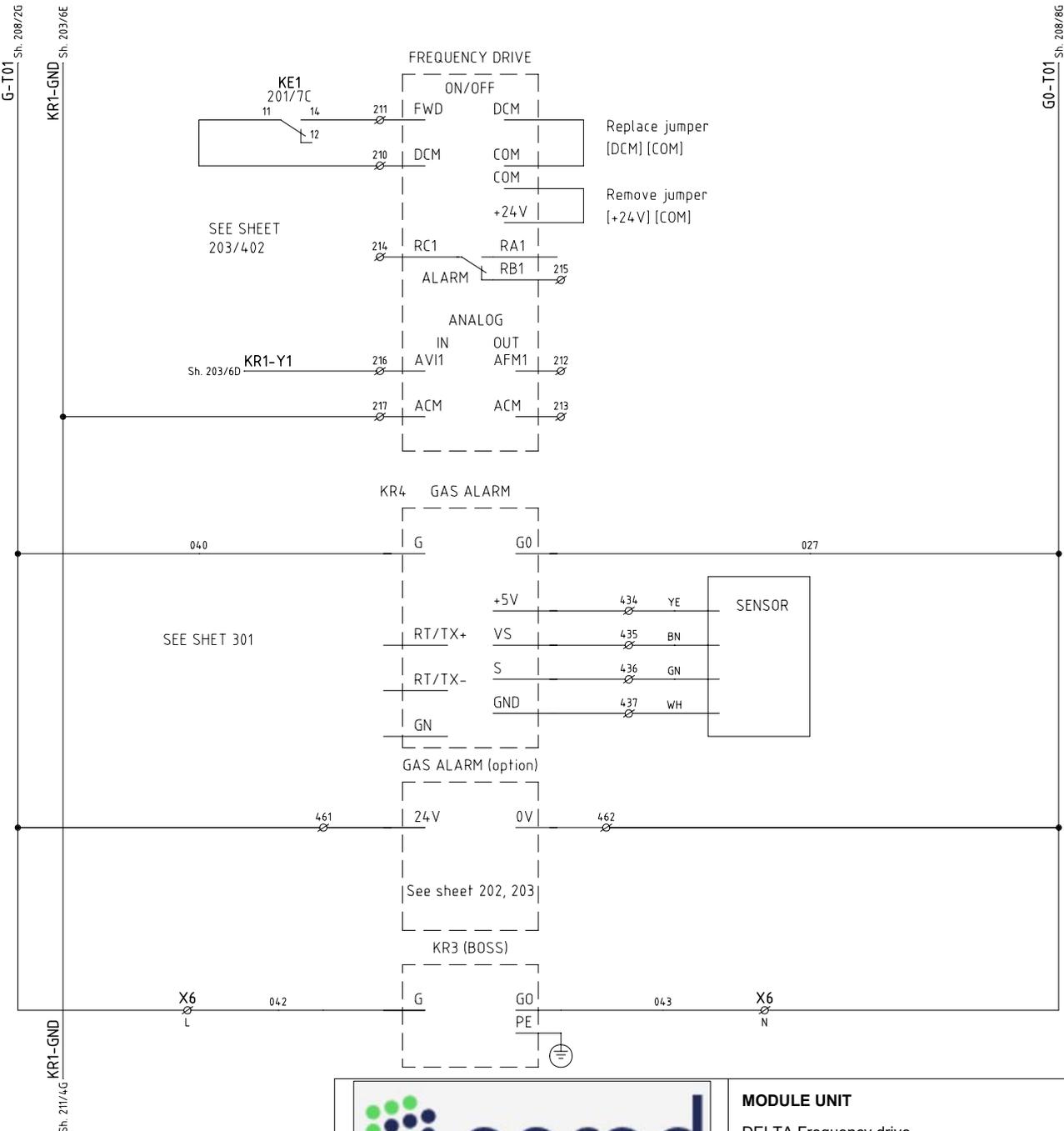


REV.	DESCRIPTION	SIGN.	DATE
R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214



MODULE UNIT
 DELTA Frequency drive
 -
 Control circuit

WORK NO.		DRAWING NO.	
O27994		S27994-1.2	
DESIGN BY	DRAWN BY	SHEET	
JW	NJ	209	
DATE	REV.	NEXT SHEET	
2019-11-04	R3	210	



ALARM FREQ. DRIVE
COMPRESSOR 1

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



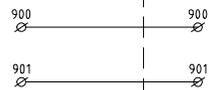
MODULE UNIT
DELTA Frequency drive
-
Control circuit

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 210
DATE 2019-11-04	REV. R3	NEXT SHEET 211

CUSTOMER CONNECTION BOX

TEMP SENSOR
OUTDOOR

SEE SHEET 203/203



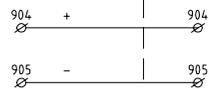
EXTERNAL START/STOP

SEE SHEET 203/203



SETPOINT COMPENSATION

SEE SHEET 203/203



EXT. SIGNAL
START WC-PUMP

KE2
209/7A



EXT. SIGNAL
START CC-PUMP

KE3
209/7B



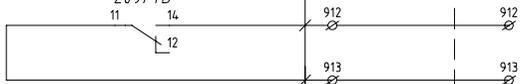
PUMP ALARM

SE BLAD 208



EXT. SIGNAL
GAS ALARM

KE6
209/7D



EXT. SIGNAL
0-10V
DRY COOLER

Sh. 203/6D

KR1-Y2



Sh. 210/3H

KR1-GND



MODULE UNIT

DELTA Frequency drive

-

Control circuit

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

R3

SHEET

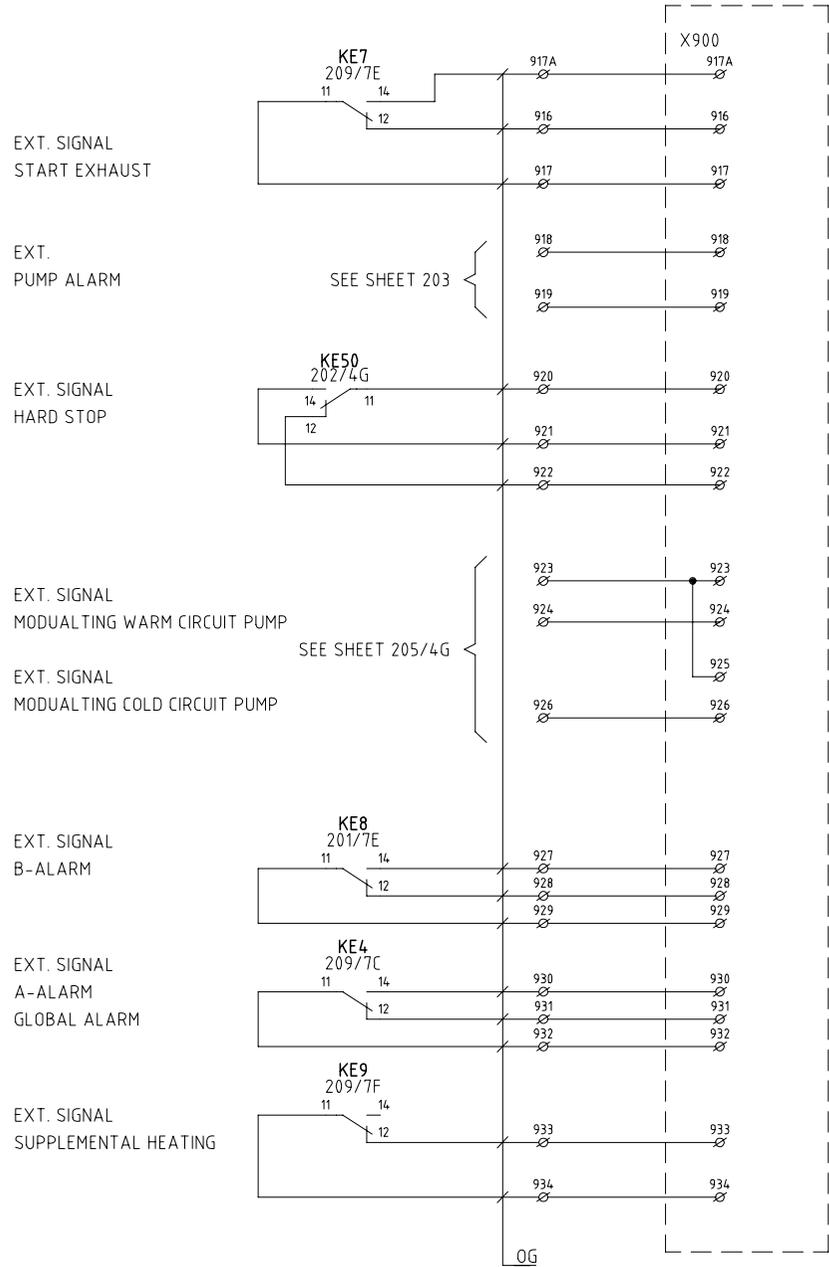
211

NEXT SHEET

212

REV.	DESCRIPTION	SIGN.	DATE
R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214

CUSTOMER CONNECTION BOX

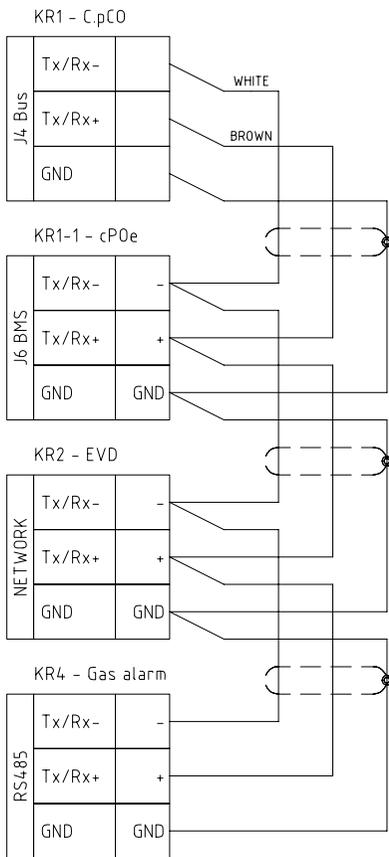


MODULE UNIT
DELTA Frequency drive
-
Control circuit

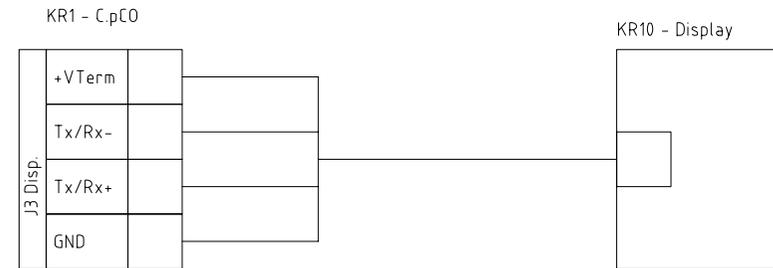
WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 212
DATE 2019-11-04	REV. R3	NEXT SHEET 301

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE

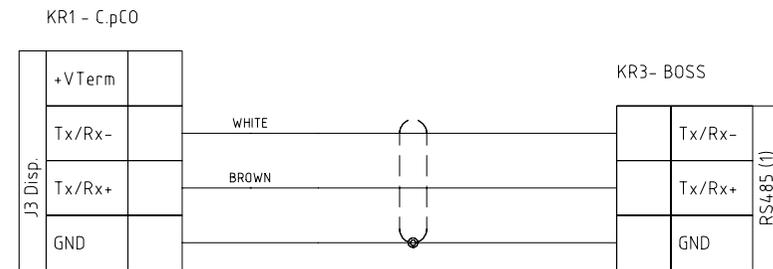
MODBUS over FBus



Display port

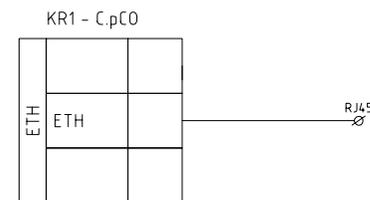


Display port



ETHERNET

RJ45



REV.	DESCRIPTION	SIGN.	DATE
R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214



MODULE UNIT

DELTA Frequency drive

-

Communication

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

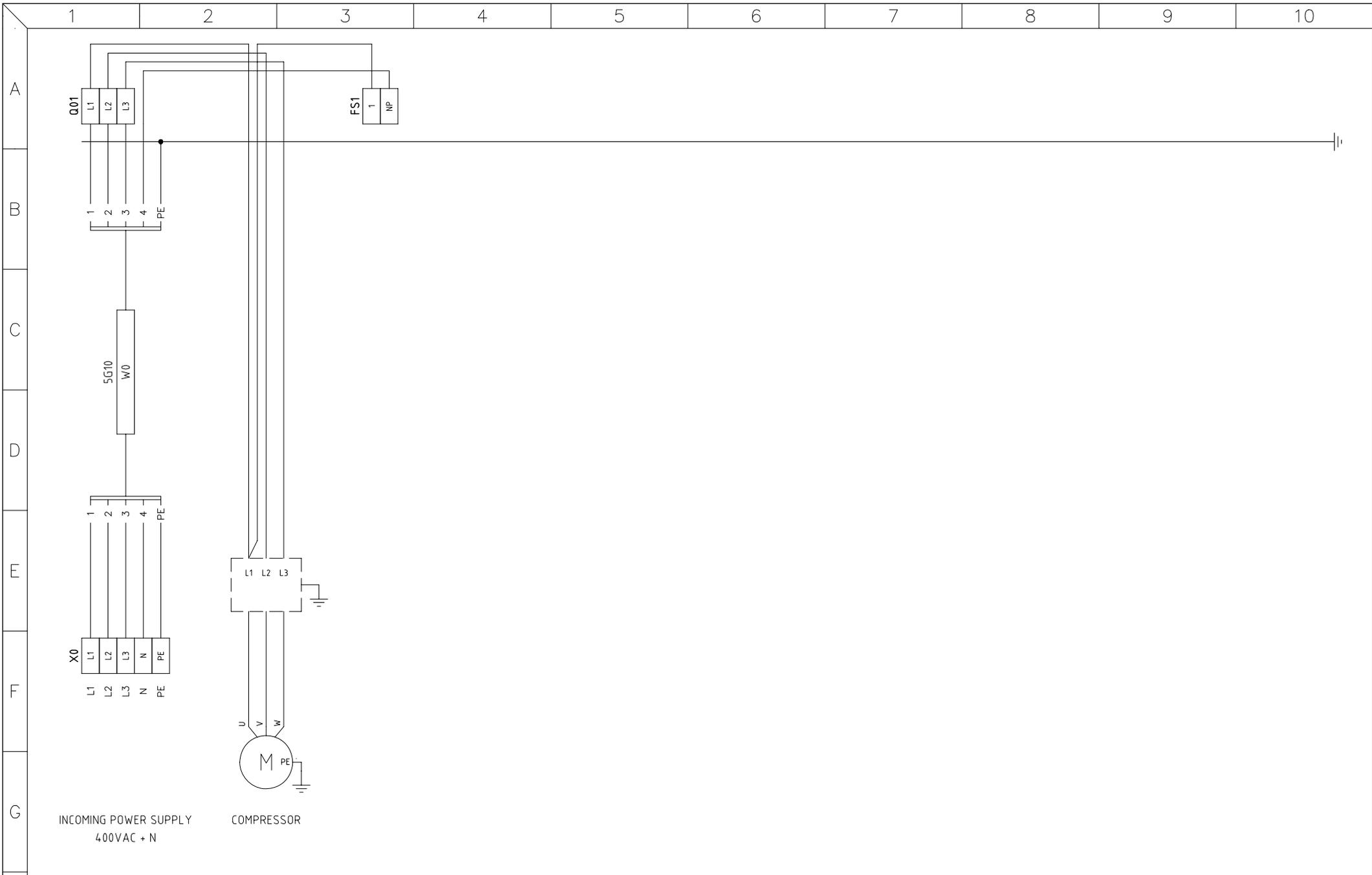
R3

SHEET

301

NEXT SHEET

401



INCOMING POWER SUPPLY
400VAC + N

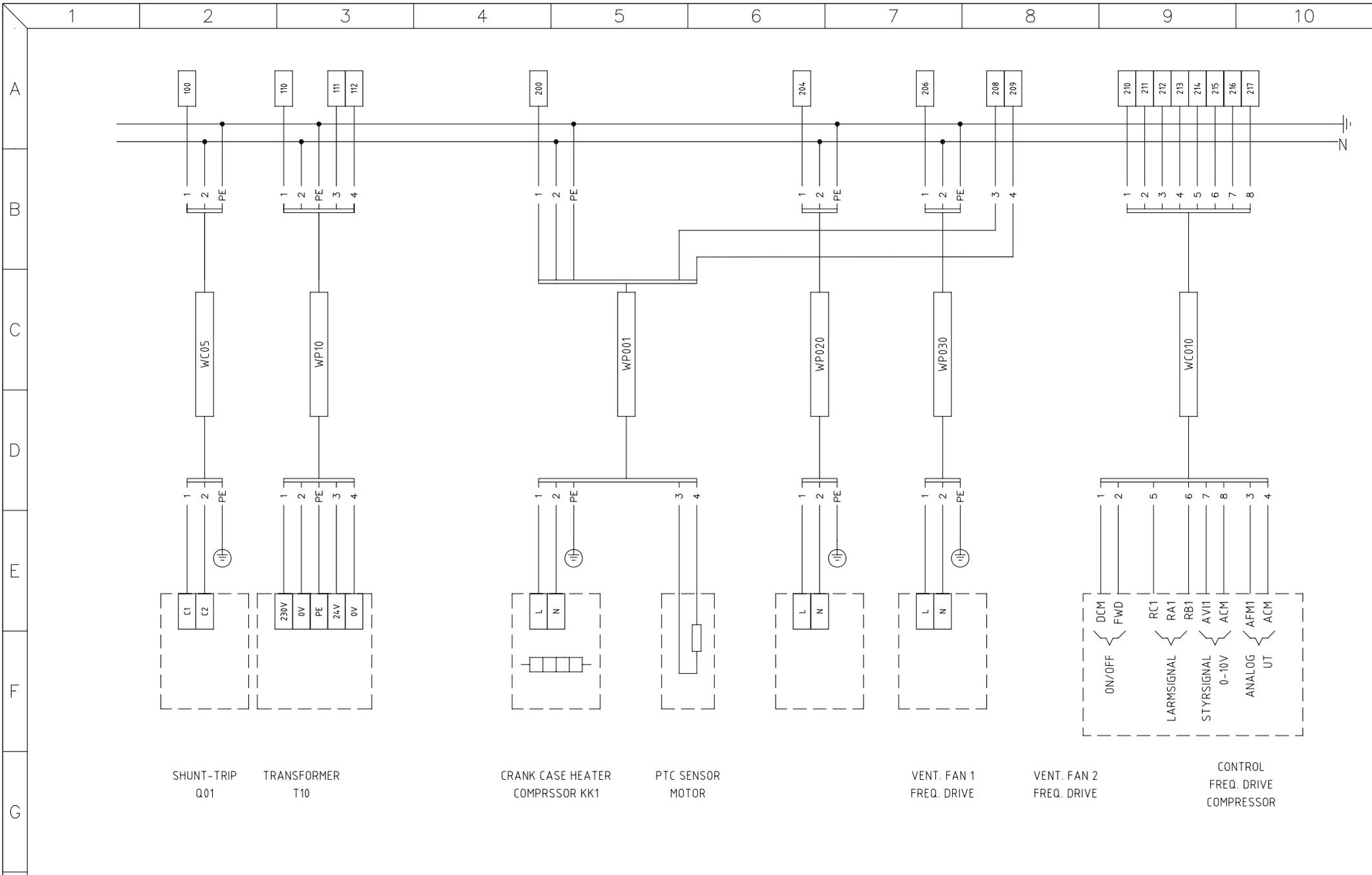
COMPRESSOR

REV.	DESCRIPTION	SIGN.	DATE
R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214



MODULE UNIT
DELTA Frequency drive
-
External connections

WORK NO.		DRAWING NO.	
O27994		S27994-1.2	
DESIGN BY	DRAWN BY	SHEET	
JW	NJ	401	
DATE	REV.	NEXT SHEET	
2019-11-04	R3	402	

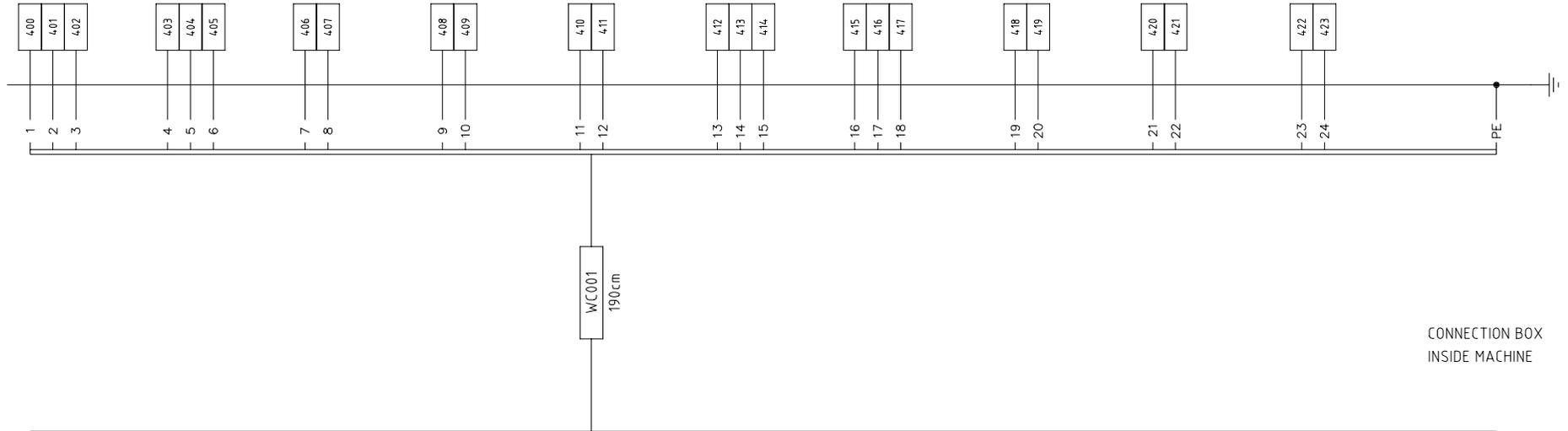


R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE

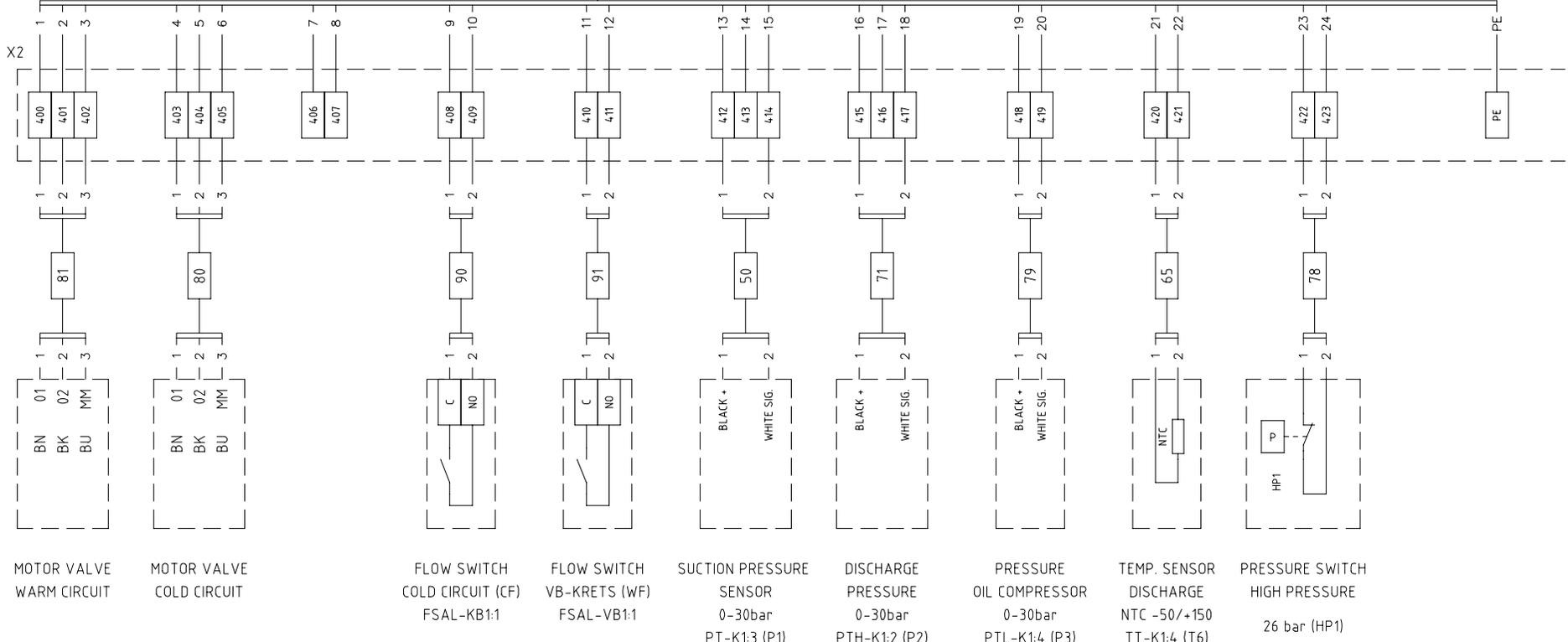


MODULE UNIT
 DELTA Frequency drive
 -
 External connections

WORK NO. O27994		DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 402	
DATE 2019-11-04	REV. R3	NEXT SHEET 403	



CONNECTION BOX
INSIDE MACHINE



MOTOR VALVE
WARM CIRCUIT

MOTOR VALVE
COLD CIRCUIT

FLOW SWITCH
COLD CIRCUIT (CF)
FSAL-KB1:1

FLOW SWITCH
VB-KRETS (WF)
FSAL-VB1:1

SUCTION PRESSURE
SENSOR
0-30bar
PT-K1:3 (P1)

DISCHARGE
PRESSURE
0-30bar
PTH-K1:2 (P2)

PRESSURE
OIL COMPRESSOR
0-30bar
PTL-K1:4 (P3)

TEMP. SENSOR
DISCHARGE
NTC -50/+150
TT-K1:4 (T6)

PRESSURE SWITCH
HIGH PRESSURE
26 bar (HP1)

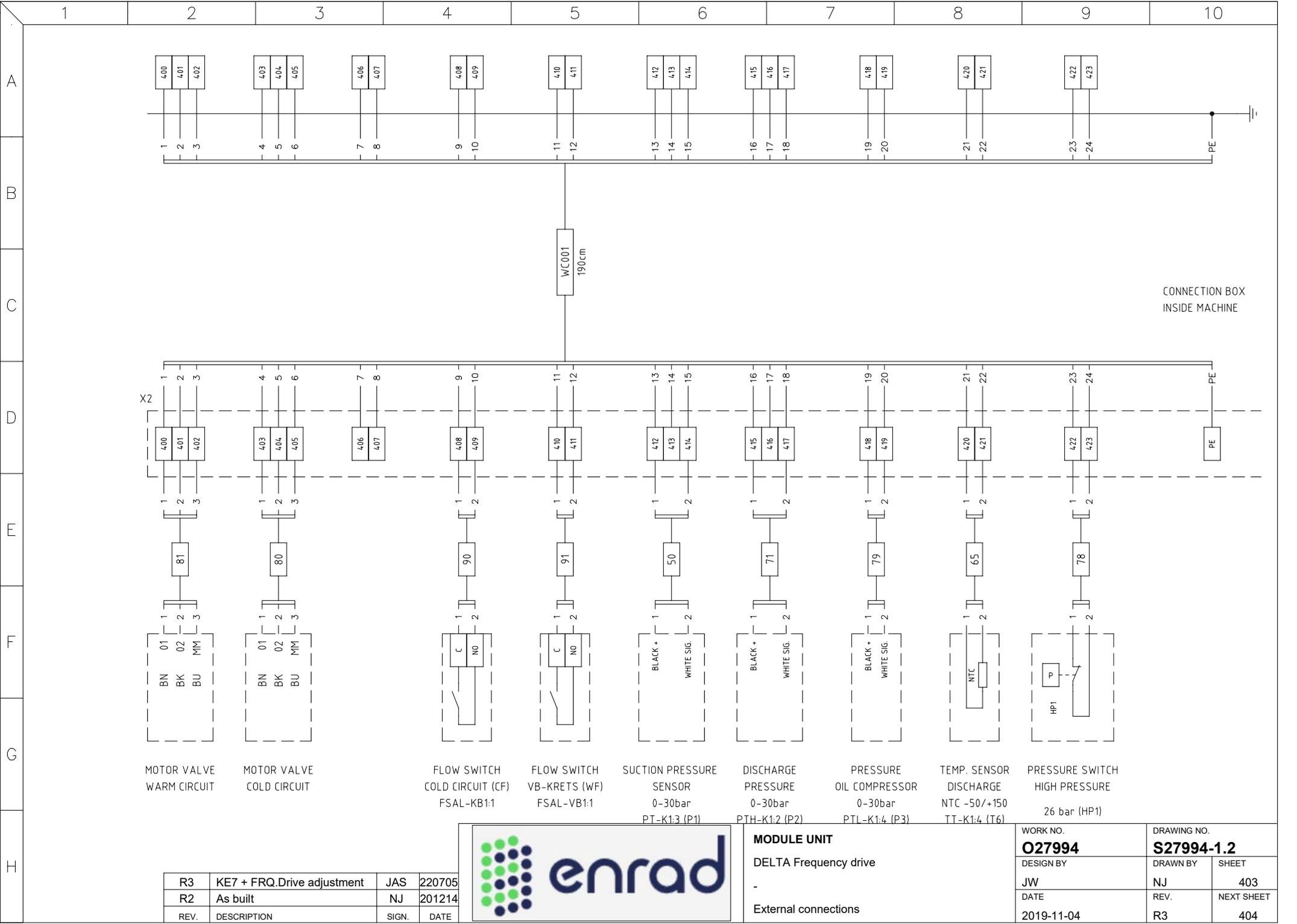
R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE

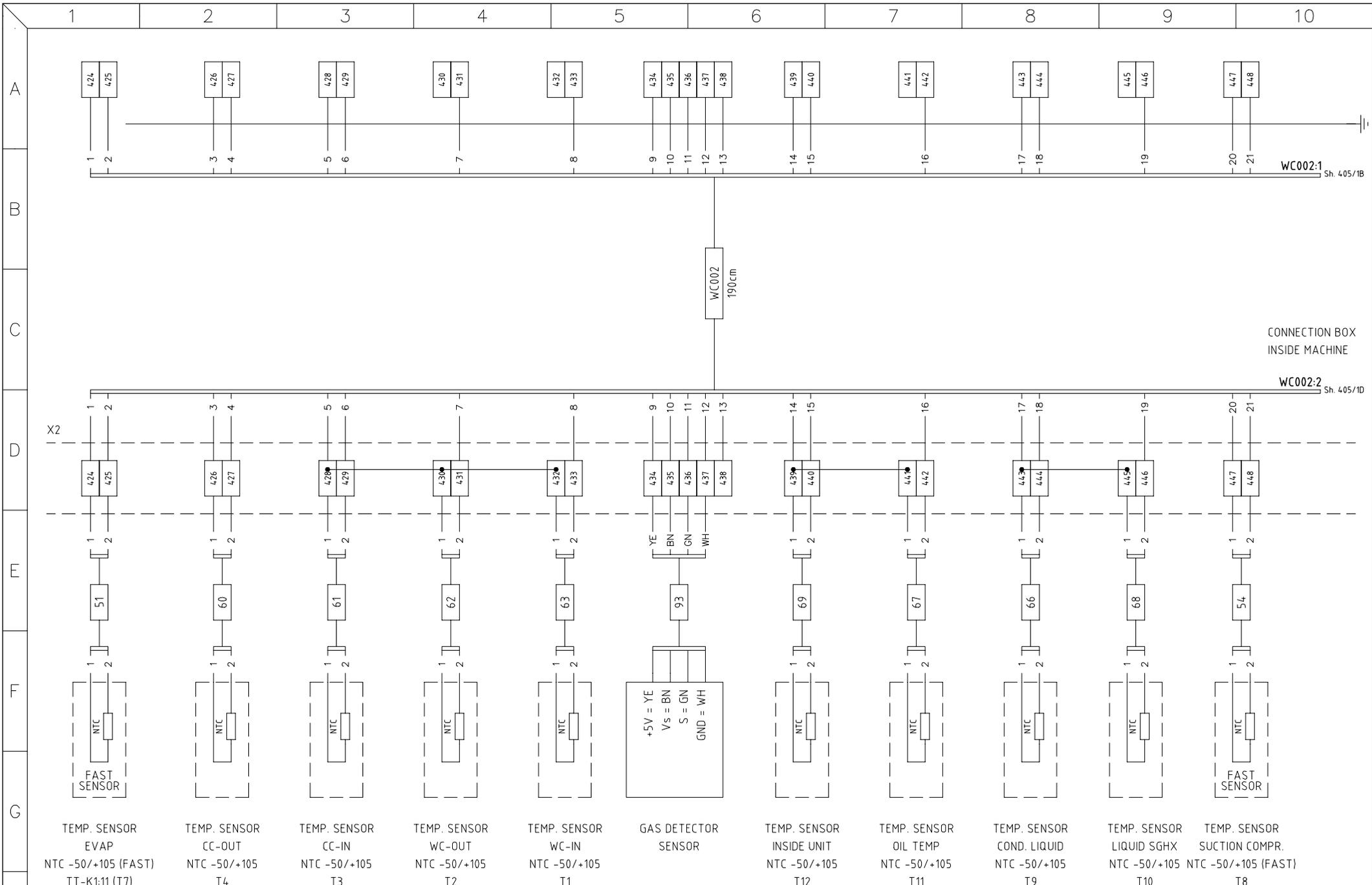


MODULE UNIT
DELTA Frequency drive
-
External connections

WORK NO. O27994	DESIGN BY JW	DATE 2019-11-04
---------------------------	-----------------	--------------------

DRAWING NO. S27994-1.2	DRAWN BY NJ	SHEET 403
REV. R3	REV. R3	NEXT SHEET 404





X2

H

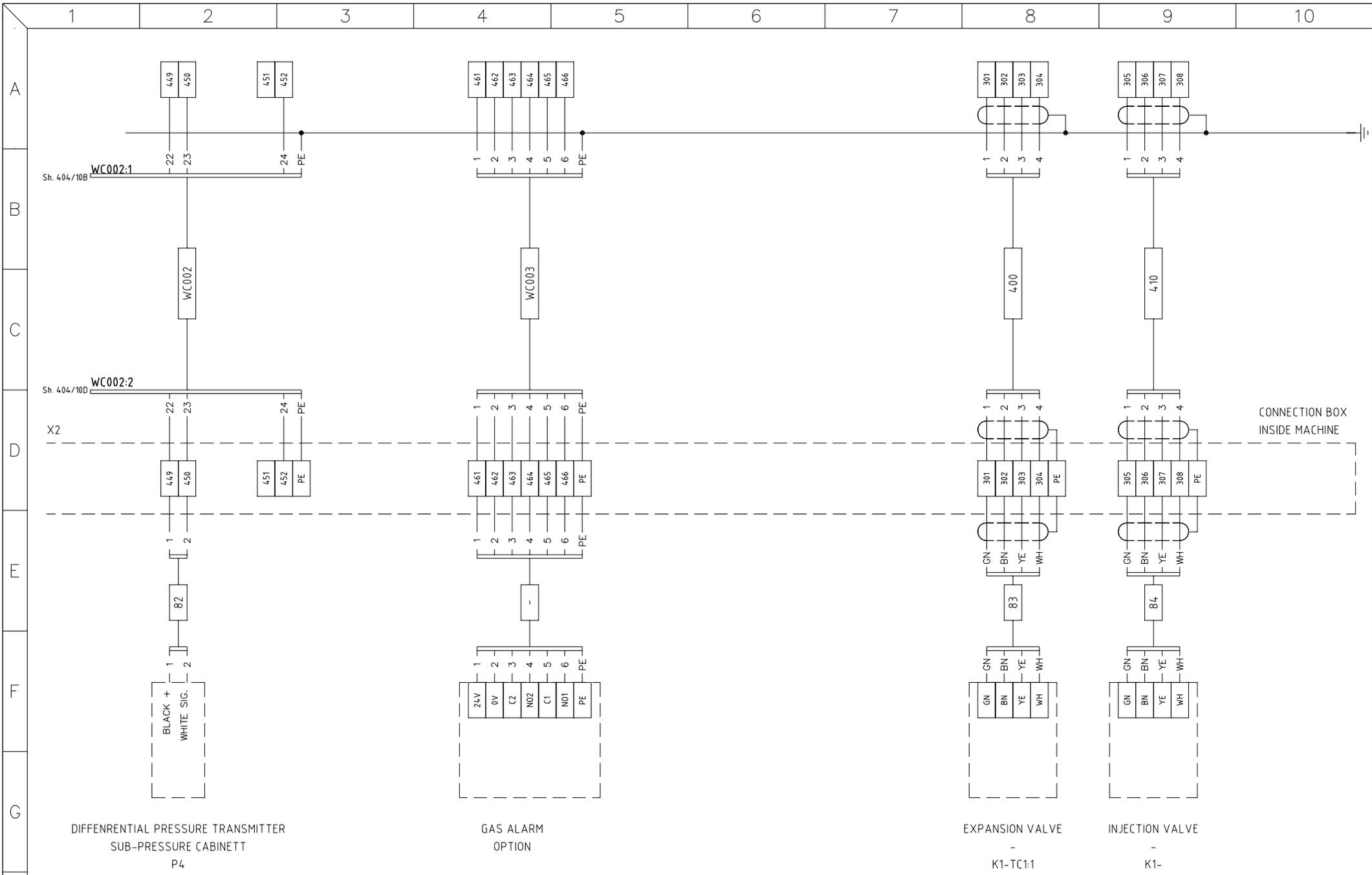
TEMP. SENSOR EVAP NTC -50/+105 (FAST) TT-K1:11 (T7)	TEMP. SENSOR CC-OUT NTC -50/+105 T4	TEMP. SENSOR CC-IN NTC -50/+105 T3	TEMP. SENSOR WC-OUT NTC -50/+105 T2	TEMP. SENSOR WC-IN NTC -50/+105 T1	GAS DETECTOR SENSOR	TEMP. SENSOR INSIDE UNIT NTC -50/+105 T12	TEMP. SENSOR OIL TEMP NTC -50/+105 T11	TEMP. SENSOR COND. LIQUID NTC -50/+105 T9	TEMP. SENSOR LIQUID SGHX NTC -50/+105 T10	TEMP. SENSOR SUCTION COMPR. NTC -50/+105 (FAST) T8
--	--	---	--	---	------------------------	--	---	--	--	---

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
External connections

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 404
DATE 2019-11-04	REV. R3	NEXT SHEET 405



DIFFERENTIAL PRESSURE TRANSMITTER
SUB-PRESSURE CABINETT
P4

GAS ALARM
OPTION

EXPANSION VALVE
-
K1-TC1:1

INJECTION VALVE
-
K1-

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
DELTA Frequency drive
-
External connections

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 405
DATE 2019-11-04	REV. R3	NEXT SHEET 406

1

2

3

4

5

6

7

8

9

10

A

B

C

D

E

F

G

H

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

-

External connections

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

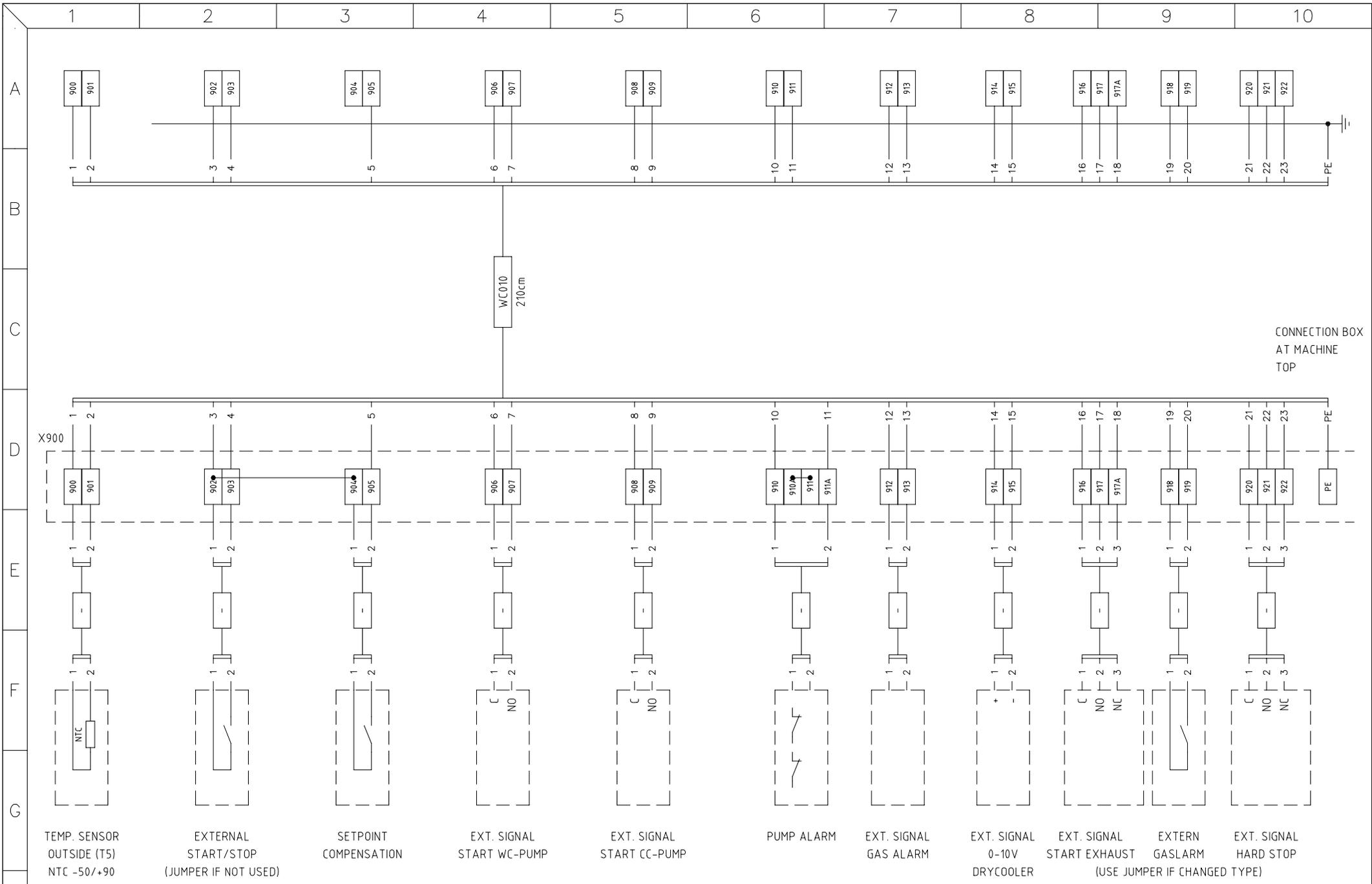
R3

SHEET

406

NEXT SHEET

410



CONNECTION BOX
AT MACHINE
TOP

TEMP. SENSOR
OUTSIDE (T5)
NTC -50/+90

EXTERNAL
START/STOP
(JUMPER IF NOT USED)

SETPOINT
COMPENSATION

EXT. SIGNAL
START WC-PUMP

EXT. SIGNAL
START CC-PUMP

PUMP ALARM

EXT. SIGNAL
GAS ALARM

EXT. SIGNAL
0-10V
DRYCOOLER

EXT. SIGNAL
START EXHAUST
(USE JUMPER IF CHANGED TYPE)

EXTERN
GASLARM

EXT. SIGNAL
HARD STOP

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT

DELTA Frequency drive

External connections

WORK NO.

O27994

DESIGN BY

JW

DATE

2019-11-04

DRAWING NO.

S27994-1.2

DRAWN BY

NJ

REV.

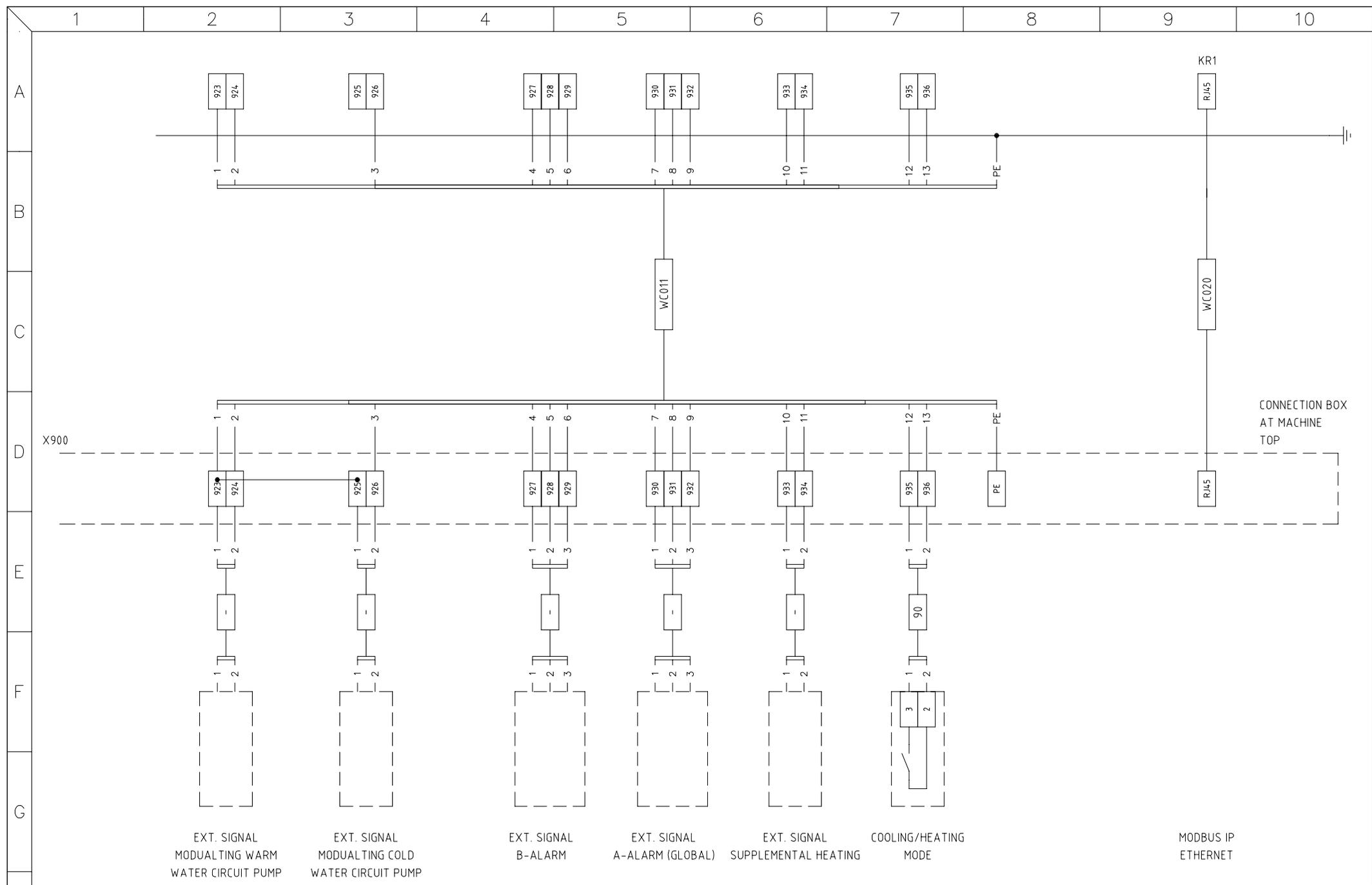
R3

SHEET

410

NEXT SHEET

411



EXT. SIGNAL MODUALTING WARM WATER CIRCUIT PUMP EXT. SIGNAL MODUALTING COLD WATER CIRCUIT PUMP EXT. SIGNAL B-ALARM EXT. SIGNAL A-ALARM (GLOBAL) EXT. SIGNAL SUPPLEMENTAL HEATING COOLING/HEATING MODE MODBUS IP ETHERNET

R3	KE7 + FRQ.Drive adjustment	JAS	220705
R2	As built	NJ	201214
REV.	DESCRIPTION	SIGN.	DATE



MODULE UNIT
 DELTA Frequency drive
 -
 External connections

WORK NO. O27994	DRAWING NO. S27994-1.2	
DESIGN BY JW	DRAWN BY NJ	SHEET 411
DATE 2019-11-04	REV. R3	NEXT SHEET -