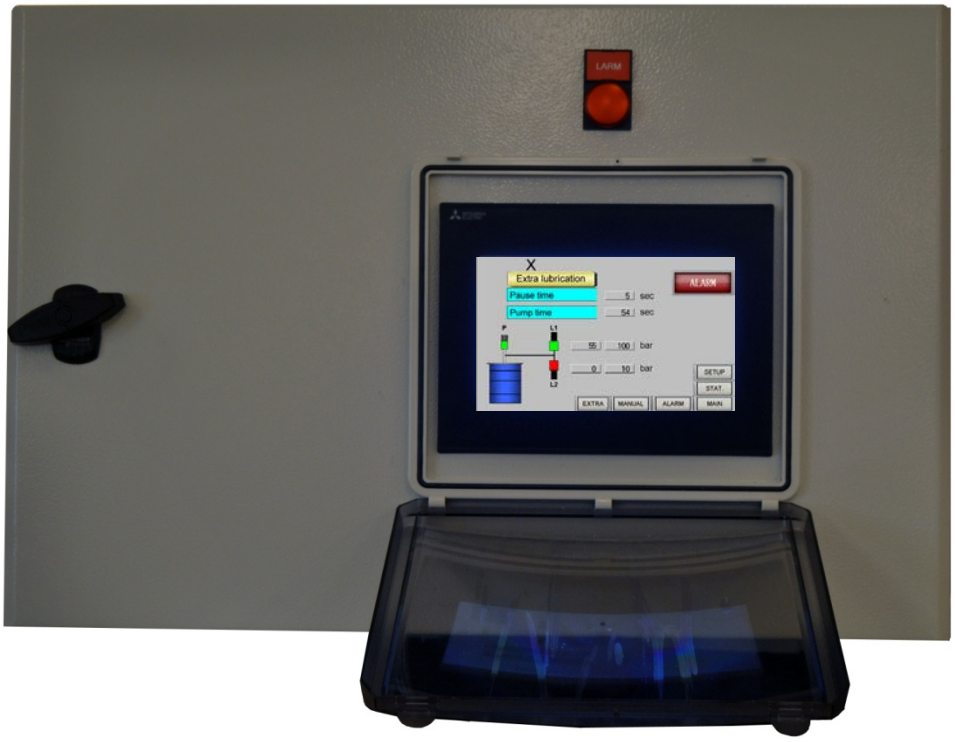
CONTROL CENTRE
FOR
DUAL LINE GREASE LUBRICATION SYSTEM

CC4 MKII
Art. No. 907498

USER INSTRUCTIONS



CONTENTS

ASSALUB AB, Box 240, SE-597 26 ÅTVIDABERG, SWEDEN, Tel. +46-120-358 40, Fax. +46-120-152 11,
E-post: info@assalub.se URL: www.assalub.se

1. DESCRIPTION

The central control unit CC4 MKII controls and monitors up to 4 channels in a 2 line grease lubrication system.
The control unit can be configured to be able to work together with different number of pump units and channel valves.

FUNCTIONS

- Settable pump and pause periods.
- Pressure settings, in cases where pressure transducers are used.
- All settings are password-protected.
- Optional extra lubrication.
- Optional manual operation.
- Optional spray.
- Control via the lubricated machine.
- Output for operation indicator.
- Output for alarms - issuing alarms when the set pressure has not been reached during the pump period, when there is a low level in the drum of lubricant, short circuit in the pressure transducer, at pressure acknowledgement from the wrong line or at too high rest pressure.

DEFINITIONS

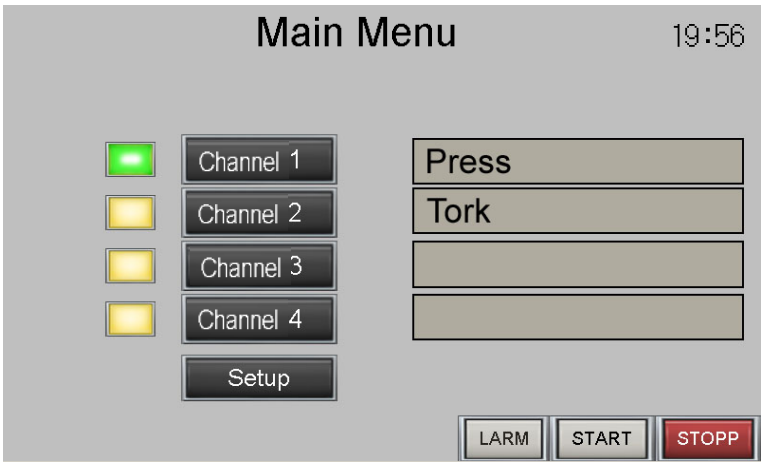
Channel	Part of the lubrication system with its own settings.
Line1, Line2	The two lines that are alternately pressurised in a 2 line lubrication system.
Pause time	Time from pump stop to pump start.
Pressure operating time	The time from pump start until its set pressure is achieved and the pump is stopped.
Extra pressure operating time	Settable extra time from pressure acknowledgement to depressurisation.
Pump time	Maximum pressure operating period before an alarm is issued.
Lubrication cycle	The time between lubrications of every individual lubrication point, i.e. two pressure operating periods and two pause periods.

2. DATA

Enclosure classification	IP 65	
Dimension	600x400x220 (BxHxD)	
Weight	20 kg.	
Power supply	100-240 VAC 2,8–1,4 A 50-60 Hz	
Outputs:	Max load	80 VA resistiv load 100 W inductive load
	Alarm output	Voltage-free change over contact
	Running output	Voltage-free change over contact
	Voltage	Built-in power source 24 V 3A
Setting range	Pump time	1 - 9999 sec.
	Pause time	1 - 9999 min.
	Pressure	1 - 250 Bar

3. HANDHAVANDE

HUVUDMENY



To get to the main menu, press 

this button as avaliable in all menus.

Start the control unit by pressing 

The button becomes green (

) when the control unit is running.

The green lamp at Channel 1 indicate an ongoing lubrication of channel 1.

PASSWORD

To make it impossible for any unauthorised persons to change the settings and configuration, these have been password-protected.

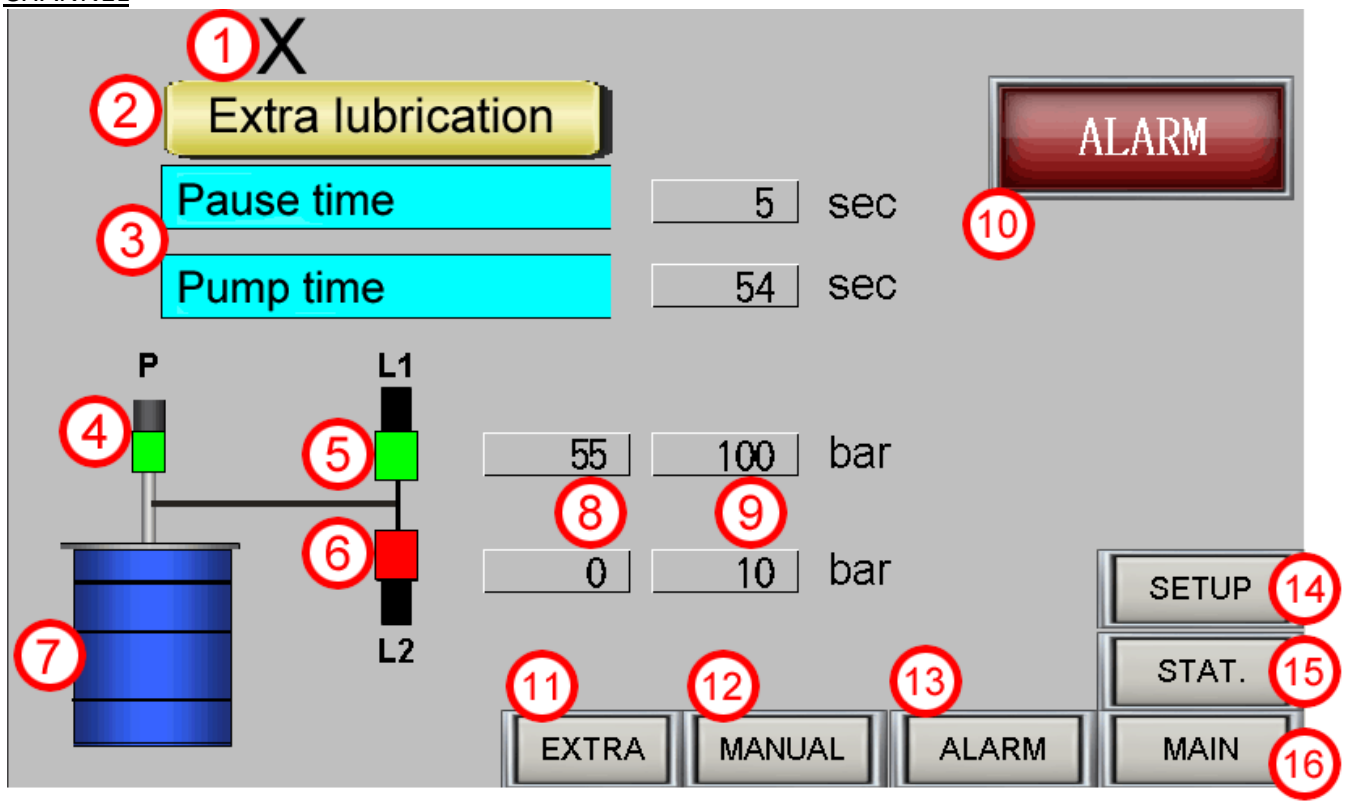
If the page is password protected you find an open or closed padlock in the lower left corner of the screen. If the padlock is closed it is not possible to change any settings. Press the padlock and type in the operator name and password. The padlock is then open and it is possible to change the settings.
Press the padlock if you want to close it to protect the settings again.

At delivery the operator name is 1 and the password is 1234

SUB MENUS

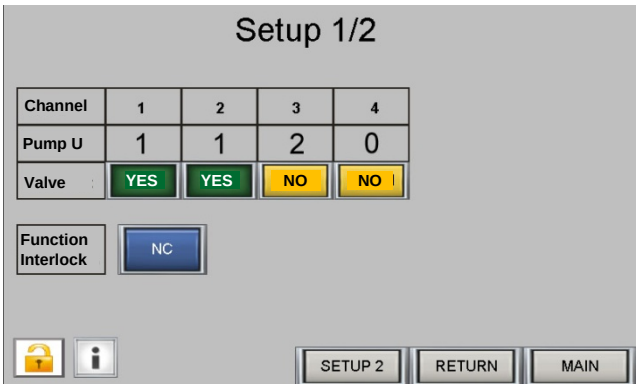
To reach the required sub menu press one of the channels or Setup

CHANNEL



1. The name of the machine
2. Information text.
   Show if the lubrication is machine stopped, if an extra lubrication is running, or if the control unit is in manual mode. Not running is shown if the control unit is stopped.
3. Lubrication status.
   Show pump time and pause time.
4. Pump indication
   Show green when the pump is running, if not, red.
5. Line indication
   Show green when line 1 is open, if not, red.
6. Line indication
   Show green when line 2 is open, if not, red.
7. Grease indication
   Show blue when there are grease left, red at low level.
8. Pressure
   Shows the pressure in line 1 and line 2
9. Set pressure
   Shows the acknowledgement pressure and maximum rest pressure.
10. Alarm indication
    Shows that there are an active alarm.
11. Button for extra lubrication.
12. Button for manual lubrication.
13. Button for alarm list.
14. Button for settings.
15. Button for statistics.
16. Button for main menu.

SETUP



In this menu the control unit is configured to work with different number of pumps and valves..
In this case channel 1 and channel 2 use the same pump unit and are separated with valves. Channel 3 has its own pump unit and channel 4 is not in use.

Possible combinations:

ONE CHANNEL

Channel	1	2	3	4
Pump Unit	1	0	0	0
Valve	OFF	OFF	OFF	OFF

TWO CHANNELS one pump unit

Channel	1	2	3	4
Pump Unit	1	1	0	0
Valve	ON	ON	OFF	OFF

TWO CHANNELS two pump units

Channel	1	2	3	4
Pump Unit	1	2	0	0
Valve	OFF	OFF	OFF	OFF

THREE CHANNELS one pump unit

Channel	1	2	3	4
Pump Unit	1	1	1	0
Valve	ON	ON	ON	OFF

THREE CHANNELS two pump units

Channel	1	2	3	4
Pump Unit	1	1	2	0
Valve	ON	ON	OFF	OFF

THREE CHANNELS three pump units

Channel	1	2	3	4
Pump Unit	1	2	3	0
Valve	0	0	0	0

FOUR CHANNELS one pump unit

Channel	1	2	3	4
Pump Unit	1	1	1	1
Valve	ON	ON	ON	ON

FOUR CHANNELS two pump units, alt 1

Channel	1	2	3	4
Pump Unit	1	1	1	2
Valve	ON	ON	ON	OFF

FOUR CHANNELS two pump units, alt 2

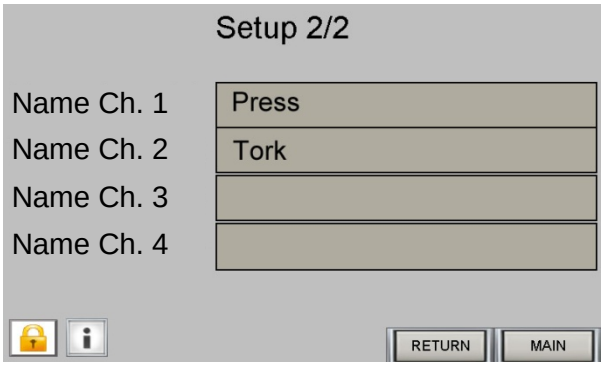
Channel	1	2	3	4
Pump Unit	1	1	2	2
Valve	ON	ON	ON	ON

FOUR CHANNELS three pump units

Channel	1	2	3	4
Pump Unit	1	1	2	3
Valve	ON	ON	OFF	OFF

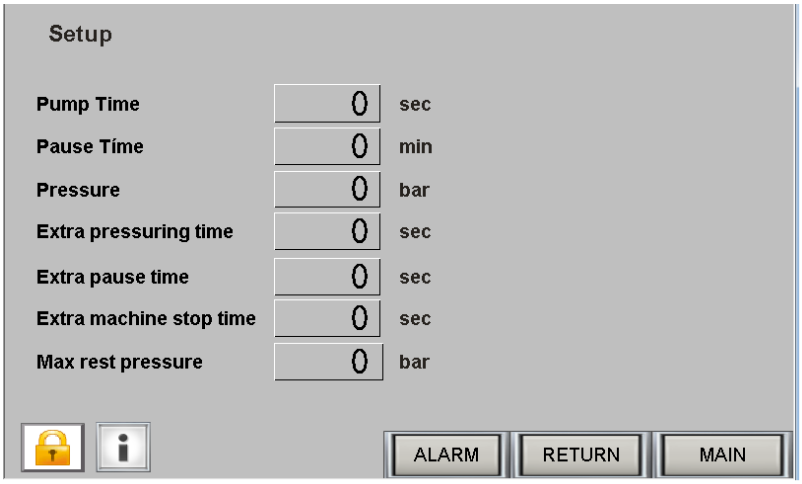
The function for machine stop can be changed between NO and NC contact.

Press Setup 2 to enter the next Setup page.



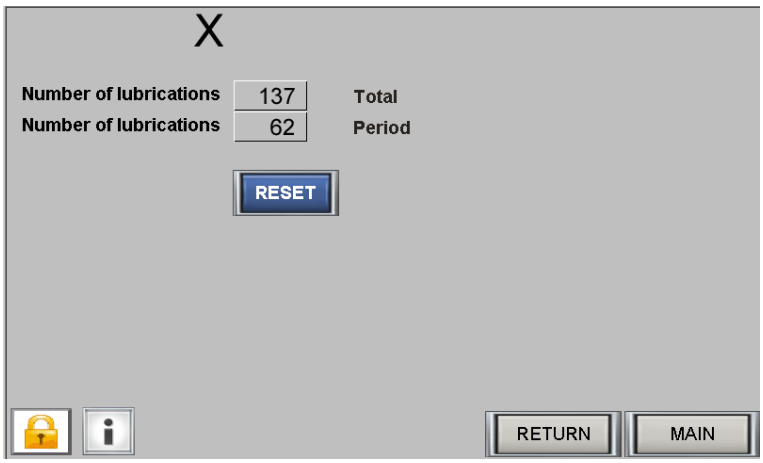
Set the name for the channels.

SETTINGS



Set the **pump time**, **pause time** and **pressure**.
Extra pressuring time is the extra pressure operating period, must not be 0
Extra pause time is the time between pressurisations of both lines in the event of extra lubrication.
Extra machine stop time is the time the lubrication remains after machine stop.
Max rest pressure is the maximum pressure in line 2 when the lubrication of line 1 start (or the maximum pressure in line 1 when the lubrication of line 2 start.)

STATISTICS

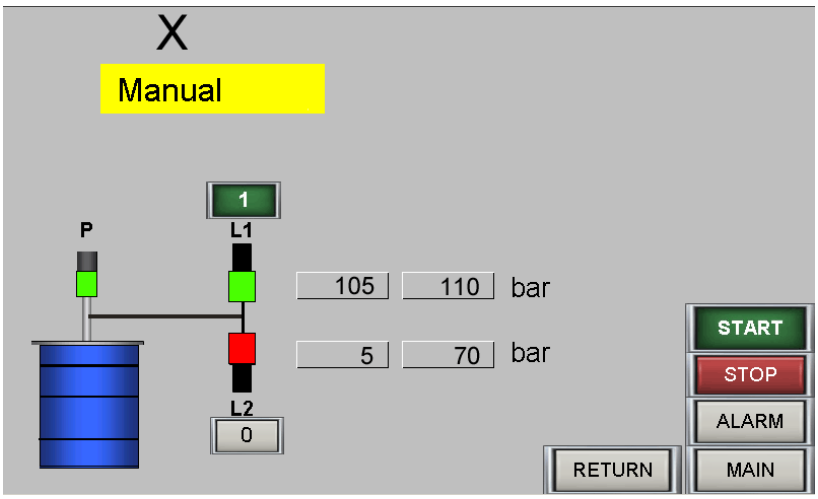


The number of lubrications are displayed on this screen.

The top row displays the total number of lubrications since the central control unit has been in operation.
The lower row shows the number of lubrications since the last zeroing. To reset the number of lubrications, press: RESET.

MANUAL OPERATION

Both of the lines can be pressurised manually on this screen to facilitate troubleshooting etc.



Start the manual operation by pressing START that becomes green (START).

Press the button 0 to pressurize the line., the button changes to 1.

Press the button again to release the pressure.

The pump starts once a line has been pressurised. The pump stops when the set pressure has been reached and the pressure is maintained. If the pressure should drop the pump is started again.

Conclude manual operations by pressing STOP .

ALARM

Alarm events are listed on this screen.

Low grease level PU1. Show that the level is low in the drum of lubricant for Pump Unit 1.
Pump time Channel 1 Line 1. Show that there has been no pressure acknowledgement during the pump period for channel one line 1.
Pressure sensor Channel 1 line 2 Show abnormal pressure from channel 1 line 2, indicating broken pressure sensor or short circuited cables.
Wrong line Channel 3. Show pressure acknowledgement from wrong line for channel 3, indicating that the pressure transducers wrongly connected.
High rest pressure Channel 1 Line 2 Show too high remaining pressure in channel 1 line 2when the lubrication of line 1 started.

Acknowledgement is carried out by pressing 

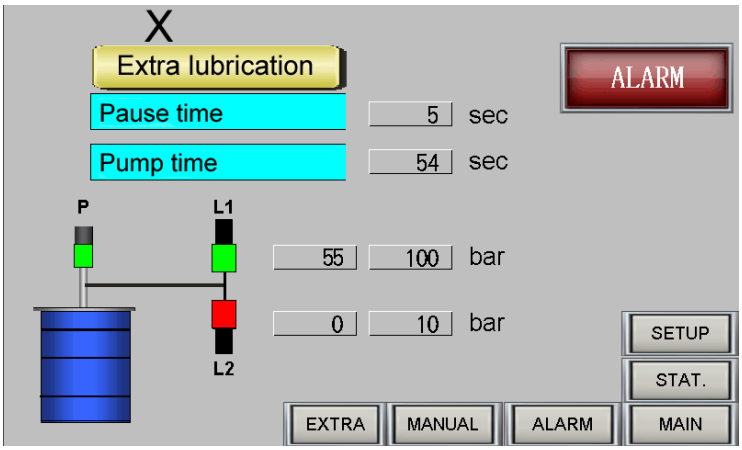
.

ALARM HISTORY

By pressing 

a screen with the alarms is shown with information when they occurred.

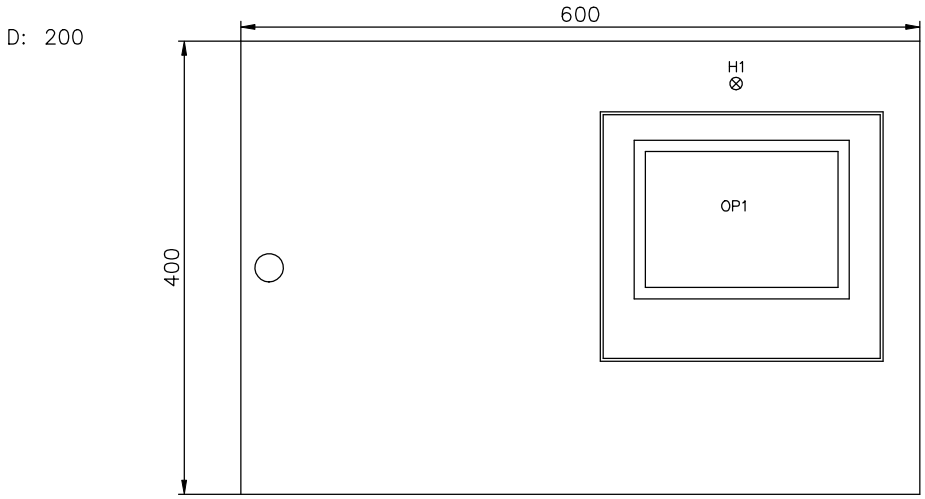
EXTRA LUBRICATION

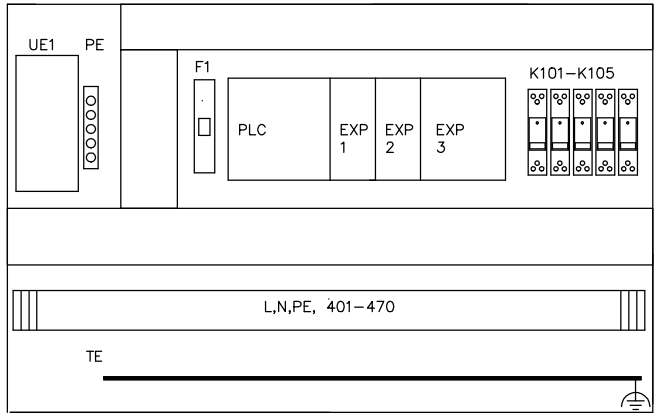


The extra lubrication is started by pressing 

WIRING

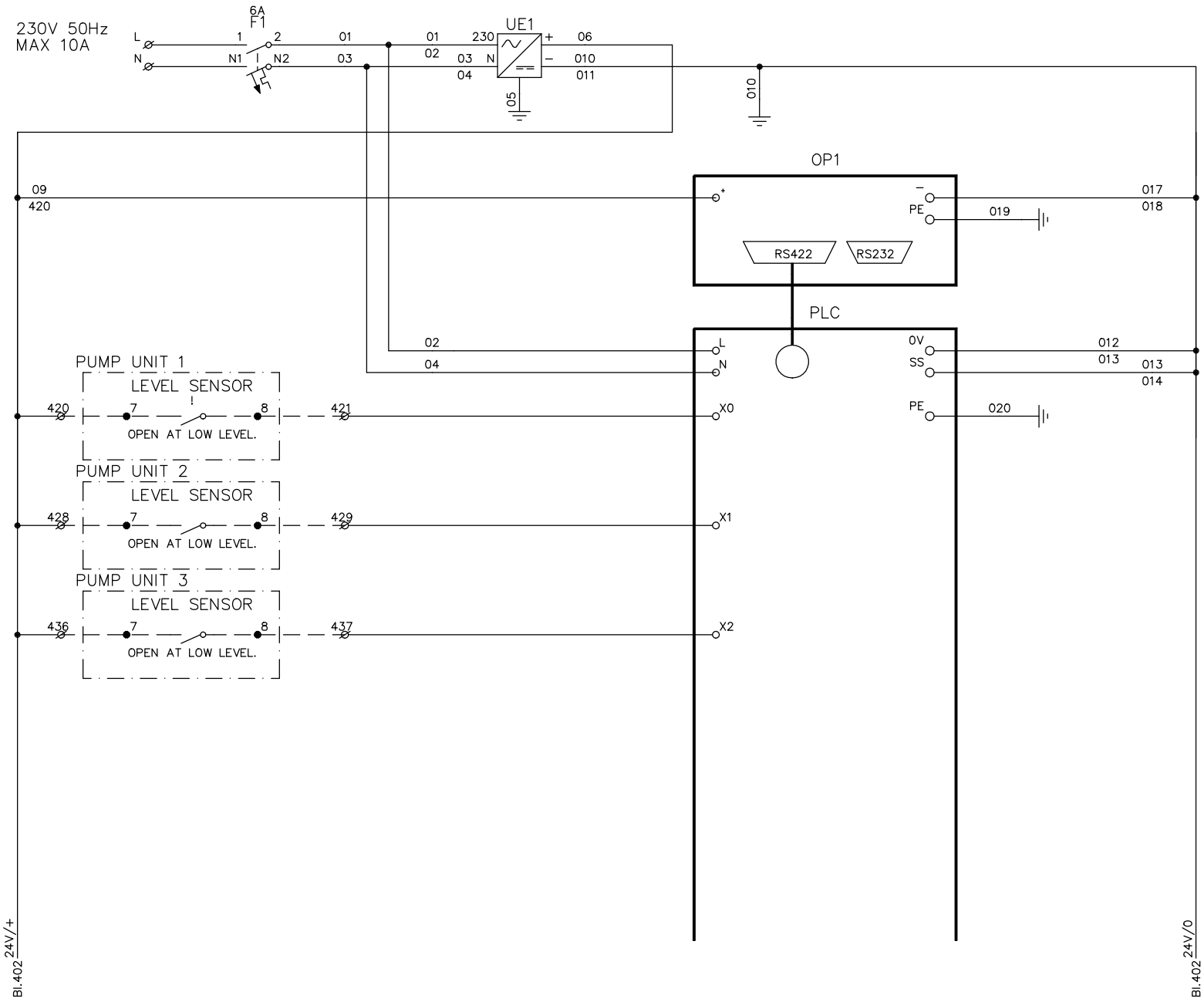
The connection of pump units, valves etc. is clear from attached wiring diagram.



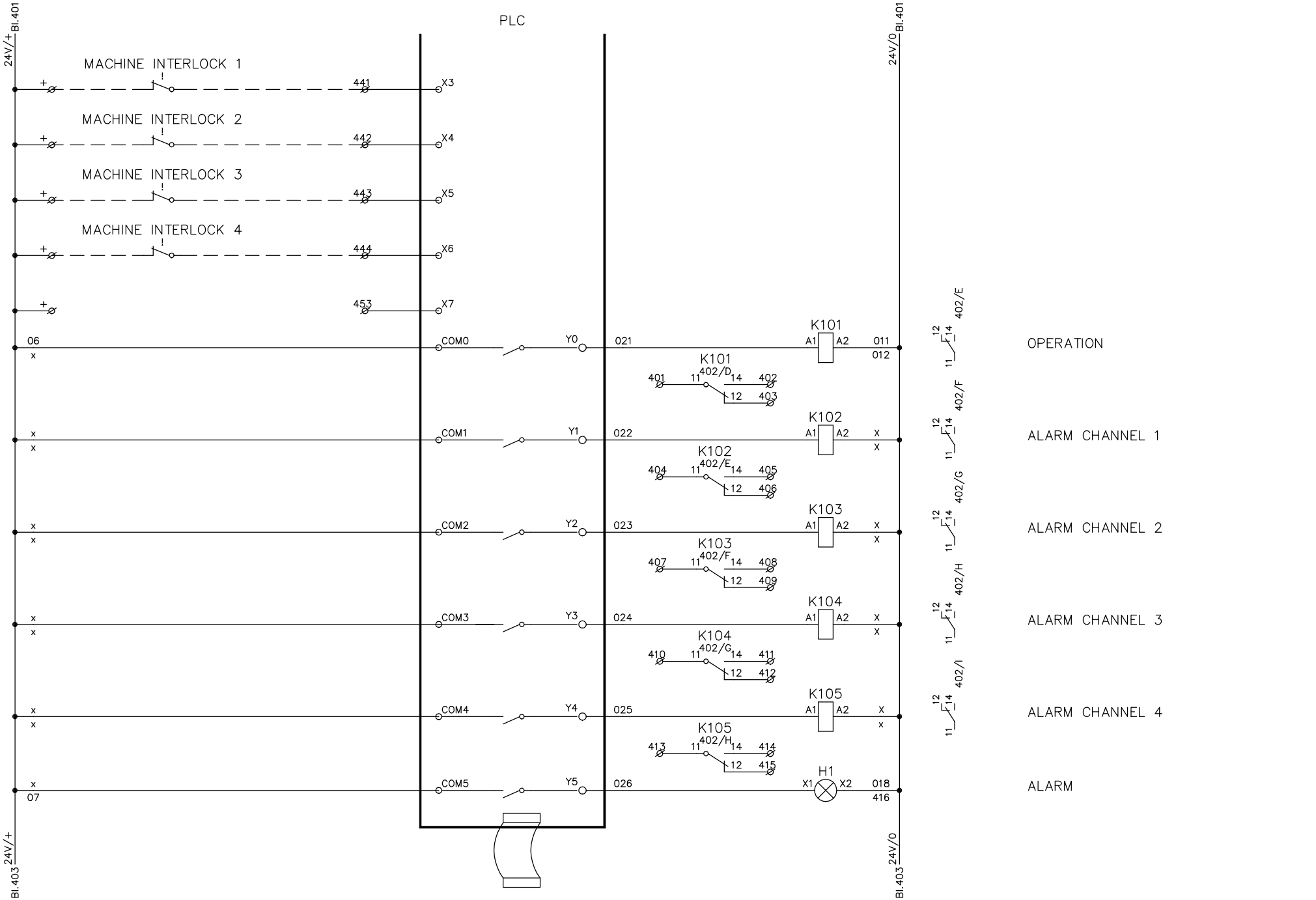


Nr.	Pos.	Name	Type	Data	Manufact.
1		BOX	NSYS3D4620P		SCHNEIDER ELECTRIC
1		MOUNTING LUG	NSYAEFPFSC		SCHNEIDER ELECTRIC
1	F1	CIRCUIT BREAKER	A9N21555	DPN C6A	SCHNEIDER ELECTRIC
1	H1	LAMP	XB4–BVB4		SCHNEIDER ELECTRIC
1	UE1	TRANSFORMER	SPD 241201		CARLO GAVAZZI
1		COVER	L24 2	E2539789	FIBOX/AHLSELL
1		TE–BAR	Cu 3x10mm	20–CONN	AHLSELL
1		PE–BAR	20 990 60		MALMBERGS
1	OP1	DISPLAY	GS2107–WTBD		MITSUBISHI
1		CABLE	GT01–C10R4–8P		MITSUBISHI
1	PLC	PLC	FX3G–14MR–ES/UL	8 DI /6 DO RELAY	MITSUBISHI
1	EXP1	DIGITAL EXP.MODULE	FX2N–8EX–ES/UL	8 DI	MITSUBISHI
1	EXP2	DIGITAL EXP.MODULE	FX2N–16EYR–ES/UL	16 DO RELAY	MITSUBISHI
1	EXP3	ANALOG EXP.MODULE	FX2N–8AD	8 AI	MITSUBISHI
5	K101–K105	RELAY + SOCKET	C10 A10 X24D + S10	24Vdc	RELECO
2	L1,N	TERMINAL	M4/6		ENTRELEC
1	PE	PE–TERMINAL	M4/6 P		ENTRELEC
40	401–440	TERMINAL	MA2,5/5		ENTRELEC
4	441, 460, 461, 470	TERMINAL	D2,5/6 DA		ENTRELEC
26	442–459, 462–469	TERMINAL	D2,5/6 D		ENTRELEC
1		CONNECTION	17803225	10–CONN	ENTRELEC
1		CONNECTION	17803326	20–?CONN	ENTRELEC
1		FLANGE	FL2133		ELKAPSLING

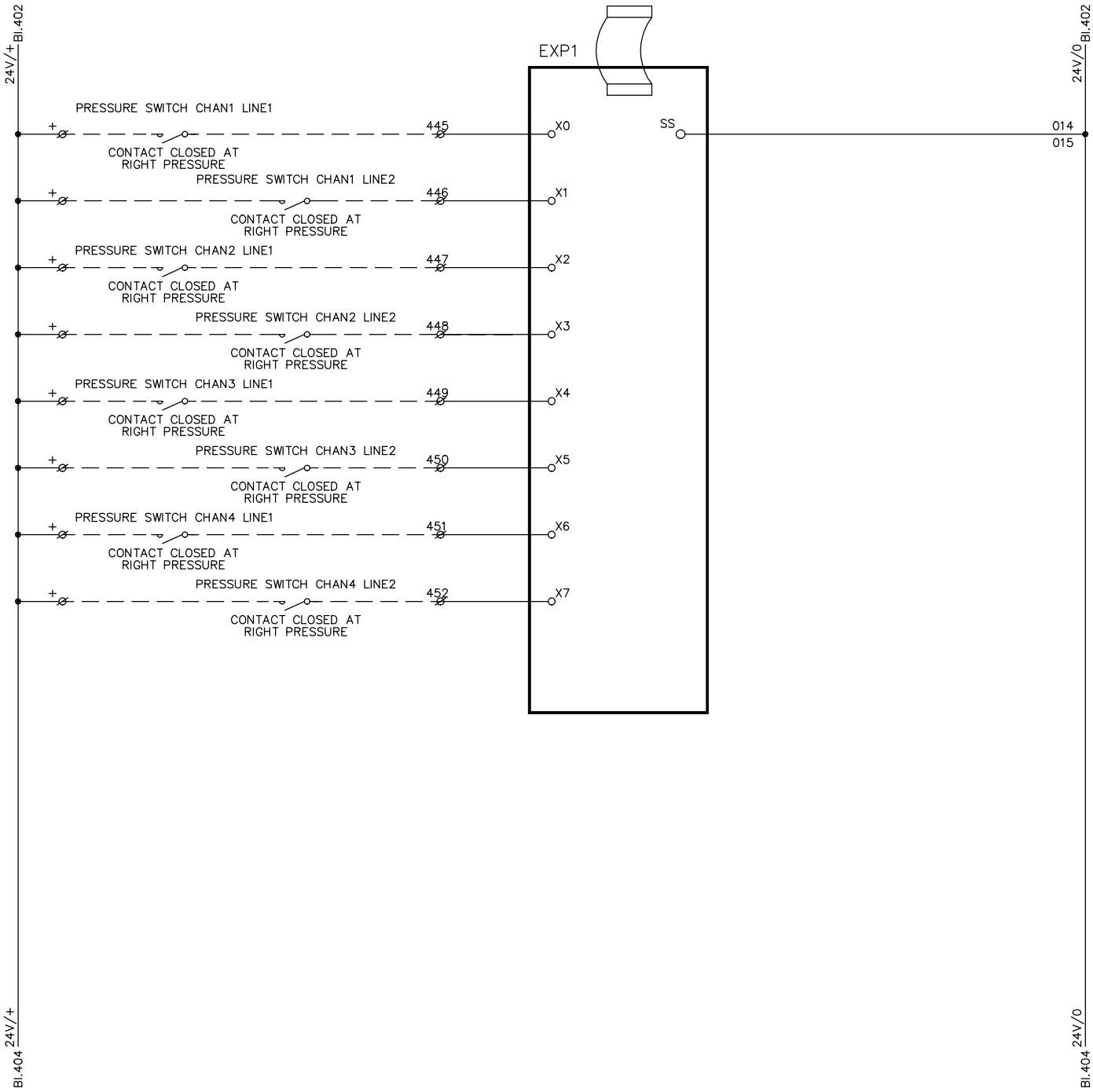
	Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 201
	Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 401
	Ritad av:		907447	Kundens referens SCXXX	Rev. –
	Datum: 151110		Layout / Component Specification		



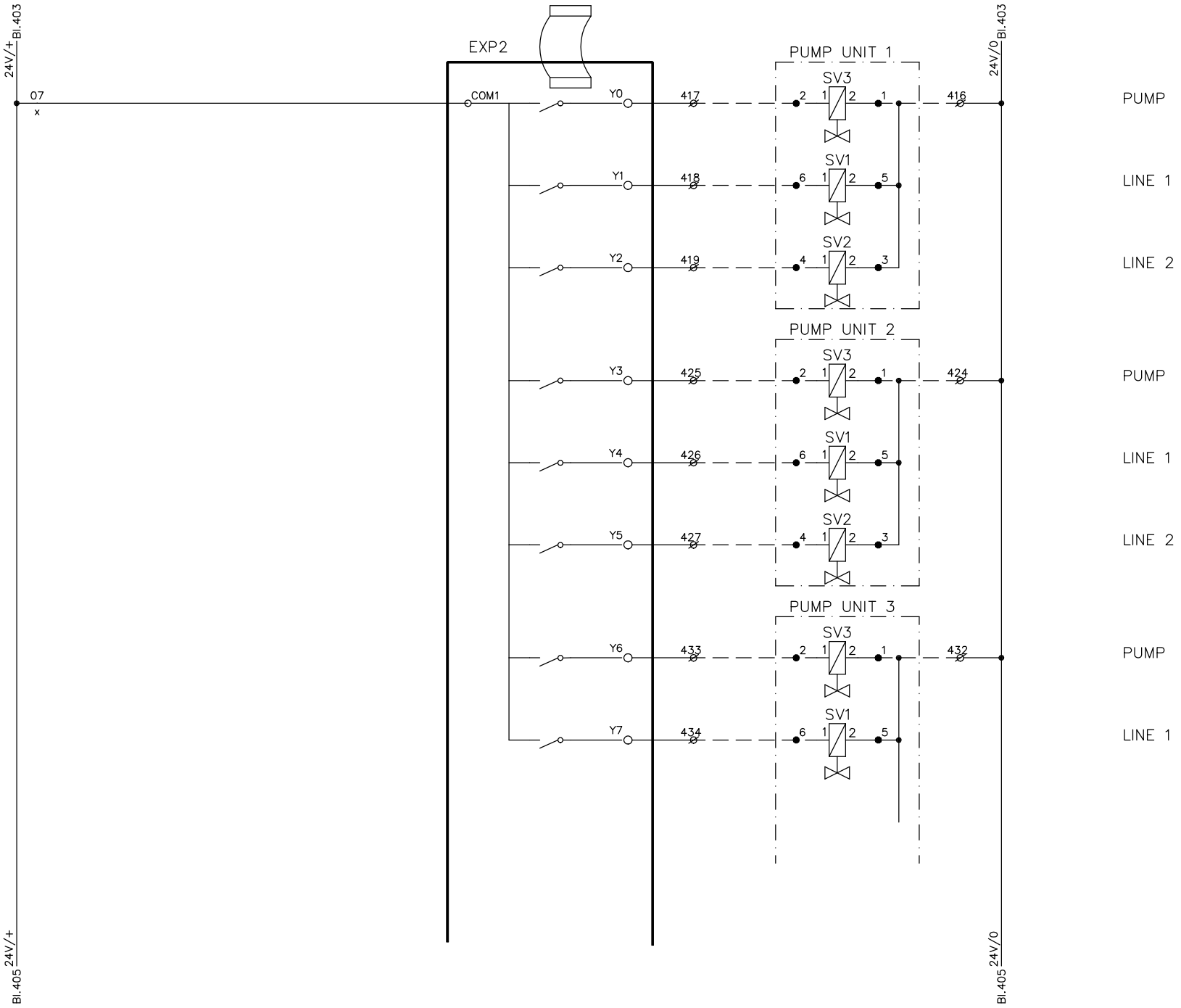
	Filnamn: 15780–01 Konstr. av: JeÅ Ritad av: Datum: 151110	ASSALUB	Control Cabinet CC4 MKII 907447 Circuit Diagram	Proj.nr 15780 Ritn nr 15780–01 Kundens referens SCXXX	Blad nr 401 Forts. 402 Rev. –



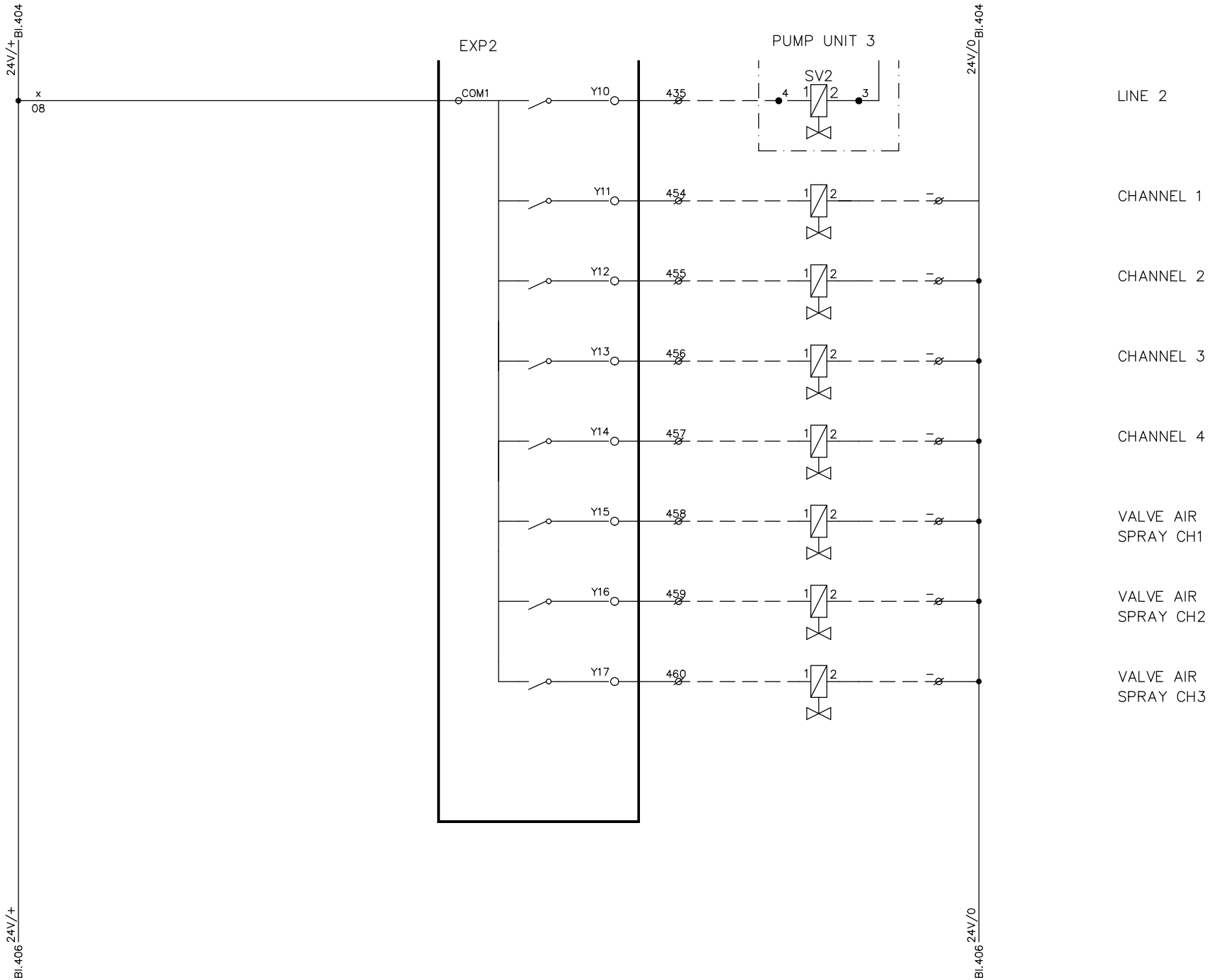
Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 402
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 403
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Circuit Diagram		



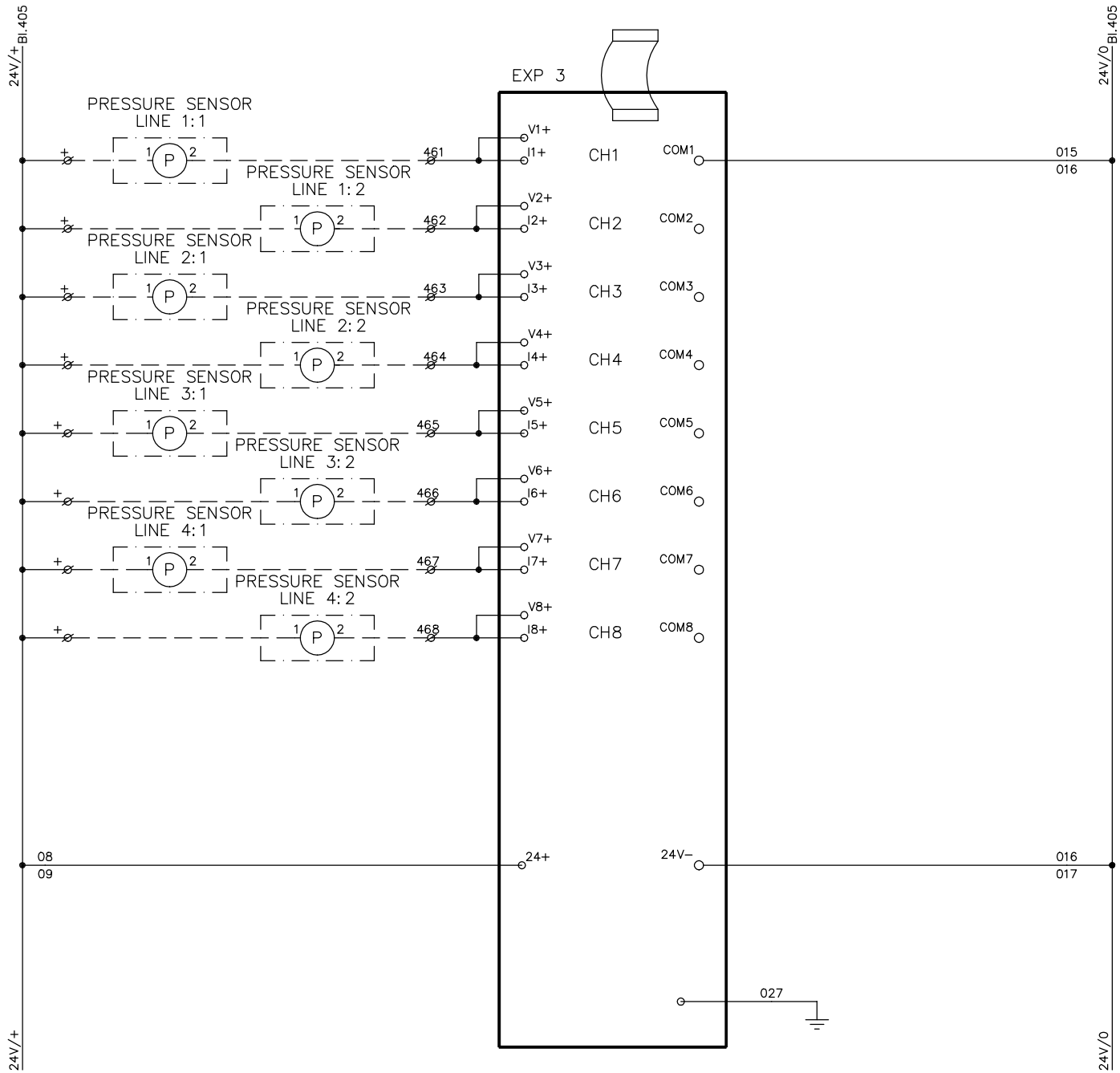
	Filnamn: 15780–01 Konstr. av: JeÅ Ritad av: Datum: 151110	ASSALUB	Control Cabinet CC4 MKII 907447 Circuit Diagram	Proj.nr 15780 Ritn nr 15780–01 Kundens referens SCXXX	Blad nr 403 Forts. 404 Rev. –



Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 404
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 405
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Circuit Diagram		



Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 405
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 406
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Circuit Diagram		



Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 406
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 501
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Circuit Diagram		

	KABEL				APPARATSK?P		LEDN.–	ANSLUTNINGSPUNKT A			LEDN.–	ANSLUTNINGSPUNKT B		ANMŽRKNING	Ž
A	Ledning	Kabel nr	Part nr	Hänv.	Plint nr	Hänv.	VŽG	Apparat	Uttag	Hänv.	VŽG	Apparat	Uttag		
	–S 3–CONN		1		L1			POWER SUPPPLY						230V 50Hz	
			2		N									MAX 10A	
B			3		J										
	–U 2–CONN		1		401			OPERATION						COMMON	
			2		402									NC	
C					403									NO	
	–U 2–CONN		1		404			ALARM CHANNEL 1						COMMON	
			2		405									NO	
					406									NC	
D	–U 2–CONN		1		407			ALARM CHANNEL 2						COMMON	
			2		408									NO	
					409									NC	
E	–U 2–CONN		1		410			ALARM CHANNEL 3						COMMON	
			2		411									NO	
					412									NC	
F	–U 2–CONN		1		413			ALARM CHANNEL 4						COMMON	
			2		414									NO	
					415									NC	
	–U 8–CONN		1		416			PUMP UNIT 1	1,3,5					COMMON. 0V	
			2		417				2					SV3 PUMP	
			3		418				6					SV1 LINE 1	
G			4		419				4					SV2 LINE 2	
			5		420				7					LEVEL SWITCH	
			6		421				8					”–	
			7		422										
			8		423										
H	–U 8–CONN		1		424			PUMP UNIT 2	1,3,5					COMMON. 0V	
			2		425				2					SV3 PUMP	
			3		426				6					SV1 LINE 1	
			4		427				4					SV2 LINE 2	
I			5		428				7					LEVEL SWITCH	
			6		429				8					”–	
			7		430										
			8		431										
J															

Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 501
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 502
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Wiring Diagram		

	KABEL				APPARATSK?P		LEDN.–	ANSLUTNINGSPUNKT A			LEDN.–	ANSLUTNINGSPUNKT B		ANMŽRKNING	Ž
A	Ledning	Kabel nr	Part nr	Hänv.	Plint nr	Hänv.	VŽG	Apparat	Uttag	Hänv.	VŽG	Apparat	Uttag		
	–U 8–CONN		1		432			PUMP UNIT 3	1,3,5					COMMON. 0V	
B			2		433				2					SV3 PUMP	
			3		434				6					SV1 LINE 1	
			4		435				4					SV2 LINE 2	
			5		436				7					LEVEL SWITCH	
			6		437				8					”–	
C			7		438										
			8		439										
					440										
D	–U 2–CONN		1		+			MACHINE INTERLOCK	C					*1 Nc or No	
					–			CHANNEL 1						are selectable	
			2		441				*1					in operation panel.	
E	–U 2–CONN		1		+			MACHINE INTERLOCK	C						
					–			CHANNEL 2							
			2		442				*1						
	–U 2–CONN		1		+			MACHINE INTERLOCK	C						
F					–			CHANNEL 3							
			2		443				*1						
	–U 2–CONN		1		+			MACHINE INTERLOCK	C						
					–			CHANNEL 4							
G			2		444				*1						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
					–			CHANNNEL 1 LINE 1						PRESSURE	
			2		445				NO						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
H					–			CHANNNEL 1 LINE 2						PRESSURE	
			2		446				NO						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
					–			CHANNNEL 2 LINE 1						PRESSURE	
I			2		447				NO						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
					–			CHANNNEL 2 LINE 2						PRESSURE	
			2		448				NO						
J															
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
					–			CHANNNEL 3 LINE 1						PRESSURE	
			2		449				NO						

Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 502
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 503
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Wiring Diagram		

	KABEL				APPARATSK?P		LEDN.–	ANSLUTNINGSPUNKT A			LEDN.–	ANSLUTNINGSPUNKT B		ANMŽRKNING	Ž
A	Ledning	Kabel nr	Part nr	Hänv.	Plint nr	Hänv.	VŽG	Apparat	Uttag	Hänv.	VŽG	Apparat	Uttag		
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
B					–			CHANNNEL 3 LINE 2						PRESSURE	
			2		450				NO						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
C					–			CHANNNEL 4 LINE 1						PRESSURE	
			2		451				NO						
	–U 2–CONN		1		+			PRESSURE SWITCH	C					CLOSED AT RIGHT	
					–			CHANNNEL 4 LINE 2						PRESSURE	
D			2		452				NO						
					+										
					–										
					453										
					+										
E	–U 2–CONN		1		–			VALVE CHANNEL 1	–					COMM. 0V	
			2		454				+						
					+										
F	–U 2–CONN		1		–			VALVE CHANNEL 2	–						
			2		455				+					COMM. 0V	
					+										
G	–U 2–CONN		1		–			VALVE CHANNEL 3	–						
			2		456				+					COMM. 0V	
					+										
	–U 2–CONN		1		–			VALVE CHANNEL 4	–						
H			2		457				+					COMM. 0V	
					+										
	–U 2–CONN		1		–			VALVE AIR SPRAY CH1	–						
			2		458				+						
I					+										
	–U 2–CONN		1		–			VALVE AIR SPRAY CH2	–						
			2		459				+						
					+										
J	–U 2–CONN		1		–			VALVE AIR SPRAY CH3	–						
			2		460				+						

Filnamn: 15780–01	ASSALUB	Control Cabinet	Proj.nr 15780	Blad nr 503
Konstr. av: JeÅ		CC4 MKII	Ritn nr 15780–01	Forts. 504
Ritad av:		907447	Kundens referens SCXXX	Rev. –
Datum: 151110		Wiring Diagram		

	KABEL				APPARATSK?P		LEDN.–	ANSLUTNINGSPUNKT A			LEDN.–	ANSLUTNINGSPUNKT B		ANMŽRKNING	Ž
	Ledning	Kabel nr	Part nr	Hänv.	Plint nr	Hänv.	VŽG	Apparat	Uttag	Hänv.	VŽG	Apparat	Uttag		
A	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 1 LINE 1							
			2		461					BLUE				SIGN. 4–20mA	
B															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 2 LINE 1							
			2		462					BLUE				SIGN. 4–20mA	
C															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 1 LINE 2							
			2		463					BLUE				SIGN. 4–20mA	
D															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 2 LINE 2							
			2		464					BLUE				SIGN. 4–20mA	
E															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 1 LINE 3							
			2		465					BLUE				SIGN. 4–20mA	
F															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 2 LINE 3							
			2		466					BLUE				SIGN. 4–20mA	
G															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 1 LINE 4							
			2		467					BLUE				SIGN. 4–20mA	
H															
	–U 2–CONN		1		+			PRESSURE SENSOR		BROWN				COMM. 24V+	
	SHIELDED				–			CHANNEL 2 LINE 4							
			2		468					BLUE				SIGN. 4–20mA	
I															
					+										
					–										
					469										
J															
					+										
					–										
					470										

Filnamn: 15780–01
Konstr. av: JeÅ
Ritad av:
Datum: 151110

ASSALUB

Control Cabinet
CC4 MKII
907447
Wiring Diagram

Proj.nr	Blad nr
15780	504
Ritn nr	Forts.
15780–01	–
Kundens referens	Rev.
SCXXX	–