

UNIPLUS (from 2019)

CAN-BUS OPERATING INSTRUCTIONS

SYSTEM DESCRIPTION	2.1
MAIN DISPLAY SCREEN	2.2
SYSTEM DIAGNOSTIC MENU	2.6
SETTING AND OPERATING INSTRUCTIONS	2.10
TO SET DEFAULT PARAMETERS	2.10
TO SET DEFAULT VALUES	2.10
PARAMETERS WITH DIRECT ACCESS	2.11
TO FLASH (LOAD) THE PROGRAMME	2.11
MODULE CONNECTIONS AND WIRE IDENTIFICATION	2.12
LIMITING AND OVERRIDING DEFAULT VALUES	2.15
CHANNEL 3 DEFAULT SCREENS	2.15
AUTO-DEPTH SETTINGS	2.16

SYSTEM DESCRIPTION

The electro-hydraulic control system used on the UNIPLUS from 2019 is a CAN-Bus system where all the control signals are carried by one pair of wires. The 12 Volt, 30 Amp power supply is taken directly from the tractor battery to the machine fuses, as the in-cab power plugs on some tractors may not be capable of supplying an adequate amperage. Additional wires are used to power the control box and an auxiliary power supply.

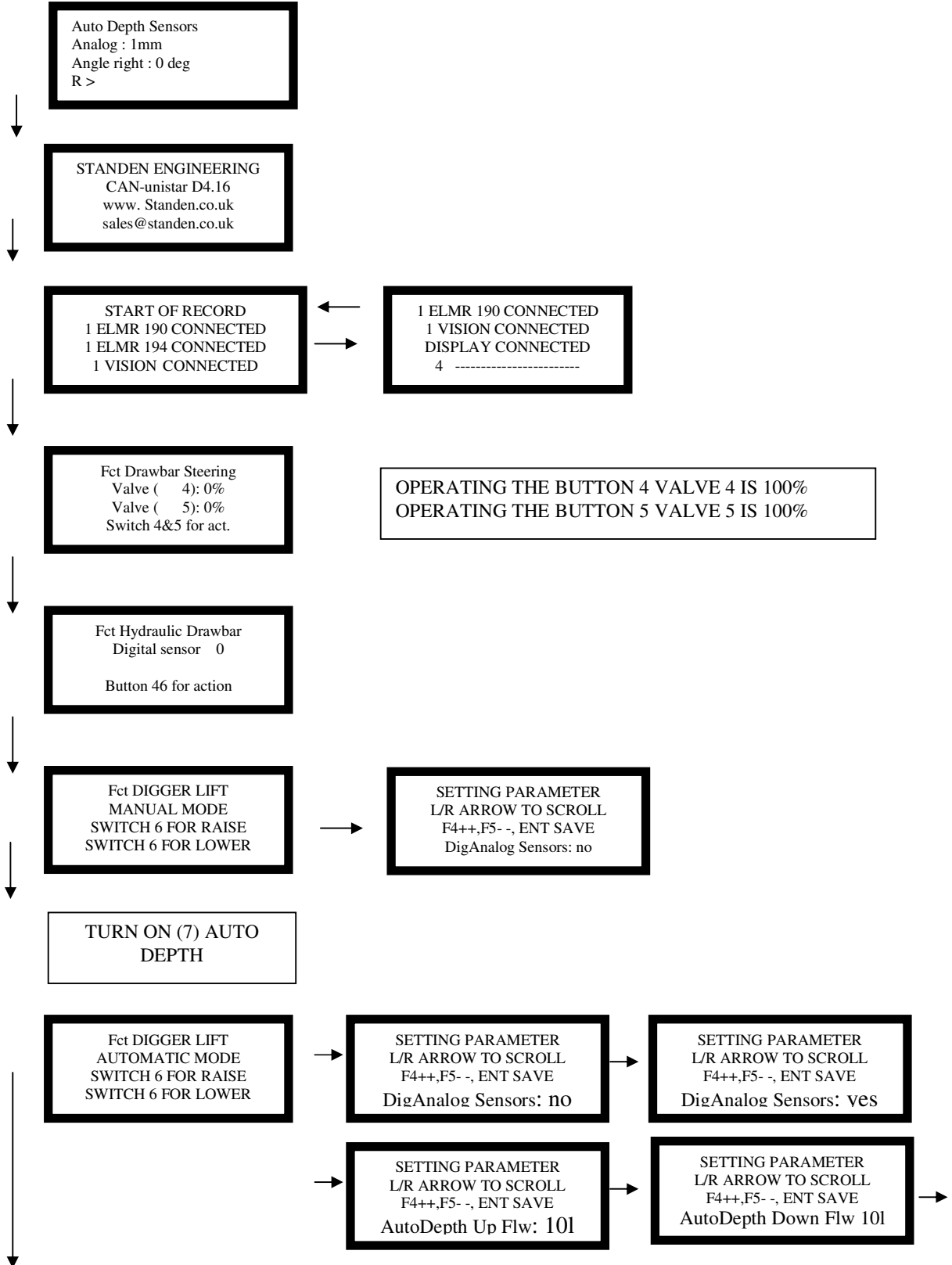
The system comprises of the control fascia which is connected to the input circuit board. Also in the control box is the service terminal that displays an overall illustration of the system and allows access to select and set operating parameters. The terminal display additionally gives access to a system diagnostic menu which will allow the status of each function to be displayed.

On the machine, the power and control wires are taken onto a distribution board which allows the connection of the various control sensors and the fuses which cover all the power outputs. From the distribution board the master processor and slave modules are connected into the wiring loom which connects all the individual valves.

The switching installed on the control panel is designed to cover all build options. Therefore, depending on the specification of the machine, some functions will not be active.

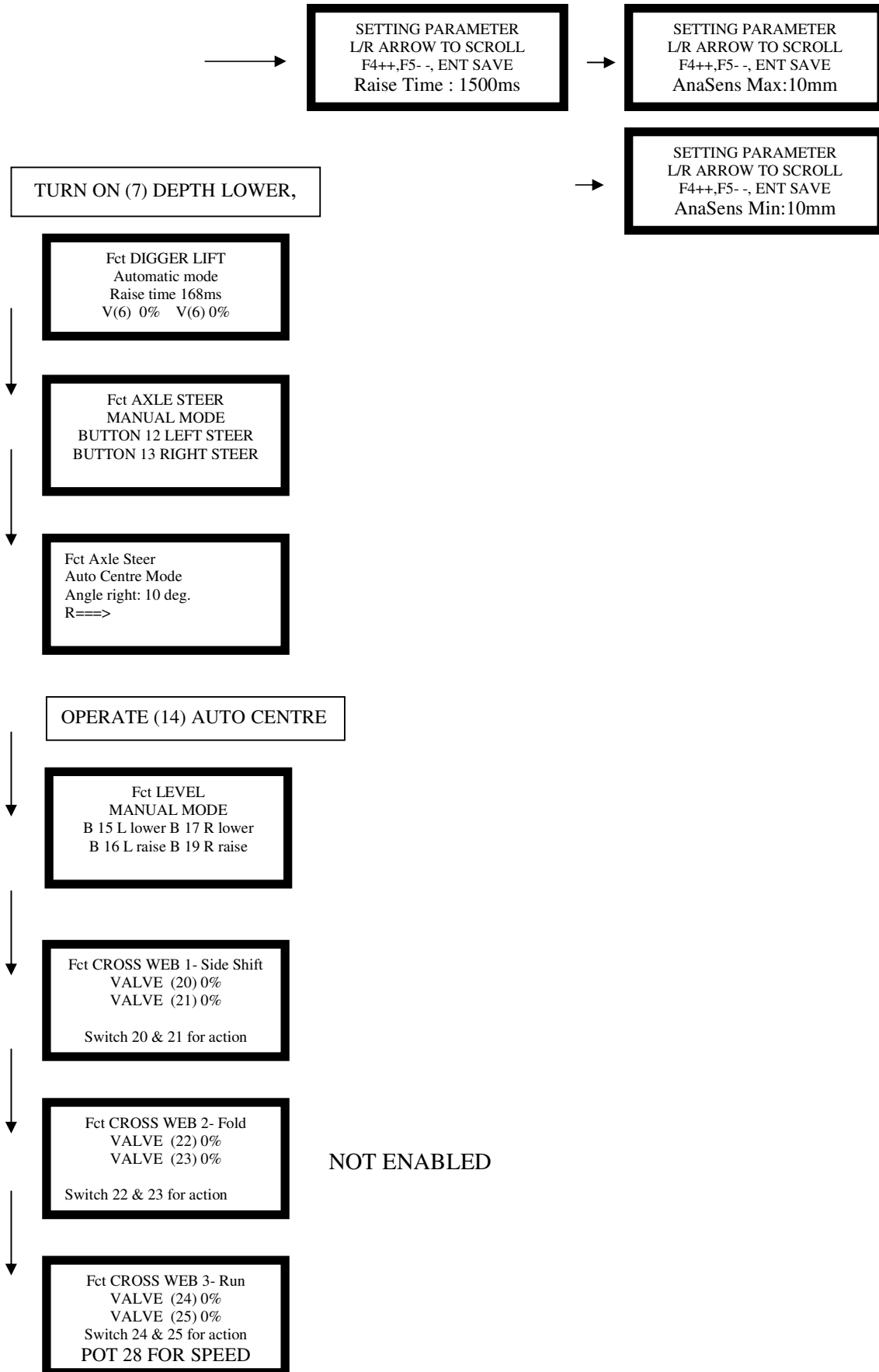
THE MAIN DISPLAY SCREEN

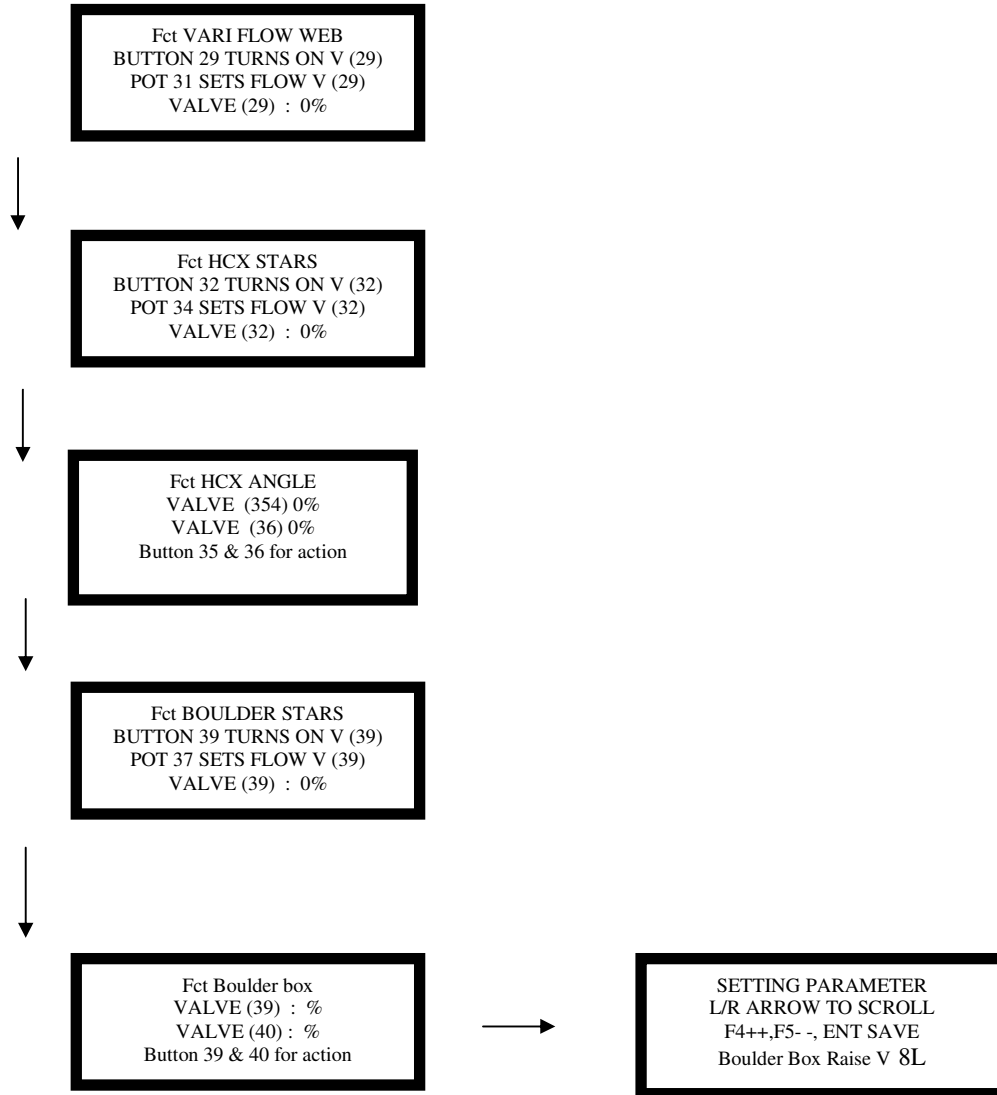
The display screen on the control panel service terminal allows the machine to be set for operating with the possible build options and to set various parameters to suit the operator.



2.3

CAN-BUS OPERATING INSTRUCTIONS





2.5

CAN-BUS OPERATING INSTRUCTIONS

TEACH IN Auto Start
F4 : START RECORDING
F5 : STOP RECORDING
ESC : Cancel Recording

NOT ENABLED



TEACH IN Auto Stop
F4 : START RECORDING
F5 : STOP RECORDING
ESC : Cancel Recording

NOT ENABLED



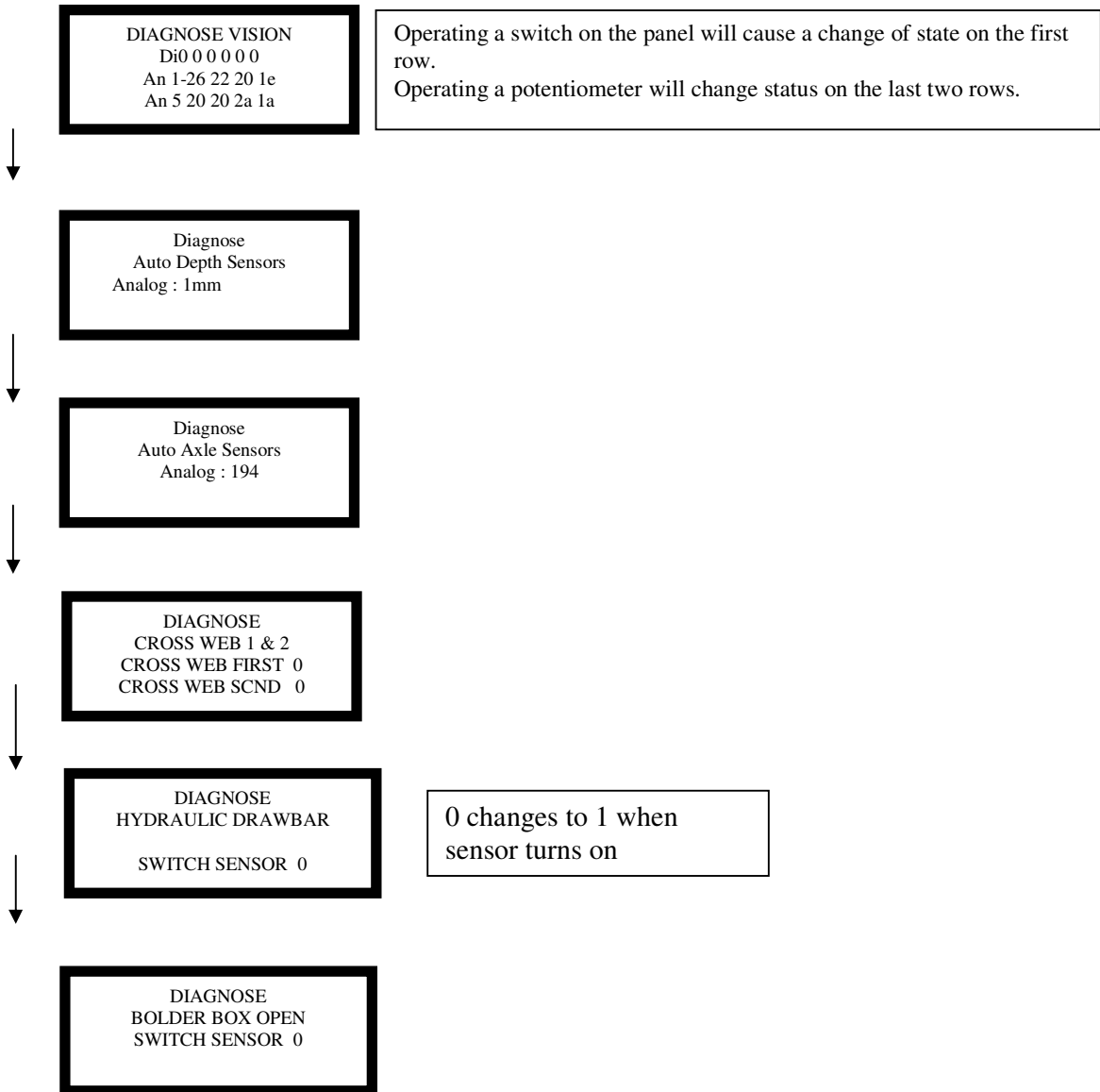
STANDEN ENGINEERING
CAN-unistar D4.16
www.Standen.co.uk
sales@standen.co.uk

THE SYSTEM DIAGNOSTIC MENU

The display screen on the control panel service terminal allows you to view and investigate each input and output to check for faults in the control system.

To access the diagnostic channel, press F3 + F2.

The screens displayed are as follows.



2.7

CAN-BUS OPERATING INSTRUCTIONS

```
CH1 VALVE = 0
***_-----***
***_-----***
OUTPUT I = 0.0A
```



```
CH2 VALVE = 0
***_-----***
***_-----***
OUTPUT I = 0.0A
```



```
CH3 VALVE = 0
***_-----***
***_-----***
OUTPUT I = 0.0A
```



```
CH4 VALVE = 0
***_-----***
***_-----***
OUTPUT I = 0.0A
```



```
CH5 VALVE = 0
***_-----***
***_-----***
OUTPUT I = 0.0A
```



```
CH6 VALVE = 0
***_-----***
***_-----***
OUTPUT V = 0.0V
```



```
CH7 VALVE = 0
***_-----***
***_-----***
OUTPUT V = 0.0V
```



```
CH8 VALVE = 0
***_-----***
***_-----***
OUTPUT V = 0.0V
```



```
CH9 VALVE = 0
***_-----***
***_-----***
OUTPUT V = 0.0V
```



```
CH10 VALVE = 0
***_-----***
***_-----***
OUTPUT V = 0.0V
```

CH1 = STONE ELEVATOR
Operating the channel shows the current in the coil

CH2 = STONE ELEVATOR
Operating the channel shows the current in the coil

CH3 = DIGGER SHARE RAISE
Operating the channel shows the current in the coil

CH4 = DIGGER SHARE LOWER
Operating the channel shows the current in the coil

CH5 = AXLE STEER
Operating the channel shows the current in the coil

CH6 = AXLE STEER
Operating the channel shows the voltage in the coil

CH7 = CROSS WEB SIDE SHIFT LEFT
Operating the channel shows the voltage in the coil

CH8 = CROSS WEB SIDE SHIFT RIGHT
Operating the channel shows the voltage in the coil

CH9 = DIGGER CHECK
Operating the channel shows the voltage in the coil

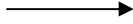
CH10 = AXLE LEVEL LEFT LOWER
Operating the channel shows the voltage in the coil

<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH11 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT V = 0.0V</p> </div>	<p>CH11 = AXLE LEVEL RIGHT LOWER Operating the channel shows the voltage in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH12 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT V = 0.0V</p> </div>	<p>CH12 = BOULDER BOX LOWER Operating the channel shows the voltage in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH13 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH13 = CROSS WEB RUN LEFT Operating the channel shows the current in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH14 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH14 = CROSS WEB RUN RIGHT Operating the channel shows the current in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH15 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH15 = VARI FLOW Operating the channel shows the current in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH16 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH16 =</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH17 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH17 = UNDERWEB AGITATOR Operating the channel shows the current in the coil</p>
<p>→</p> <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>CH18 VALVE = 0 ***- - - - -*** ***- - - - -*** OUTPUT I = 0.0A</p> </div>	<p>CH18 = BOULDER BOX RAISE Operating the channel shows the current in the coil</p>
<p>→</p>	

2.9

CAN-BUS OPERATING INSTRUCTIONS

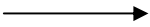
```
CH19 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```



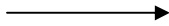
```
CH20 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```



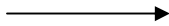
```
CH21 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```



```
CH22 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```



```
CH23 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```



```
CH24 VALVE = 0
***_-----***
***_-----***
OUTPUT I= 0.0A
```

CH19 = STONE ELEVATOR DIVERTER VALVE
Operating the channel shows the current in the coil

CH20 = CROSS ELEVATOR DIVERTER VALVE
Operating the channel shows the current in the coil

CH21 = DRAPER WEB RAISE
Operating the channel shows the current in the coil

CH22 = DRAPER WEB LOWER
Operating the channel shows the current in the coil

CH23 = AXLE LEVEL LEFT RAISE.
Operating the channel shows the current in the coil

CH24 = AXLE LEVEL RIGHT RAISE.
Operating the channel shows the current in the coil

Exit menu display by F3 + F2.

SETTING AND OPERATING INSTRUCTIONS

In the event of a fault occurring which requires the main processor module to be replaced, or if the version of the operating software is upgraded or reloaded, then it is necessary to reset the default parameters of the system. After resetting the defaults the parameters can be reset to suit the operating requirements.

TO SET DEFAULT PARAMETERS

Turn on the system.

On the service terminal display enter by pressing F1 + OK.

Step down through the levels with the Down arrow to STORE DEFAULT GENERAL.

Using F4 & F5, set the password to 6 then press OK.

Exiting the level with F1 + OK sets the defaults.

Again enter the display with F1 + OK.

Step down through the levels with the Down arrow to STORE DEFAULT CHANNEL.

Set the password to 6 then press OK.

Exiting the level with F1 + OK sets the defaults.

Turn off the system.

Turn on the system and check and reset the system parameters to suit the machine by scrolling through the display screen on the control box using the down arrow and the left / right arrows to select options as shown on the parameter list.

SET DEFAULT VALUES

These values are all adjustable from the main display screens. Follow the instructions on the screen using F4 to increase values, and F5 to decrease values. Revised values must be saved with the OK key to be effective.

When the OK button is pressed and the four lights above the display screen flash on, the revised parameter value shown on the screen is saved as the working value.

PARAMETERS WITH DIRECT ACCESS

The preset values will need to be varied to suit the operation of each machine. Before revising programmes or resetting defaults, note any variations to allow them to be re-entered.

1	PAR1	AnalogDigger Digger Analog: Value = 1 Onion Gate: Value = 2 Cleaner Analog: Value = 4
2	PAR2	AutoDpthUpFlw: Auto Depth Raise Flow Valve [ltr]
3	PAR3	AutoDpthDwFlw Auto Depth Lower Flow Valve [ltr]
4	PAR4	RaiseTime Raise Time [ms]
5	PAR5	AnaSensMax Analog Sensor Max Band [mm]
6	PAR6	AnaSensMin Analog Sensor Min Band [mm]
7	PAR7	BoulderBoxFlw Boulder Box Flow Valve [ltr]

TO FLASH (LOAD) THE PROGRAMME

With the control system connected together, turn of the system at the control box.

Remove the cover from the junction box and connect the P.C. to the CAN – CPC port on the distribution board.

Turn off the 'Flash switch' on the distribution board.

Turn on the system at the control box.

Select 'Flash with local ID on the P.C. screen.

When prompted on the screen turn on the 'Flash switch'

Wait for the programme to reload.

Turn off the system, disconnect the P.C., and replace the distribution box cover.

After loading the programme it is necessary to set the 'Default Parameters'.

MODULE CONNECTIONS AND WIRE IDENTIFICATION

The wiring connections and channel allocations for the system are listed in following tables.

The pin numbers refer to the multi-plug connections on the modules.

The cable numbers refer to the continuity numbers on the cables in the loom.

The output channel numbers for the 190 module relate to the identification numbers displayed on the Diagnostic screens.

Summary Table ELMR190

Pos	Channel.	Standen No & Function	Pin 190	Meaning	di v
1	CH1	4; Stone Elevator	46	ON/OFF1 (4A)	1
2	CH2	5; Stone Elevator	47	ON/OFF2 (4A)	1
3	CH3	Digger Share Raise	48	PROP 3 (4A)	3
4	CH4	Digger Share Lower	49	PROP 4 (4A)	3
5	CH5	12; Axle Steer	64	ON/OFF5 (4A)	1
6	CH6	13; Axle Steer	61	ON/OFF6 (4A)	1
7	CH7	20; first cross web left	62	ON/OFF6 (4A)	1
8	CH8	21; first cross web right	63	ON/OFF8 (4A)	1
9	CH9	Digger check	24	ON/OFF9 (2,5A)	1
10	CH10	15; axle level left lower	2	ON/OFF10 (2,5A)	1
11	CH11	17; axle level right lower	25	ON/OFF11 (2,5A)	1
12	CH12	41; boulder box	3	ON/OFF12 (2,5A)	1
13	CH13	24; thrd cross web left	42	PROP BB 1.1	3
14	CH14	25; thrd cross web right	20	PROP BB 1.2	3
15	CH15	29; vari flow web	43	PROP BB 1.3	3
16	CH16	32;	21	PROP BB 1.4	3
17	CH17	39; Underweb Agitators	44	PROP BB 1.5	3
18	CH18	40; boulder box	22	PROP BB 1.6	3
19	CH19	22; Stone Elevator	45	ON/OFF BB2.1	1
20	CH20	23; Cross Conveyor	11	ON/OFF BB2.2	1
21	CH21	35;	50	ON/OFF BB2.3	1
22	CH22	36;	51	ON/OFF BB2.4	1
23	CH23	16; axle level left raise	52	ON/OFF BB2.5	1
24	CH24	18; axle level right raise	10	ON/OFF BB2.6	1
25	DIN1	hydraulic drawbar	34	digital Input 1	
26	DIN2	digger share raise	12	digital Input 2	
27	DIN3	digger share lower	35	digital Input 3	
28	DIN4	axle steer left	13	digital Input 4	
29	DIN5	axle steer right	36	digital Input 5	
30	DIN6		14	digital Input 6	
31	DIN7		37	digital Input 7	
32	AIN1	Digger share	6	analogue input 1	

2.13

CAN-BUS OPERATING INSTRUCTIONS

	CABLE	CABLE	FUNCTION	OUTPUT	SENSOR	FASCIA	DIST.
PIN No.	COLOUR	No.		CHANNEL	INPUT	SWITCH	BOARD
1	BLUE	EARTH 1	FUSED EARTH				1
2	BLACK	2	AXLE LEVEL LEFT LOWER	CH 10		15	
3	BLACK	3	BOULDER BOX LOWER	CH 12		41	
4							
5							
6	PURPLE	6	DIGGER ANALOGUE SENSOR		AIN 1		107 / 29
7	PURPLE	7	STEERING SENSOR		AIN 3		
8							
9							
10	BLACK	10	AXLE LEVEL RIGHT RAISE	CH 24		18	
11	ORANGE	11	CROSS WEB DIVERter VALVE	CH 20		23	
12					DIN 2		35 / 8
13					DIN 4		22 / 36
14					DIN 6		31 / 37
15					DIN 8		
16					DIN 10		
17					DIN 12		
18					DIN 14		
19							
20	RED	20	CROSS WEB RUN RIGHT	CH 14		25	
21				CH 16		32	
22	RED	22	BOULDER BOX RAISE	CH 18		40	
23	BROWN	23	REFERANCE SUPPLY VOLTAGE 8.5V				23
24	BLACK	24	DIGGER CHECK	CH 9			[16]
25	BLACK	25	AXLE LEVEL RIGHT LOWER	CH 11		17	
26	BLUE	CAN LOW	CAN BUS SIGNAL				X1.6 / 2
27	RED	CAN HIGH	CAN BUS SIGNAL				X1.5 / 1
28	BROWN	POSITIVE	12VOLT FEED				28
29					AIN 2		
30							
31					AIN 6		
32							
33							
34	PURPLE	34	HYDRAULIC D.BAR SENSOR		DIN 1		40 / 18
35					DIN 3		13 / 9
36					DIN 5		23 / 14
37					DIN 7		25 / 30
38					DIN 9		
39					DIN 11		
40					DIN 13		
41					DIN 15		
42	RED	42	CROSS WEB RUN LEFT	CH 13		24	
43	RED	43	VARIFLOW WEB RUN	CH 15		29	
44	RED	44	UNDERWEB AGITATORS	CH 17		39	
45	ORANGE	45	STONE ELEVATOR DIVERter VALVE	CH 19			
46	BLACK	46	STONE ELEVATOR RAISE	CH 1			

CAN-BUS OPERATING INSTRUCTIONS

2.14

47	BLACK	47	STONE ELEVATOR LOWER	CH 2			
48	RED	48	DIGGER RAISE	CH 3		48	
49	RED	49	DIGGER LOWER	CH 4		49	
50	BLACK	50	DRAPER WEB RAISE	CH 21		35	
51	BLACK	51	DRAPER WEB LOWER	CH 22		36	
52	BLACK	52	AXLE LEVEL LEFT RAISE	CH 23		16	
53							
54	BROWN	POSITIVE	12VOLT FEED				54
55	BLUE	EARTH	0VOLT				55
56	BROWN	POSITIVE	12VOLT FEED				56
57	BROWN	POSITIVE	12VOLT FEED				57
58	BROWN	POSITIVE	12VOLT FEED				58
59	BROWN	POSITIVE	12VOLT FEED				59
60	BROWN	POSITIVE	12VOLT FEED				60
61	BLACK	61	AXLE STEER RIGHT	CH 6		13	
62	BLACK	62	CROSS WEB LEFT	CH 7		20	
63	BLACK	63	CROSS WEB RIGHT	CH 8		21	
64	BLACK	64	AXLE STEER LEFT	CH 5		12	
65	BLUE	EARTH	0VOLT				65
66	BLUE	EARTH	0VOLT				66
67	BLUE	EARTH	0VOLT				67
68	BLUE	EARTH	0VOLT				68

2.15

CAN-BUS OPERATING INSTRUCTIONS

LIMITING AND OVERRIDING DEFAULT VALUES

During operation it may be necessary to vary defaulted parameters, for example, to limit the maximum speed of a motor circuit. To be able to select the relevant channel it is necessary to refer to the list of functions to find the allocated channel number.

On the service terminal display enter by pressing F1 + OK.

Step down through the levels with the Down arrow to level 3.

Using F4 & F5, set the password to 6 then press OK.

Select the required channel with the left / right arrows.

Scroll to the parameter with the up/down arrows.

e.g. (the maximum, and minimum coil current limits are shown as follows;

Imin = 750Ma (minimum coil current)

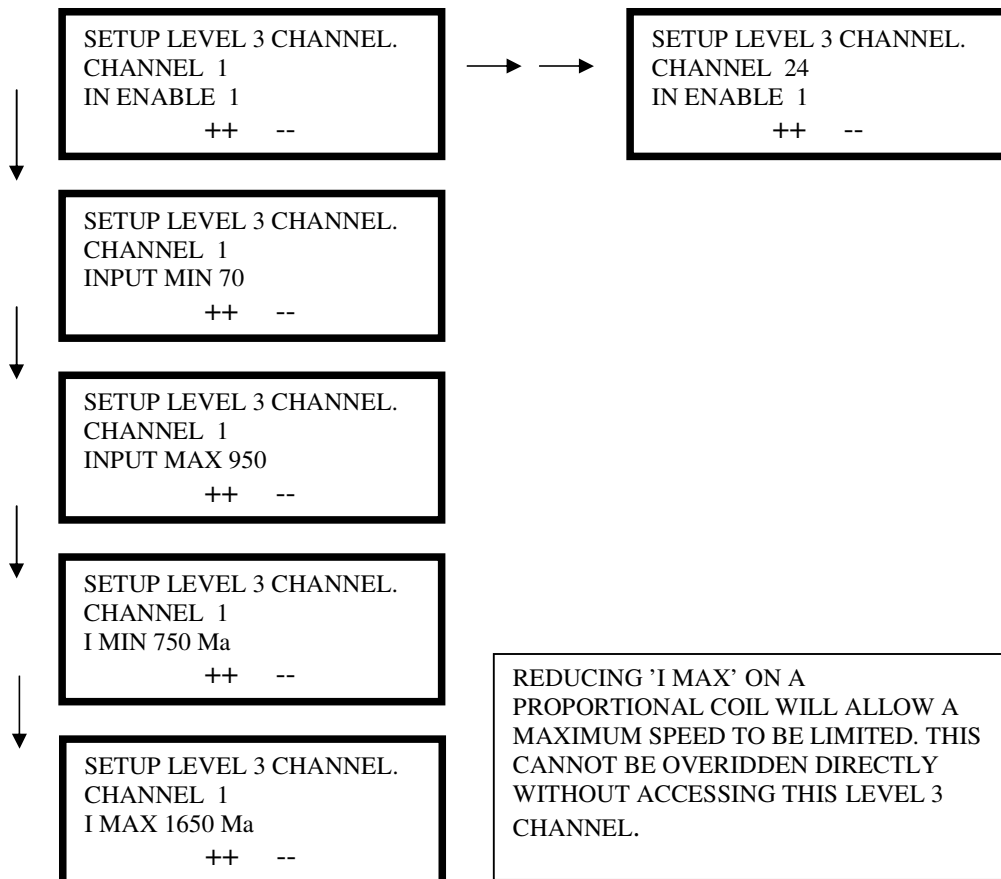
Imax = 1650Ma (maximum coil current)

If these values are altered press OK to save the revised value.

Pressing ESC exits without saving changes.

Exiting the level with F1 + OK sets the defaults.

CHANNEL 3 DEFAULT SCREENS



AUTO-DEPTH SETTINGS

<u>Action</u>	<u>Display</u>	<u>Information</u>	<u>Adjustment Available</u>
Switch on	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Auto Depth Sensors Analog: 0mm Analog left: 50 deg ←----- </div>		
Press Down Arrow 5 times	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Fct DIGGER LIFT MANUAL MODE Switch 6 For Raise and Lower </div>		
Switch on the Auto Digger (including the toggle switch down)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Fct DIGGER LIFT AUTOMATIC MODE L: 49.8mm R: 49.8mm V3 0% V4.9 33% 100% </div>	Auto digger depth sensor settings. L:49.8mm is the position of the depth sensor. This will vary between 0 & 100. Valve 3 is the raise (wire 48) & Valve 4.9 are the lower valves (wires 24 & 49).The figure shown is dependant on the flow setting.	
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE DigAnalog Sensors:Yes </div>	This is the type of pressure switch being used for the automatic Depth. 'Yes' = Digital analog sensor which can be set and adjusted from the control box. 'No' = normal proximity sensors which have to be adjusted manually.	Press 'F4' or 'F5' to adjust from 'yes' to 'no'. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE AutoDepth UP Flw: 30l </div>	This is the raise speed of the share ram in auto depth. 30 litres.	Press 'F4' or 'F5' to adjust this flow. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE AutoDepth DwFlw: 30l </div>	This is the lower speed of the share ram in auto depth. 30 litres.	Press 'F4' or 'F5' to adjust this flow. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE Raise Time: 500ms </div>	Time delay from when the sensor has an up signal to the point the ram will raise. 500 milliseconds.	Press 'F4' or 'F5' to adjust this Time. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE AnaSensMax: 4mm </div>	Distance the sensor has to move Up before it has a signal. Add this to the Min figure to give the total deadband.	Press 'F4' or 'F5' to adjust this measurement. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved
Press Right arrow once	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SETTING PARAMETER L/R ARROW TO SCROLL F4++,F5--,ENT SAVE AnaSensMin: 4mm </div>	Distance the sensor has to move Down before it has a signal. Add this to the Max figure to give the total deadband.	Press 'F4' or 'F5' to adjust this measurement. Press 'Enter' to save the new settings The 4 lights along the top will flash to confirm it is saved