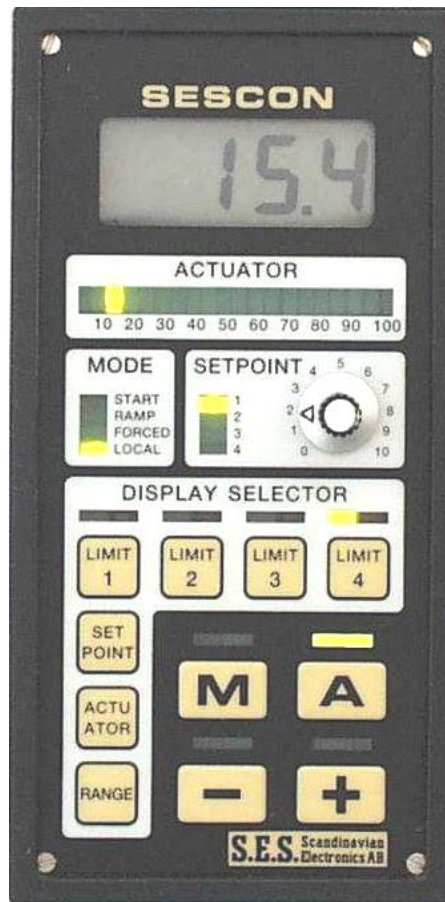




SESCON II CONTROLLER

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SESCON

THE COMPLETE PROGRAMMABLE PID CONTROLLER

- Easy and safe to operate and install
- Complete control functions.
- Complete remote operation possibilities.
- Designed to meet with the environmental stresses of ships and heavy industry.
- Specially well suited for combustion control systems

Outstanding as feed water and steam pressure controller

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SESCON MANUAL CONTENTS

DESCRIPTION:	Features
SPECIFICATION:	Technical data
ORDERING INFORMATION:	Type No./Function
PANEL FUNCTIONS:	Panel layout with text
ADJUSTMENTS:	Panel and side view
INSTALLATION:	Panel cut out, cables mounting, external wiring
REPLACEMENT OF CONTROLLER	
SESCON 1 TO SESCOON 2 REPLACEMENT INSTRUCTION	Rewiring (when necessary), equivalence list

The SESCOON programmable PID controller can operate any motor control valve or actuator as well as provide 4-20mA (0-20) or inverted 20-4mA (20-0) to an I/P-converter for a pneumatic valve.

All normal transmitter signals - 4-20mA, 0-20mA, potentiometer and Pt 100 - can be connected.

EASY AND SAFE TO OPERATE AND INSTALL

The SESCOON is provided with one pushbutton, DIP-switch or potentiometer for each function. This makes readings and adjustment much easier than in most digital controllers with stepping, combinations or hidden functions in a few switches.

All functions that are to be used by the ordinary operator are easily accessible at the SESCOON front panel. All "difficult" adjustments - when a change in setting by unskilled operators could jeopardise the function of the control system - are situated in the side of the controller housing and can not be touched from outside the control cabinet. Start-up engineers normally adjust them at the commissioning period and shall only rarely be touched thereafter.

COMPLETE CONTROL FUNCTIONS

The SESCOON controller contains a digital display that normally displays the transmitter signal, but when pressing pushbuttons it can also display:

- Limit switches settings
- Set point settings
- Actuator position
- Transmitter operation range

When releasing the pushbutton it automatically displays the actual transmitter value again thus avoiding that important readings such as for instance steam pressure can be disconnected.



A LED bar graph array displays the control valve or the actuator position (see above for more accurate readings).

4 different set points can be connected singly or in combinations 2 internal (potentiometers) and 2 external. A LED array indicates which set point(s) that are active. Outside digital control signals from computers, relays or just fixed connections select the set point(s) in service.

Outside control signals from computers, relays etc. can disconnect the normal PID control function mode and instead select other control modes FORCE+, FORCE-, FEED FORWARD, START and RAMP. The FORCE signals will force the control valve to open or close. The START signal will convert the set point signal to a valve position signal, which can make the valve take any fixed position between open and close. The RAMP signal will override the PID function and control the actuator at a selected speed. The RAMP signal is automatically disconnected when the actual transmitter signal is close to the set point. The FEED FORWARD mode uses SET POINT 4 input as a feed forward signal to the controller.

Limit switch 1-4 can each be selected as high or low limits or as high or low alarms. Furthermore limit switch 3 and 4 can be selected to operate at a high or low deviation signal between the set point and the actual transmitter signal. A selectable green or red LED displays each limit. Each limit setting is displayed by the digital display when pressing the individual limit pushbutton.

REMOTE OPERATION

The SESCOON programmable controller includes connection for complete remote operation such as:

- Actual transmitter signal
- Control valve position signal
- Remote set point
- Remote/Local selector
- Manual/Auto pushbuttons and lamps
- Increase/Decrease pushbuttons and lamps
- SESCOON mode indicator lamps



SESCON TECHNICAL DATA:

DIMENSIONS:

W x H x D	72x144x210 mm
Depth behind panel	190 mm
Depth in front of panel	20 mm
Panel cut out	67x137 mm + 0.5 mm
Max panel thickness	25 mm
Weight	1.3 kg

POWER SUPPLY:

230 VAC \pm 15% or 115 VAC \pm 15% internally fused	45-66 Hz 100 mA slow blow
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AMBIENT TEMP:

-10 to +55 °C	IEC 68-2-30 Db
---------------	----------------

VIBRATIONS:

4-100 Hz 0,7 g	IEC 68-2-6 Fc
----------------	---------------

IMMUNITY:

Discharge	Air 8kV Contact 4kV	EN 50 082-2
RF	10V/m 80-1000MHz 80% AM	EN 61 000-4-2
Injected	10V 0,15-80MHz	EN 61 000-4-3
Burst	1kV / 2kV	EN 61 000-4-6
Conducted AF	24V 50-3kHz	IEC 801-4
Surges	1kV diff / 2kV c.m.	IEC 801-5
High Voltage	1,5kV AC	BV 19-27.2

EMISSION:

Max 60dB μ V 0,15-30MHz	EN 55 022 Class B
-----------------------------	-------------------

ALARM CONTACTS:

AC 230V 0.5A 60VA max
DC 200V 0.5A 20W max

MOTOR RELAY CONTACTS:

AC 230V 2A 600VA
DC 300V 2A 100W

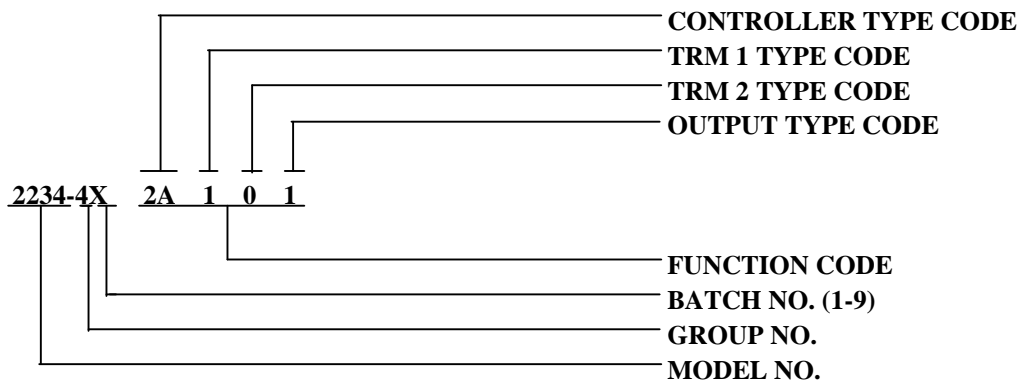
ANALOGUE SIGNALS OUTPUTS:

Control output	4-20 mA max load = 350 Ω or 20-4 mA max load = 350 Ω or 0-20 mA max load = 350 Ω
Valve Pos. aux indic.	0- 1 mA max load = 1.1 k Ω
TRM out aux indic.	0- 1 mA max load = 1.1 k Ω
Setpoint out aux indic.	0- 1 mA max load = 1.1 k Ω



ORDERING INFORMATION

ORDER NO.		FUNCTIONS			
SES AB TYPE NO.	FUNCTION CODE	ACTUAL VALUE TRM 1	SETPOINT 4 TRM 2	CONTROLLER OUTPUT	DESCRIPTION
2531-4X	2A111	4-20mA	4-20mA	4-20mA	
2543-4X	2A101	4-20mA	-	4-20mA	
2544-4X	2P10	4-20mA	-	Relay	Relay output 4-20mA TRM input
2571-4X	2A112	4-20mA	4-20mA	4-20mA	0-20mA OUTPUT
2708-4X	2A171	4-20mA	0-1mA	4-20mA	
2732-4X	2P11	4-20mA	4-20mA	Relay	Relay output 4-20mA SP4 input 4-20mA TRM input
2757-4X	2A101B	4-20mA	-	4-20mA	BOOSTED OUTPUT
2772-4X	2A141	4-20mA	Pot	4-20mA	
2810-4X	2P30	Pt 100	-	Relay	Relay output Pt 100 TRM input
2952-4X	X2A101	4-20mA	-	4-20mA	110V AC Supply 4-20mA TRM input 4-20mA output
2961-4X	2P17	4-20mA	0-1mA	Relay	Relay output 4-20mA TRM input 0-1mA SP4 input MASTER/SLAVE operations
3005-4X	X2A141	4-20mA	0-1mA	4-20mA	110V AC Supply 4-20mA TRM input Potentiometer SP4 input 4-20mA output
3006-4X	X2P10	4-20mA		Relay	110V AC Supply Relay output 4-20mA TRM input
3009-4X	2AI101	4-20mA	0-1mA	4-20mA	4-20mA TRM input 20-4 mA output (Inverted)



Any other combination of TRM 1, TRM 2 and output is available. Please specify all inputs and output in your order.

Note that a SESCO II with no adapter card on input "SET POINT 4" may be substituted with a SESCO II with adapter on input "SET POINT 4" for instance the 2236-4X (A101) may be substituted by 2237-4X (A141), but the other way around is not possible.

SESCON II is a new model with FEED FORWARD capability and possibility to connect SESCO II REMOTE units for remote manoeuvre and indication.

The X models are for 110V power supply. Inverted output means that when TRM value (real value) is above set point the output will INCREASE and with TRM value below set point output will DECREASE.

BOOSTED OUTPUT is used when I/P converter impedance is more than 350 ohm (up to 750 ohm).



PANEL FUNCTIONS (dwg. 2965-31 sheet 1)

A. DISPLAY:

Normally displaying actual value (Transmitter signal) if not any display selector pushbutton is activated.

Display range and decimal points are adjustable on housing right hand side.

B. ACTUATOR:

Indicates actuator position in 5% resolution. Zero and range is adjustable on housing right hand side.

C. SET POINT INDICATOR:

Indicates selected set point(s).

D. Set point 1:

Panel knob for adjusting setpoint 1.

E. MODE INDICATOR:

Indicates the controllers different modes:

START: In this mode the setpoint is connected directly to the controller output i.e. setpoint 20% gives 20% open position of the actuator.

RAMP: Actuator ramping function makes actuator move slowly on a pre-setramp curve. Ramp time is adjustable on the housing right hand side.

FORCED: Indicates that actuator is forced to its open or closed position.

LOCAL: Indicates LOCAL control. When dark optional remote control is in operation.

DISPLAY SELECTORS:

Selects value shown on DISPLAY A

F. LIMIT: Shows adjusted alarm limit. 4 limits are available. Adjusted on housing right hand side.

L. SET POINT: Shows actual set point value.

M. ACTUATOR: Shows actuator position on display in percentage.

N. RANGE: Shows display range (transmitter range). Adjustable on housing right hand side.

G. LIMIT INDICATOR:

Is lit up when adjusted alarm limit is reached. Programmable alarm (red) or limit (green) function.



H. M/A SELECTOR:

Puts controller in manual or auto mode.

I. M/A INDICATOR:

Indicates MAN or AUTO mode. When A is flashing the actuator is smoothly moving for bump-free M to A transition. This function is programmable on housing right hand side.

J. \pm SWITCH.

To manually INCREASE or DECREASE actuator position.

K. \pm INDICATOR:

Indicates output signals to actuator.



ADJUSTMENTS (dwg. 2965-31 sheet 1)

To be able to make adjustments on housing right hand side, please unscrew housing fasteners and slide out the housing in order to reach the adjustment panel situated on housing right hand side.

[A] - [N] Situated on housing right hand side

[1] - [29] Situated on front panel

DISPLAY RANGE Activate RANGE pushbutton [N] and adjust RANGE trimmer [1] to DISPLAY [A] actual transmitter range. Then select proper decimal point ON DISPLAY xxxx [2] switches. Switches are active in upper position.

ACTUATOR Put actuator in closed position. Activate ACTUATOR pushbutton [M] and adjust ACTUATOR ZERO trimmer [3] to 000 reading on DISPLAY [A].

Put actuator in open position. Activate ACTUATOR pushbutton [M] and adjust ACTUATOR RANGE trimmer [4] to 100.0 reading (see above) on DISPLAY [A].

LIMIT 1 Select if you want the limit switch to be activated for actual values above or below adjusted limit. By activating LOW LIMIT switch [5] (active in upper position) limit relay will be active for actual values below adjusted limit.

Decide if you want limit or alarm function. Alarm function will cause alarm limit output relay to open circuit position when limit is reached and a red alarm led [G] on front is lit up. Limit function causes output relay closed circuit and a green limit led to lit up when limit is reached.

Adjust limit by activating LIMIT pushbutton [F] and turning LIMIT [7] trimmer for proper limit reading on DISPLAY [A].

LIMIT 2 Same procedure as LIMIT 1 above.

LIMIT 3 Make adjustments according to LIMIT 1 and 2 above and then decide if limit switches are to be activated on actual value [8] (as LIMIT 1 and 2) or setpoint < actual value [9] or setpoint > actual value [10]. Only one of these switches may be ON per limit.

LIMIT 4 Same procedure as LIMIT 3 above.

BUMP To get a direct manual to auto transition, activate BUMP [11] switch. (Recommended in most cases).

If a slow bump-free manual to auto transition is needed deactivate BUMP Switch [11]. This makes the actuator ramp up/down with INTEGRAL [19] [20] time settings until the actual value is close to the setpoint.



- SERVO** SERVO switch [12] shall be activated whenever the actuator is supplied with a position potentiometer. If SERVO switch [12] is off START, RAMP and FEED FORWARD functions can not be used.
- TRM DELAY** Signal damping used to filter rough transmitter signals. Signal is damped with time constants marked on TRM DELAY switches [13]. If more than one switch is activated time constants are added. Shall be used only if necessary.
- PID** P [17] [18] is controller gain = $1/P.B.$ (inverse of Proportional Band). Switch [17] is a x 0,1 or x 1 multiple of P [18] settings i.e. P switches [18] = 15 and [17] in upper position gives a multiple of 0.1 that is $P = 1.5$. P adjustment range is 0.1 to 99.
- I [19] [20] are INTEGRAL TIME settings. [19] is a x1 or x10 multiple of I [20] values. i.e. I [20] = 90 and multiple [19] in upper position makes an integral time of 90 seconds. I adjustment range is 10 to 990 seconds.
- DERVATE [21] has no multiple switch so adjustment range is 1 to 99 seconds. To get a PI controller just put D [21] in 00. Three derivate sources can be selected: Actual value AV [16], deviation (set point -actual value) DEV [15] and set point 4 SP4 [14].
- If set point changes shall produce a derivate chose DEV switch [15]. If set point change shall be ignored by derivate chose AV switch [16]. An optional external signal can be used for derivate, connected to SP4 input, when present activate the SP4 [14]. Convenient when for instance a flow from/to a tank is used to speed up level controller reactions on flow changes.
- RAMP** Adjustment on control valve ramping time. The RAMP switch [22] setting gives approx. ramp time in x3 or x30 seconds depending on I multiple switch position [19]. The RAMP function shall normally not be used.
- SET POINTS** SET POINT 1 is adjusted by knob [D] on front panel. SET POINT 2 is adjusted by trimmer [23] on housing right hand side.
- Press pushbutton SET POINT [L] on front panel to get set point value on display.
- Selected set point(s) is indicated by [C] on front panel. If more than one Set point is selected, set point values are added i.e. SP1 = 20% and SP2 30% gives a set point of 50% when both SP1 and SP2 are in operation simultaneously.
- Set point 3 and 4 are external set points. When set point 4 is used as FFWD input it is not convenient to use it as a set point.
- PULSE** PULSE trimmer [24] is used to compensate actuator run time. A slow actuator need long pulses.



An important adjustment if SERVO switch [12] is off.
PULSE [24] has a minor effect when SERVO switch [12] is on. Must be used in some cases to omit too rapid pulsing when controller actual value is close to set point.

RESET

RESET trimmer [25] controls the integrator. It is used to turn off the integrator in slow processes with long dead times - i.e. steam pressure, feed water level and fuel oil temperature control circuits - thus preventing the integrator to go to an incorrect position. Must be used with care! Never use in fast processes.

FEED FORWARD

FFWD causes the SP4 input to compute a feed forward control signal to the controller. Three types of FFWD functions can be selected.

OUTER: Here the FFWD input signal is "added" to controller output. Should be used when the FFWD input signal is of deviation type.

OUTER + BALANCE: To be used when the FFWD signal is used to "force" the controller output to the value corresponding to the FFWD signal. (This is the normal FFWD operation i.e. when a drain flow signal is used to feed forward a level control signal.

DERIVITY: When the feed forward signal is derived and used to influence the controller output signal. Used when changes in feed forward signal shall cause controller output signal to react.

(For instance a demand signal used to feed forward a level control signal when conditions are non linear).

FFWD pot [26], is used to adjust the FFWD signals from 30 to 80% correction from FFWD input signal to output signal.

Switches [27] [28] and [29] are used to select type of FFWD function.

[29] OUTER is selected when the FFWD signal shall be direct coupled to output.

[29] OUTER + [28] BALANCE is used when a balance between output and FFWD is preferred. (Normal FFWD operation).

[27] DERIV is used when the DERIVITY [14], [15], [16], [21] is used as FFWD source.

Used when changes in FFWD signal shall influence the output.



INSTALLATION

When mounting the SESCO controller in a panel or cabinet, make sure that the pin screw holders are in their correct position in the controller housing before tightening. Otherwise the controller housing may be damaged.

See dwg. 2965-31 sh 2 for panel cut out and cable mounting recommendation.

Mains voltage is normally 230V AC (SESCON for other supply voltages can be delivered on request). When convenient it is recommended to part the 230V AC wires to the actuator or control motor valve from the other wires.

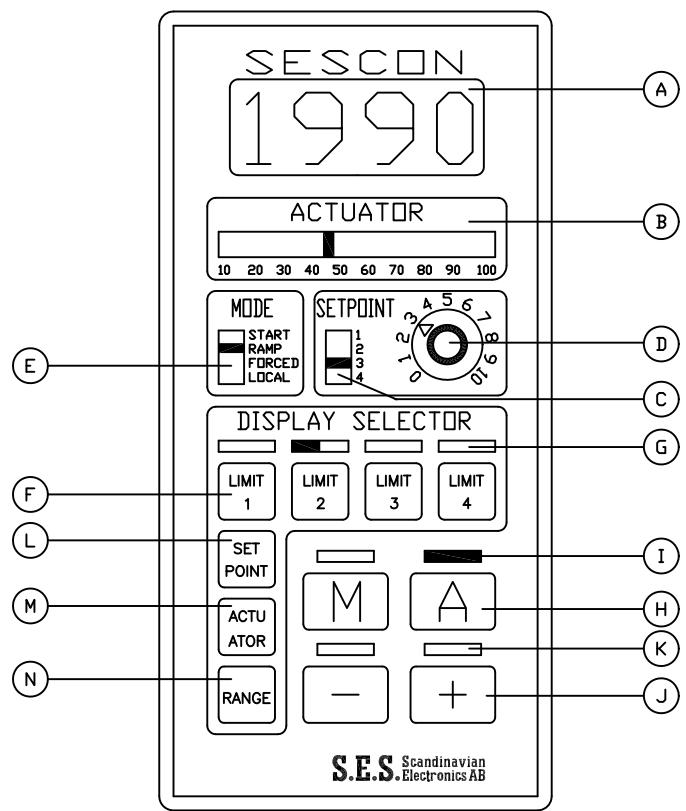
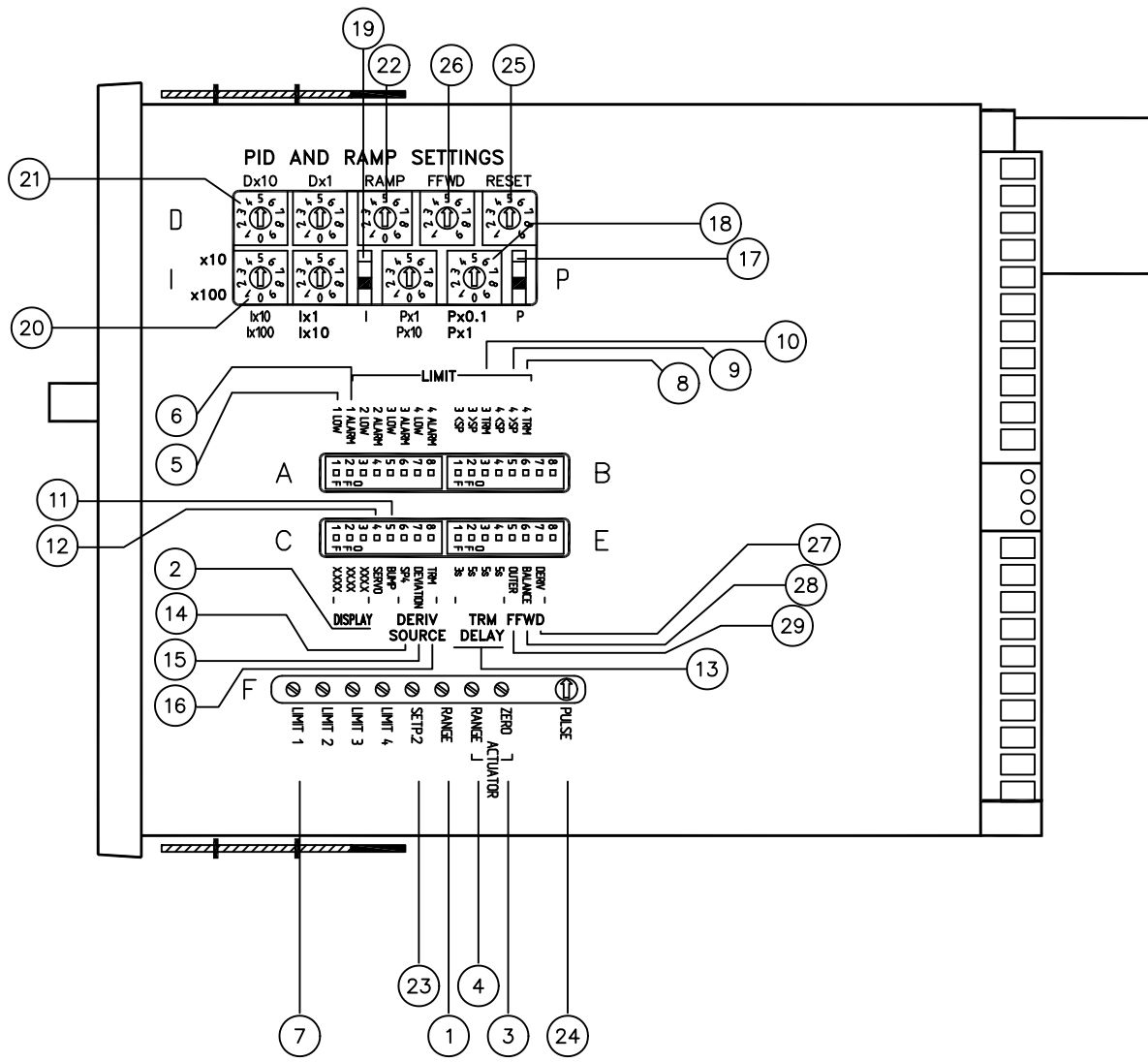
Digital input signals to the SESCO controller are 24V DC. These inputs are galvanic insulated. Thus the 24V DC can be supplied either internally by SESCO or externally from any 24V DC power supply unit.

See dwg. 2965-31 sh 3 - 5 for external connection with specification of transmitter connection in dwg. 31-2358 and SP4 connection in dwg. 31-2359.

REPLACEMENT OF CONTROLLER

1. By operating pushbuttons at the controller front panel - check that potentiometers setting LIM 1, LIM 2, LIM 3, LIM 4, SETP 2 and (TRM) RANGE are the same as have been noted in dwg. 31-2577. If not: Make new notes.
2. Unscrew and remove the housing pin screw holders and slide out the housing.
3. Check that the PID settings and the DIP-switch settings for LIMIT, TRM DLY, DERIVATE, DISPLAY DECIMAL POINT and LIMIT SWITCHES are the same as have been noted in dwg. 31-2577. If not: Make new notes.
4. Switch off the main power supplies and disconnect the wires to the controller.
5. Check that the new controller has EXACTLY THE SAME MODEL NO. (the first four digits in the type No.) as the one to be replaced.
If the MODEL NO. of the new controller is not exactly the same as the MODEL NO. of the original controller check in the EQUIVALENCE LIST FOR SOME FREQUENT SESCO CONTROLLER TYPES in the end of this manual to find out if the new controller can replace the original one. If you find that the original controller is of the first generation (SESCON 1) and the new controller is an equivalent SESCO 2 unit some minor connection changes may have to be done. Please read the SESCO 1 TO SESCO 2 REPLACEMENT INSTRUCTION in the end of this manual.
6. Connect the new controller and set the potentiometers, PID and DIPswitch settings to the same positions as in item 3 above.
7. Switch on the main power supply.
8. Adjust the (TRM) RANGE, LIM 1, LIM 2, LIM 3, LIM 4 and SETP 2 according to item 1 above.
9. Adjust the ACTUATOR ZERO and RANGE, PULSE and RESET according to the ADJUSTMENTS instruction.

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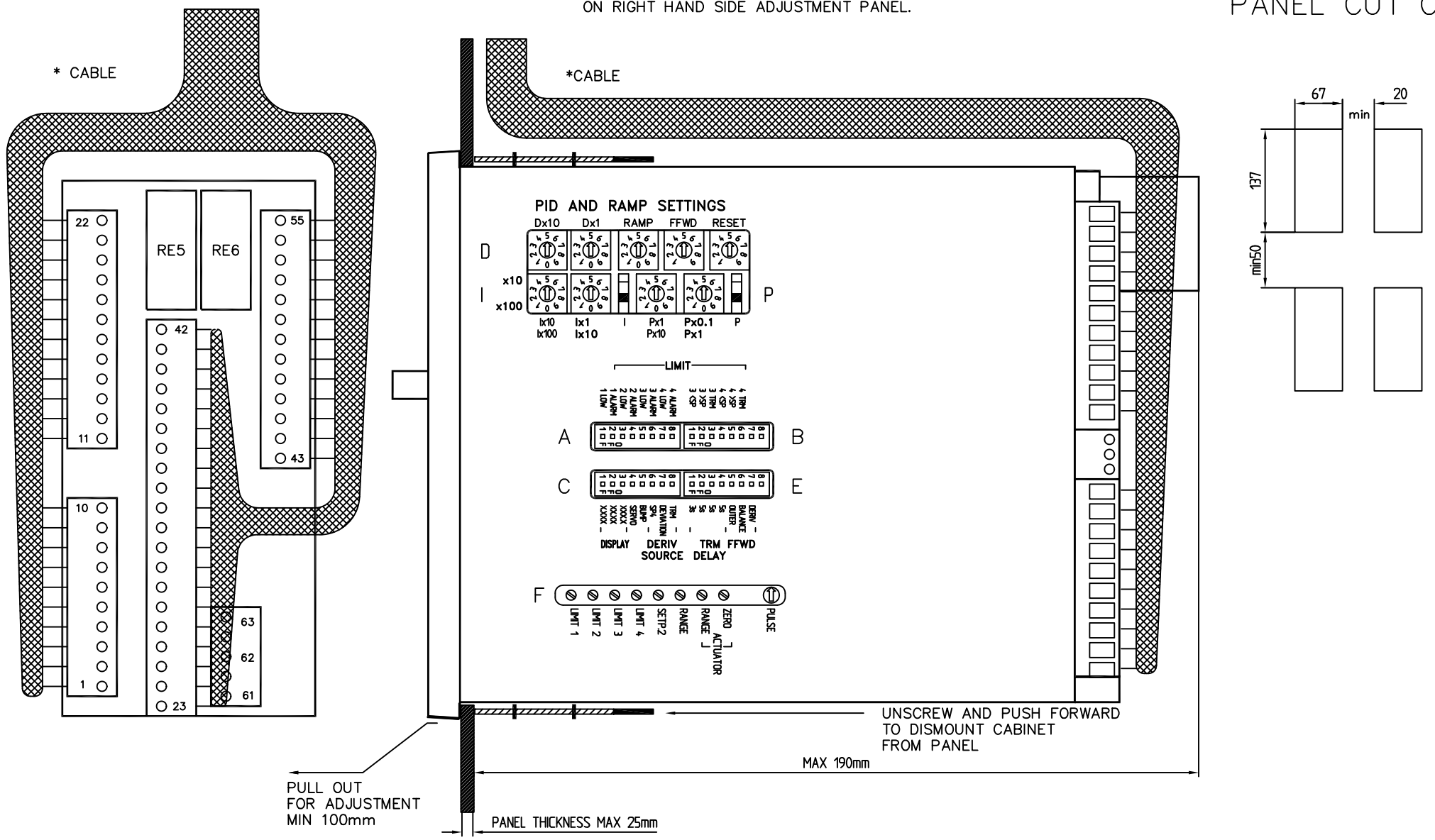


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			Datum/Date 1994-07-08	Fil nr/File No. 29653101.DWG				

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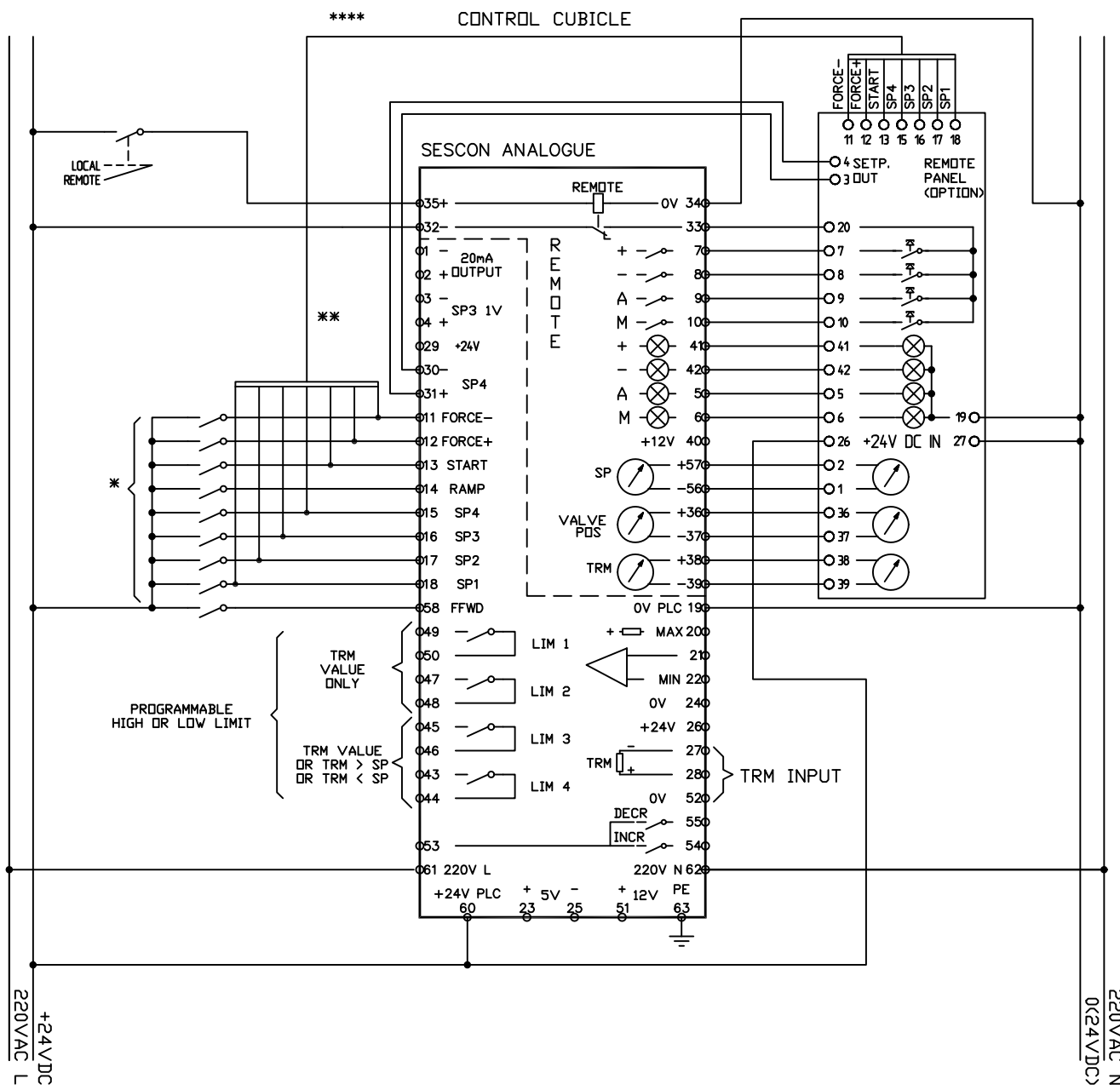
* CABLES SHOULD BE MOUNTED SO THAT THE HOUSING
 EASILY CAN BE PUSHED OUT FOR ADJUSTMENTS
 ON RIGHT HAND SIDE ADJUSTMENT PANEL.

PANEL CUT OUT



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* 24VDC CONTROL SIGNALS
 FORCE- CLOSES ACTUATOR
 FORCE+ OPENS ACTUATOR
 START PUTS ACTUATOR INTO SETPOINT POSITION
 RAMP CAUSES ACTUATOR RAMPING AFTER START OR WHEN ACTIVATED
 SP1 } SELECTS AND ADDS
 SP2 } SETPOINTS. SP1 & SP2
 SP3 } ARE INTERNAL SP3 & SP4
 SP4 } ARE EXTERNAL
 IT IS POSSIBLE TO USE SESCON INTERNAL 24VDC (26 & 19) FOR DC CONTROL SIGNALS (MAX 60mA AVIALABLE) SEE DRW 2965-31 SH 6

** SP3 INPUT 0-1 VOLT

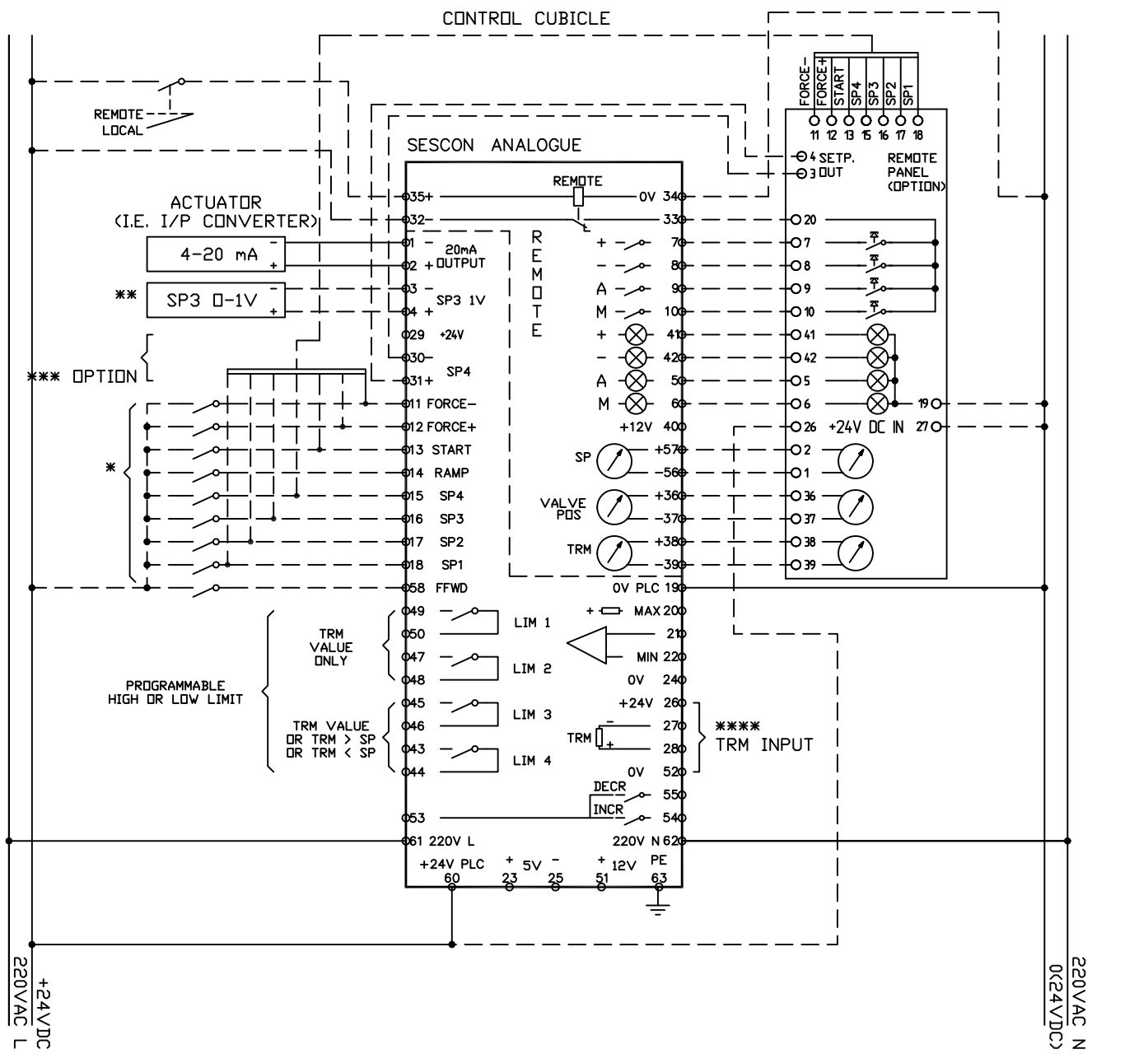
**** ONLY USED FUNCTION MUST BE CONNECTED

----- OPTIONAL CONNECTIONS

SESCON - SESCON REMOTE CONNECTION = 17-27 WIRES

Anmärkning/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SESCON				Jmf ritn/See drawing	Forts/Next sh 4
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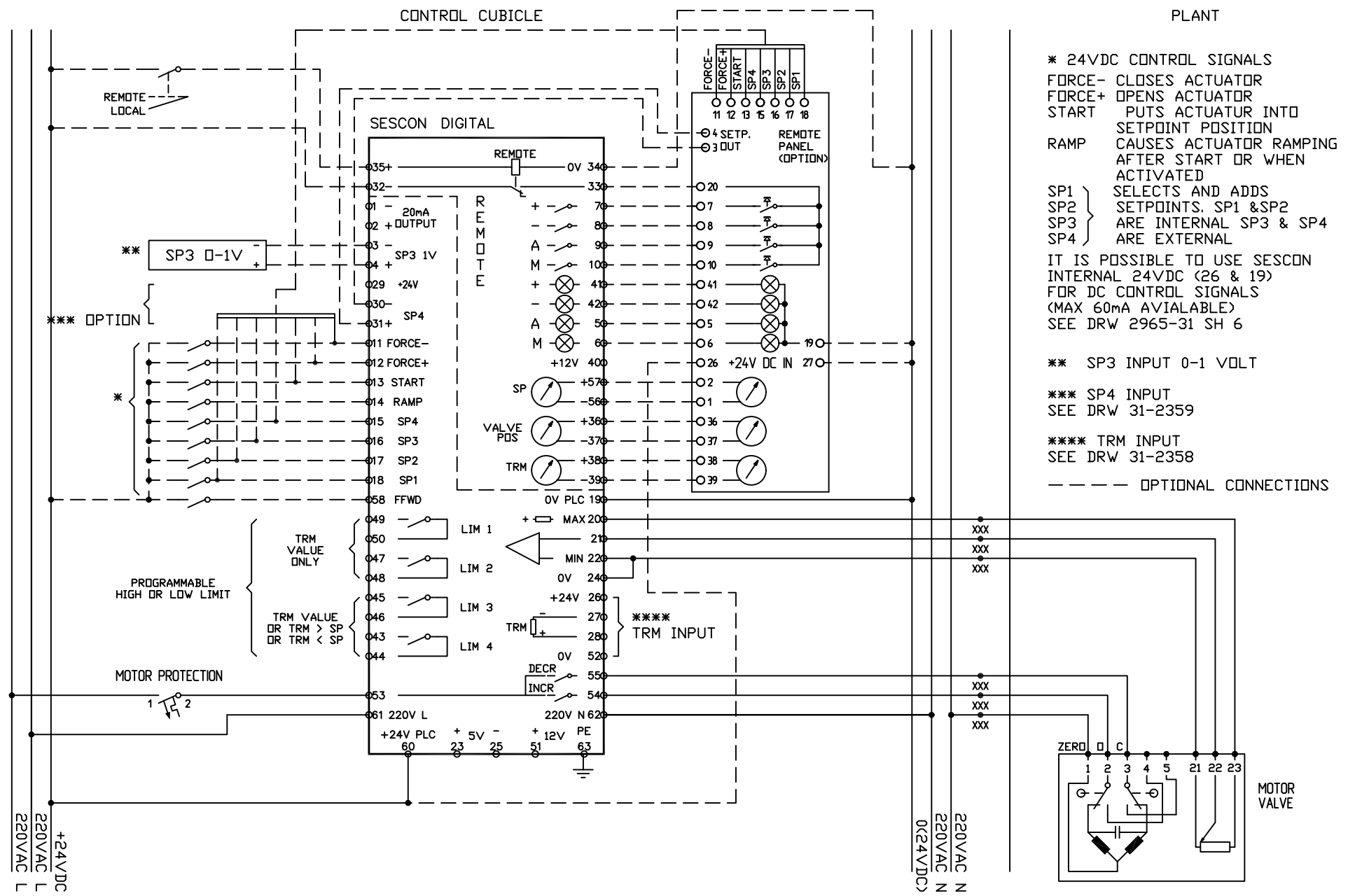
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 FORCE- CLOSES ACTUATOR
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 SP4 } ARE EXTERNAL
 IT IS POSSIBLE TO USE SESCON INTERNAL 24VDC (26 & 19) FOR DC CONTROL SIGNALS (MAX 60mA AVIALABLE) SEE DRW 2965-31 SH 6
 ** SP3 INPUT 0-1 VOLT
 *** SP4 INPUT SEE DRW 31-2359
 **** TRM INPUT SEE DRW 31-2358
 - - - - - OPTIONAL CONNECTIONS

Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SESCON	Jmf ritn/See drawing		Forts/Next sh 5
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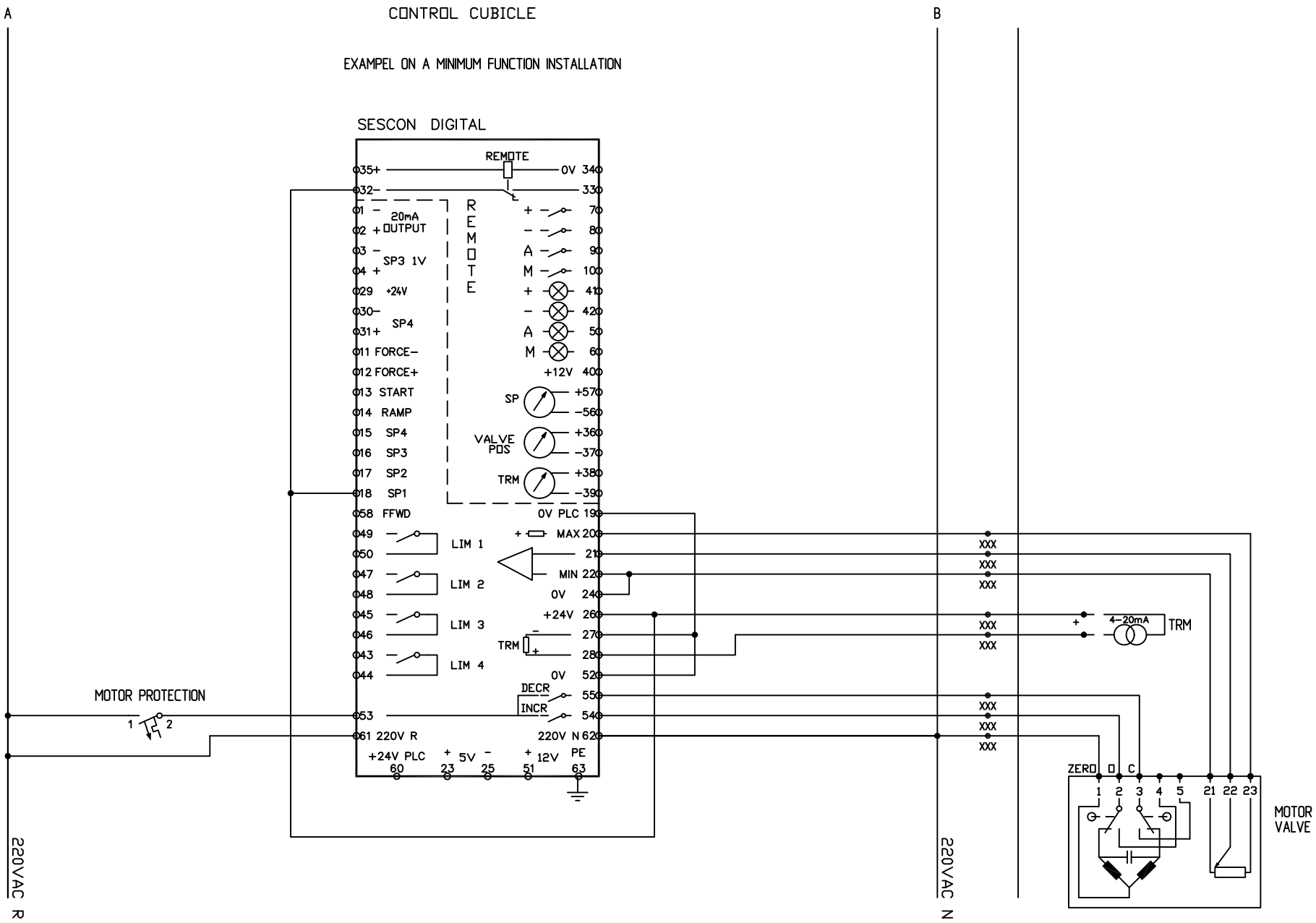
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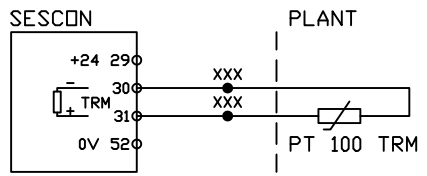
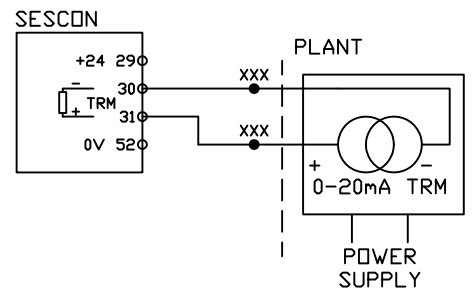
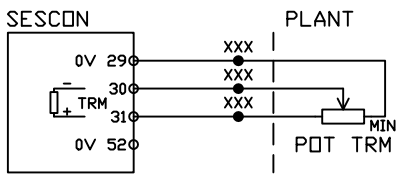
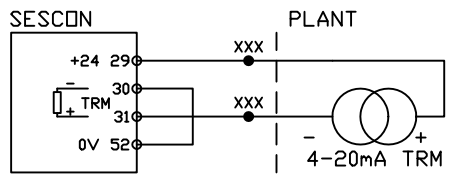
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CONTROL CUBICLE
 EXAMPEL ON A MINIMUM FUNCTION INSTALLATION



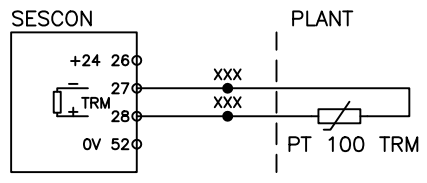
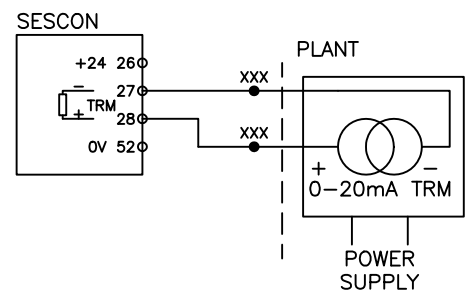
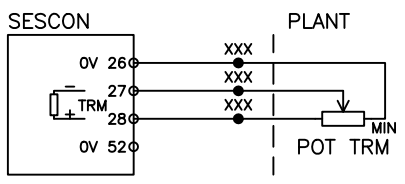
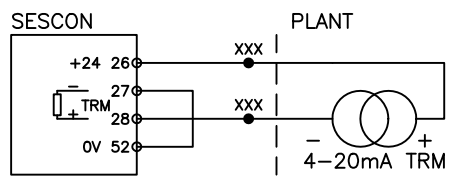
Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant <p style="text-align: center;">SESCON</p> Designation <p style="text-align: center;">4-20mA TRM IN, OUT RELAY</p>				Jmf ritn/See drawing	Forts/Next sh -
	Best nr/Order No.	S.E.S. Scandinavian Electronics AB			Konstr/Design	Gransk/Check	Godk/Approv
		Datum/Date		Fil nr/File No.		Ritning nr/Drawing No.	
		1994-07-08		29653106.DWG		2965-31	
						Storl/ Size A3	

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Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SESCON				Jmf ritn/See drawing	Forts/Next sh —
	1994-08-02	Designation SP4 TRM INPUT CONNECTIONS				Littera	Antbl/Tot sh Blad/Sheet 1
	Best nr/Order No.	S.E.S. Scandinavian Electronics AB		Konstr/Design	Gransk/Check	Godk/Approv	Ersätter/Replaces
	Datum/Date			1994-08-02		Fil nr/File No.	31235901.DWG
		S.E.S. Scandinavian Electronics AB				Ritning nr/Drawing No. 31-2359	
						Stor/Size A3	

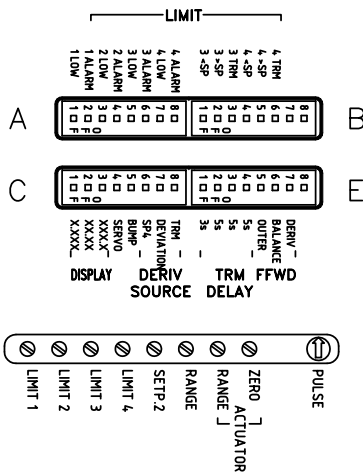
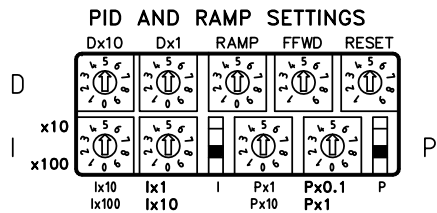
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Anm?rkning/Remarks	Senaste ?ndring/ Last revision	Anl?ggning/Plant				Jmf ritn/See drawing	Forts/Next sh
	1994-08-02	SESCON				Littera	Antbl/Tot sh
	Best nr/Order No.	Designation				Blad/Sheet	1
		S.E.S. Scandinavian Electronics AB				Ritning nr/Drawing No.	
		Konstr/Design	Gransk/Check	Godk/Approv	Ers?tter/Replaces	31-2358	
		Datum/Date		Fil nr/File No.		A3	
		1991-09-04		31235801.DWG			

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PID AND RAMP SETTINGS



NAME: _____ CONTROLLER

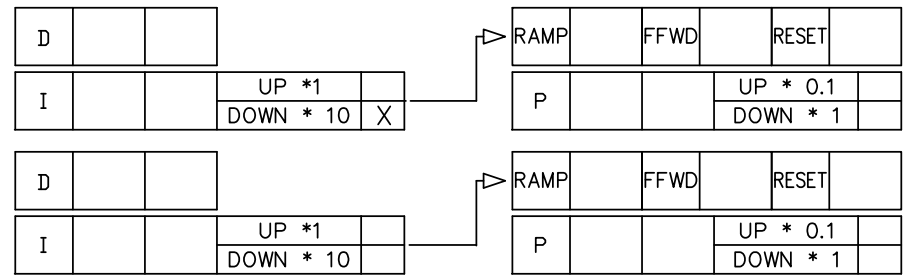
TYPE NO: _____ CODE: _____

BOILER: _____ SCHEMATIC NO: _____

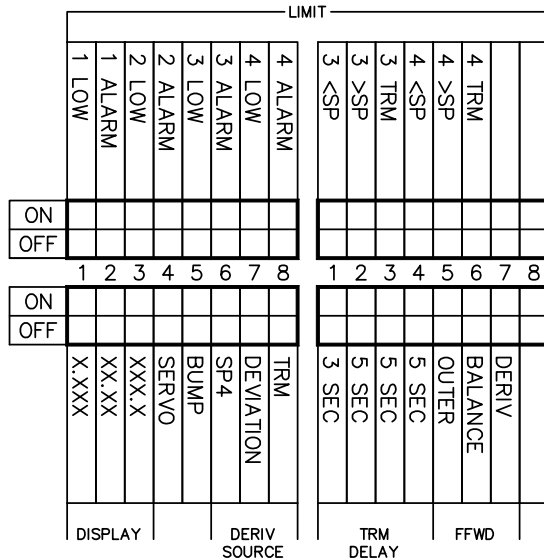
DATE: _____ SIGN: _____

REMARK: _____

FACTORY COMMISSIONING



A



C

F

	49-50	47-48	45-46	43-44					
	LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
FACTORY SETTING									
COMMIS. SETTING									

EXTERNAL SIGNAL

	SETP 3	SETP 4
SETTINGS		
SETTINGS		

PANEL FRONT KNOB

	SETP 1
SETTINGS	
SETTINGS	

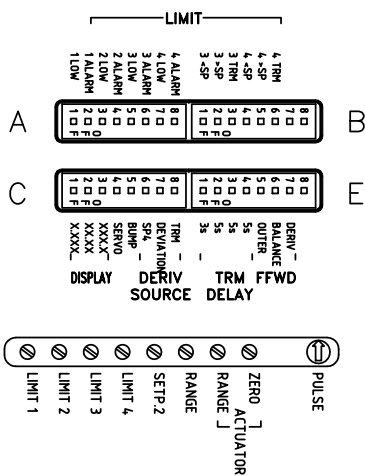
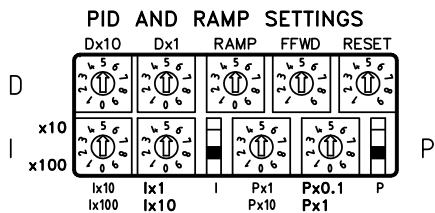
Anmärkingar/Remarks



Anläggning/ Plant	SESCON II	Jmf ritn/See drawing	Forts/Next sh 02
Benämning/ Designation	ADJUSTMENT LIST	Littera	Antbl/Tot sh 01
Funktion/ Contents	GENERAL	Ritning nr/Drawing No.	Storl/ Size
Senaste Ändring/ Last revision	Best nr/Order No.	Konstr. av/Designed by SB	Ritad av/Drawn by WIU
		Godk/Approv	Ersätter/Replaces
		Datum/Date 2008-10-30	Fill nr/File No. 56813101
			5681-31
			A3

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PID AND RAMP SETTINGS



NAME: STEAM PRESSURE CONTROLLER

D	0	0				RAMP	8	FFWD	0	RESET	7
I	2	0	UP * 1	X		P	4	0	UP * 0.1	X	
			DOWN * 10						DOWN * 1		

		LIMIT																	
		1 ALARM	2 ALARM	3 LOW	3 ALARM	4 LOW	4 ALARM	3 <SP	3 >SP	3 TRM	4 <SP	4 >SP	4 TRM						
A	ON			X					X			X							
	OFF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
C	ON			X	X	X			X			X							
	OFF	X	X				X	X	X	X	X	X	X	X	X	X	X	X	
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
		X.XXX	XX.XX	XXX.X	SERVO	BUMP	SP4	DEVIATION	TRM	3 SEC	5 SEC	5 SEC	5 SEC	OUTER	BALANCE	DERIV			
		DISPLAY						DERIV SOURCE							TRM DELAY			FFWD	

EXTERNAL SIGNAL

	SETP 3	SETP 4
SETTINGS		

PANEL FRONT KNOB

	SETP 1
SETTINGS	16,0
	ADJUST TO WORKING PRESSURE

	49-50	47-48	45-46	43-44					
	LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
F	SETTINGS	9,0	18,0	1,0	0,5	-	25,0	-	1
		LOW PRESS STOP	HIGH PRESS STOP	START MASTER	STOP SLAVE		SET TO TRM IN USE		
		PLANT DEPENDENT							

Anmärkingar/Remarks

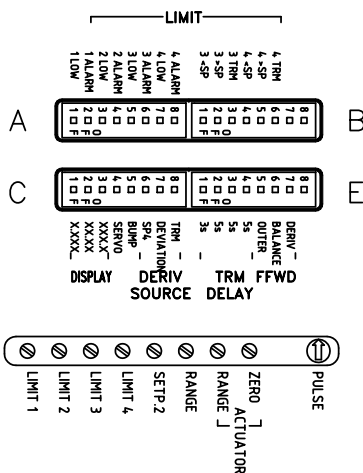
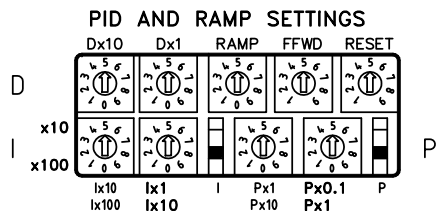


Anläggning/ Plant	SESCON II			Jmf ritn/See drawing	Forts/Next sh
Benämning/ Designation	ADJUSTMENT EXAMPLES			Littera	Antbl/Tot sh
Funktion/ Contents	STEAM PRESSURE CONTROL				Blad/Sheet
Senaste Ändring/ Last revision	Best nr/Order No.	Konstr. av/Designed by	Ritad av/Drawn by	Godk/Approv	Ersätter/Replaces
		SB	WIU		
		Datum/Date	5681-31	5681-31	
				Ritning nr/Drawing No.	Storl/Size
				5681-31	A3

5681-31

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PID AND RAMP SETTINGS



NAME: F.O. PRESSURE CONTROLLER

D	0	0			RAMP	0	FFWD	0	RESET	0
I	3	0	UP *1	X	P	1	0	UP * 0.1	X	
			DOWN * 10					DOWN * 1		

		LIMIT															
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A	ON	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	OFF	X	X				X	X	X	X	X	X	X	X	X	X	X
		DISPLAY								DERIV SOURCE		TRM DELAY				FFWD	

EXTERNAL SIGNAL	
SETTINGS	SETP 3 SETP 4

PANEL FRONT KNOB	
SETTINGS	SETP 1
ADJUST TO WORKING PRESSURE	

	49-50	47-48	45-46	43-44					
F	LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
	SETTINGS	0,0	10,0	14,0	0,0	5,0	40,0	-	-
		LOW PRESS ALARM	ST-BY START	START POSITION		SET TO TRM IN USE		SET TO ACTUATOR STROKE TIME (SECx10)	
PLANT DEPENDENT									

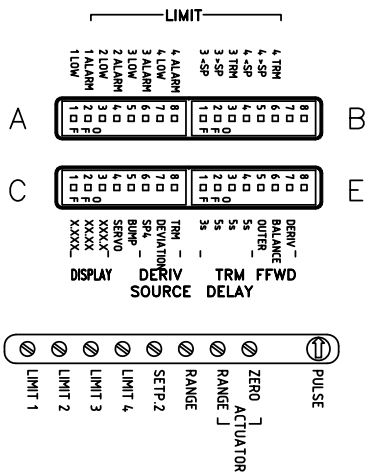
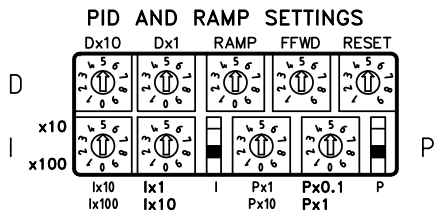
Anmärkingar/Remarks



Anläggning/Plant: SESCON II				Jmf ritn/See drawing		Forts/Next sh: 04	
Benämning/Designation: ADJUSTMENT EXAMPLES				Littera		Antbl/Tot sh: 03	
Funktion/Contents: FUEL PRESSURE CONTROL				Ritning nr/Drawing No.:		Storl/Size:	
Senaste Ändring/Last revision		Best nr/Order No.		Konstr. av/Designed by: SB		Ritad av/Drawn by: WIU	
				Godk/Approv		Ersätter/Replaces	
				Datum/Date: 2008-10-30		Fil nr/File No.: 5681-31	
				5681-31		A3	

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PID AND RAMP SETTINGS



NAME: F.O. TEMPERATURE CONTROLLER

D	1	0				RAMP	0	FFWD	0	RESET	0
I	1	0	UP *1			P	2	0	UP * 0.1	X	
			DOWN * 10	X					DOWN * 1		

		LIMIT															
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A	ON	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A	OFF		X				X	X	X								
C	ON			X	X	X	X	X	X	X	X	X	X	X	X	X	X
C	OFF	X	X				X	X	X	X	X	X	X	X	X	X	X
		X.XXX	XX.XX	XXX.X	SERVO	BUMP	SP4	DEVIATION	TRM	3 SEC	5 SEC	5 SEC	5 SEC	OUTER	BALANCE	DERIV	
		DISPLAY						DERIV SOURCE		TRM DELAY				FFWD			

EXTERNAL SIGNAL

SETP 3	SETP 4
SETTINGS	

PANEL FRONT KNOB

SETP 1
SETTINGS
110,0

ADJUST TO WORKING TEMPERATURE

	49-50	47-48	45-46	43-44					
F	LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
SETTINGS	140,0	70,0	0,0	0,0	-	160,0	-	-	5
	HIGH ALARM	LOW ALARM				SET TO TRM IN USE			SET TO ACTUATOR STROKE TIME (SECx10)
	PLANT DEPENDENT								

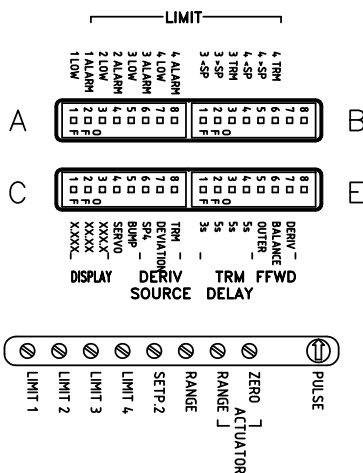
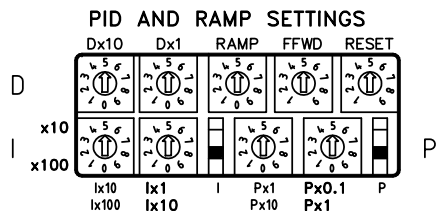
Anmärkingar/Remarks



Anläggning/ Plant	SESCON II			Jmf ritn/See drawing	Forts/Next sh	
Benämning/ Designation	ADJUSTMENT EXAMPLES			Littera	Antbl/Tot sh	Blad/Sheet
Funktion/ Contents	FUEL TEMPERATURE CONTROL					04
Senaste Ändring/ Last revision	Best nr/Order No.	Konstr. av/Designed by	Ritad av/Drawn by	Godk/Approv	Ersätter/Replaces	Ritning nr/Drawing No.
		SB	WIU			5681-31
		Datum/Date	2008-10-30	Fill nr/File No.	5681-31	

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PID AND RAMP SETTINGS



NAME: FEED WATER LEVEL CONTROLLER

D	0	0							
I	2	0	UP *1						
			DOWN *10	X					
RAMP	0	FFWD	6	RESET	7				
P	2	0	UP * 0.1	X					
			DOWN * 1						

		LIMIT															
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A	ON		X	X	X	X	X	X				X			X		
	OFF	X						X	X	X	X		X	X	X	X	
C	ON		X	X	X	X	X	X		X	X		X	X			
	OFF	X	X				X	X	X		X	X	X		X	X	
		X.XXX	XX.XX	XXX.X	SERVO	BUMP	SP4	DEVIATION	TRM	3 SEC	5 SEC	5 SEC	5 SEC	OUTER	BALANCE	DERIV	
		DISPLAY						DERIV SOURCE		TRM DELAY				FFWD			

EXTERNAL SIGNAL	
SETP 3	SETP 4
SETTINGS	

PANEL FRONT KNOB	
SETTINGS	40,0
ADJUST TO COLD BOILER LEVEL	

	49-50	47-48	45-46	43-44					
F	LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
SETTINGS	84,0	22,0	18,0	45,0	10,0	100,0	-	-	5
	HIGH ALARM	LOW ALARM	LOW LOW ALARM	FOECED AT OFF		SET TO TRM IN USE			SET TO ACTUATOR STROKE TIME (SECx10)
	PLANT DEPENDENT						ADDED TO SETP 1 TO GIVE NORMAL WORKING LEVEL IF USED		

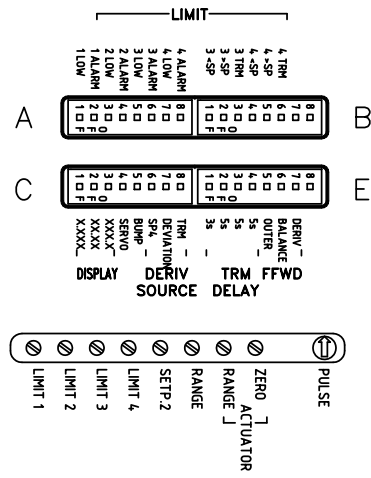
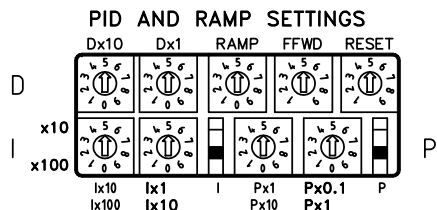
Anmärkingar/Remarks



Anläggning/Plant	SESCON II			Jmf ritn/See drawing	Forts/Next sh
Benämning/Designation	ADJUSTMENT EXAMPLES			Littera	Antbl/Tot sh
Funktion/Contents	FEED WATER LEVEL CONTROL				Blad/Sheet
Senaste Ändring/Last revision	Best nr/Order No.	Konstr. av/Designed by	Ritad av/Drawn by	Godk/Approv	Ersätter/Replaces
		SB	WIU		
		Datum/Date	2008-10-30	Fill nr/File No.	5681-31
		Ritning nr/Drawing No.	5681-31		Storl/Size
					A3

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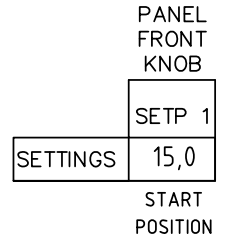
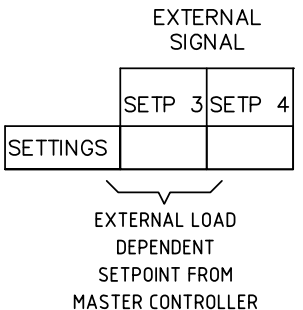
PID AND RAMP SETTINGS



NAME: FLOW _____ CONTROLLER

D	0	0			RAMP	0	FFWD	0	RESET	0
I	3	0	UP * 1	X	P	0	7	UP * 0.1	X	
			DOWN * 10					DOWN * 1		

		LIMIT															
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A	ON	X			X	X	X	X	X			X	X	X	X	X	X
	OFF		X	X	X		X	X	X	X	X	X	X	X	X	X	X
		DISPLAY				DERIV SOURCE				TRM DELAY				FFWD			



F	SETTINGS	49-50	47-48	45-46	43-44	SETP 2	TRM RANGE	ACTUATOR RANGE	ZERO	PULSE
		25,0	70,0	25,0	0,0	-	100,0	-	-	5

IGN. START STOP
SLAVE SLAVE

PLANT DEPENDENT

SET TO TRM IN USE

SET TO ACTUATOR STROKE TIME (SECx10)

Anmärkning/Remarks		Anläggning/Plant SESCON II				Jmf ritn/See drawing		Forts/Next sh	
		Benämning/Designation ADJUSTMENT EXAMPLES				Littera		Antbl/Tot sh	
		Funktion/Contents FLOW CONTROLLER				Best nr/Order No.		Blad/Sheet	
		Senaste Ändring/Last revision		Konstr. av/Designed by SB		Ritad av/Drawn by WIU		Godk/Approv Ersätter/Replaces	
				Datum/Date 2008-10-30		Fil nr/File No. 5681-31		Ritning nr/Drawing No.	
								5681-31	
								A3	

SESCON 1 TO SESCOON 2 REPLACEMENT INSTRUCTION

The second SESCOON controller generation "SESCON 2" is an improved model containing all the very useful functions of the original SESCOON 1 model but also provided with a new function for 2-point control circuits and an improved limit switch alarm function.

Before replacing a SESCOON controller of the first generation by a SESCOON 2 controller please consider below instruction.

REWIRING: If 24 VDC is taken from the SESCOON controller (this is the case if terminals 19-52 or 19-24 are connected) no rewiring is needed.

If 24 VDC is taken from an external supply (this is the case if no connection exists between terminals 19-52 or 19-24) rewiring is needed:

Disconnect terminals	40-32
Connect terminals	60-32
Connect terminal	32 to +24 VDC

PROGRAMMING: Most DIP-switches have the same function but different physical positions and in two cases different names. Four DIP-switches has a new slightly different function and one new function is added.

DIFFERENCE: The four RED switches on SESCOON 1 are substituted by four ALARM switches on SESCOON 2 with a different function. On SESCOON 1 the switch simply changes the colour of the limit LED indicator on the front panel to red instead of green, but on SESCOON 2 it also changes the output contact function to be an ALARM function (N.C. contacts instead of N.O. contacts).
So the ALARM switches should always be in OFF position on SESCOON 2 when substituting a SESCOON 1 (even if the corresponding SESCOON 1 RED switches are on).

NEW NAMES: Note that I FORCE is renamed to RESET and FAST is renamed to BUMP, still with the same function.

NEW FUNCTION: FFWD is a new function and should always be put to zero and off when substituting a SESCOON 1.

Program your SESCOON 2 substitute the same way as your SESCOON 1 on all other functions.

Please note that a SESCOON 2 controller can **always** replace a SESCOON 1.
(In most cases - but not in all cases - can a SESCOON 1 controller replace a SESCOON 2).

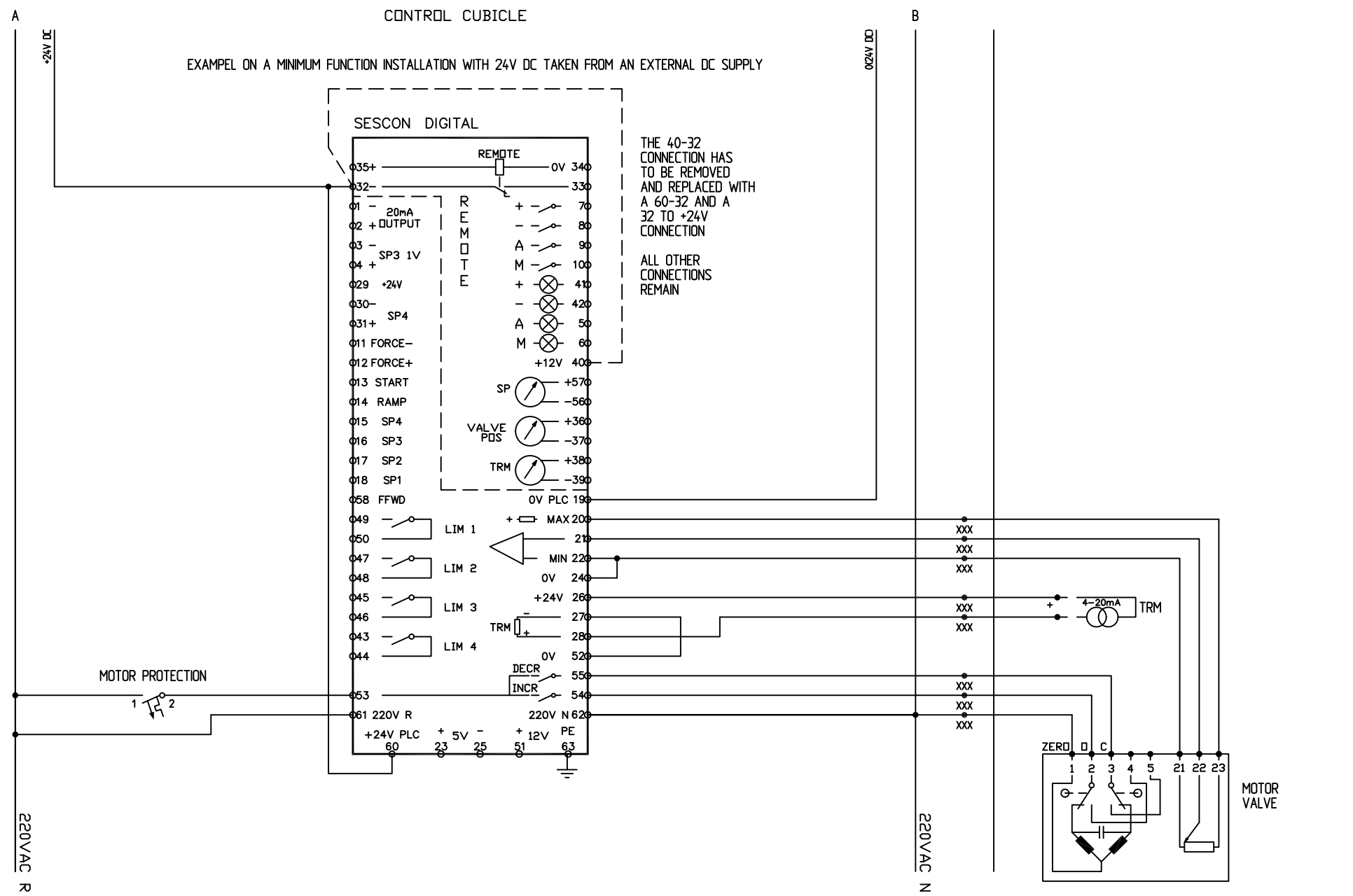
All SESCOON 2 controllers are marked 2...-..... at the function code before the serial number under the OUTPUT line of the type label.

SESCON 1 TO SESCOON 2 REPLACEMENT INSTRUCTION

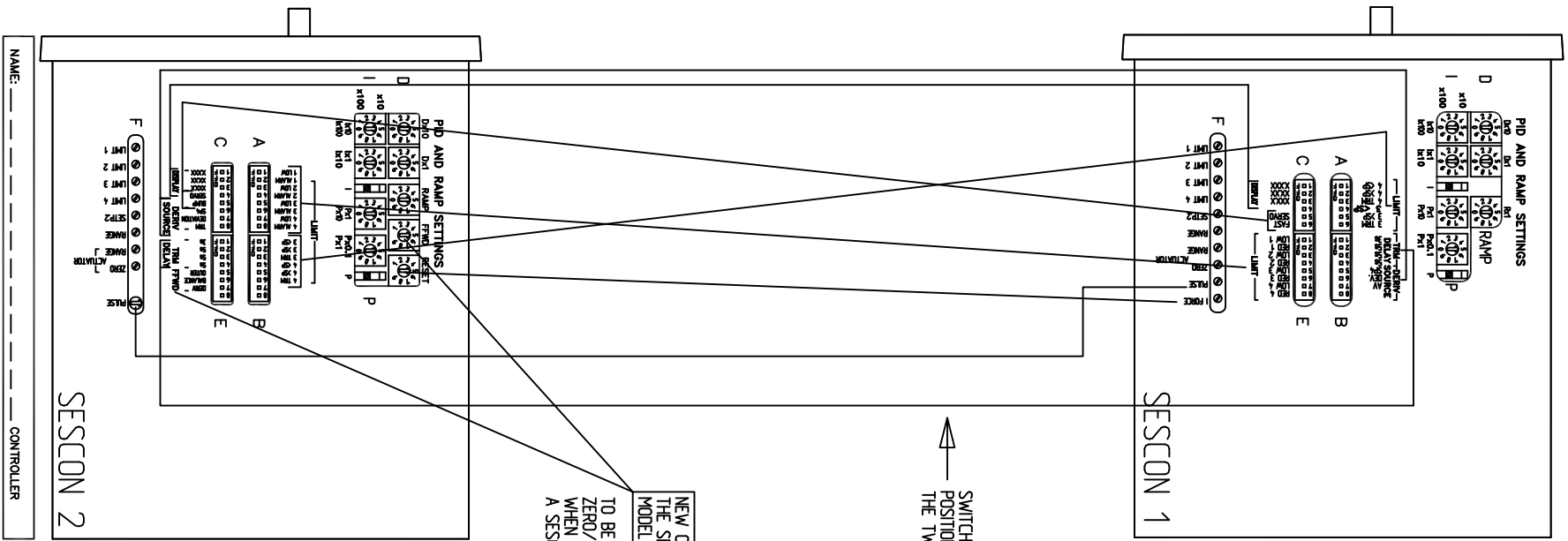
EQUIVALENCE LIST FOR SOME FREQUENT SESCOON CONTROLLER TYPES

SESCON 1		Corresponding SESCOON 2	
Type No.	Function code	Type No.	Function code
2234-XX	P10	2544-XX	2P10
2235-XX	P30	2810-XX	2P30
2236-XX	A101	2543-XX	2A101
2237-XX	A141	2772-XX	2A141
2238-XX	AI101	3009-XX	2AI101
2328-XX	A31		
2329-XX	P20		
2361-XX	A17	2708-XX	2A171
2362-XX	A11	2531-XX	2A11
2432-XX	XP10	3006-XX	X2P10
2572-XX	A101B	2757-XX	2A101B
2621-XX	AI111		
2625-XX	P17	2961-XX	2P17
2641-XX	XA14	3005-XX	X2A141
2642-XX	XA10	2952-XX	X2A101
2718-XX	P10R	2544-XX	2P10

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Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SESCON 1 TO 2 REPLACEMENT				Jmf ritn/See drawing	Forts/Next sh 5
	Benämning/Designation EXTERNAL DC SUPPLY REWIRING				Littera	Antbl/Tot sh	Blad/Sheet 4
Best nr/Order No.	S.E.S. Scandinavian Electronics AB			Konstr/Design	Gransk/Check	Godk/Approv	Ersätter/Replaces
				Datum/Date 1996-08-15	Fil nr/File No. 31513104		Ritning nr/Drawing No. 3151-31
							Storl/Size A3



PID AND RAMP SETTINGS

FACTORY COMMISSIONING

D			
I	UP * 1	DOWN * 10	
P			
RAMP			
D			
I	UP * 1	DOWN * 10	
P			
RAMP			
D			
I	UP * 0.1	DOWN * 1	
P			
RAMP			

TRM DLY DERIVATA

A	ON	1	2	3	4	5	6
C	OFF						
E							

LIMIT

4	BELOW SP	3	TRM
3	ABOVE SP	2	TRM
2	TRM	1	LOW
1	BELOW SP	4	RED

DEVIATION

5	SEC	4	LOW
4	SEC	3	RED
3	SEC	2	LOW
2	SEC	1	RED

FAST

1	LOW
2	RED
3	LOW
4	RED

PANEL FRONT KNOB

SETP 1	SETTINGS
SETP 4	SETTINGS
SETP 3	SETTINGS

SWITCH SETTINGS ARE EQUAL BUT POSITION IS ALTERED BETWEEN THE TWO MODELS SECON 1 & 2

NEW ON THE SECON 2 MODEL TO BE PUT AT ZERO/OFF WHEN REPLACING A SECON 1

THE RED AND ALARM FUNCTIONS ARE DIFFERENT. RED SIMPLY TURNS THE LIMIT INDICATION TO RED BUT ALARM IS ALSO ALTERING THE SWITCH FUNCTION FROM NO. 10 N.C. FUNCTION

ALARM SWITCH ON SECON 2 SHOULD ALWAYS BE IN POSITION OFF WHEN SUBSTITUTING A SECON 1

PID AND RAMP SETTINGS

FACTORY COMMISSIONING

D			
I	UP * 1	DOWN * 10	
P			
RAMP			
D			
I	UP * 1	DOWN * 10	
P			
RAMP			
D			
I	UP * 1	DOWN * 10	
P			
RAMP			
D			
I	UP * 0.1	DOWN * 1	
P			
RAMP			

EXTERNAL SIGNAL

SETP 3	SETP 4	SETTINGS
SETP 1	SETTINGS	SETTINGS

PANEL FRONT KNOB

SETP 1	SETTINGS
SETP 4	SETTINGS
SETP 3	SETTINGS

TRM DLY DERIVATA

A	ON	1	2	3	4	5	6	7	8
C	OFF								
E									

LIMIT

4	BELOW SP	3	TRM
3	ABOVE SP	2	TRM
2	TRM	1	LOW
1	BELOW SP	4	RED

DEVIATION

5	SEC	4	LOW
4	SEC	3	RED
3	SEC	2	LOW
2	SEC	1	RED

FAST

1	LOW
2	RED
3	LOW
4	RED

PANEL FRONT KNOB

SETP 1	SETTINGS
SETP 4	SETTINGS
SETP 3	SETTINGS

TRM ACTUATOR PULSE

LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	RANGE	RANGE	ZERO

FACTORY SETTING

LIM 1	LIM 2	LIM 3	LIM 4	SETP 2	RANGE	RANGE	ZERO

COMMS. SETTING

--	--	--	--	--	--	--	--

NAME: _____ CONTROLLER

TYPE NO: _____ CODE: _____

BOILER: _____ SCHEMATIC NO: _____

DATE: _____ SIGN: _____

REMARK: _____

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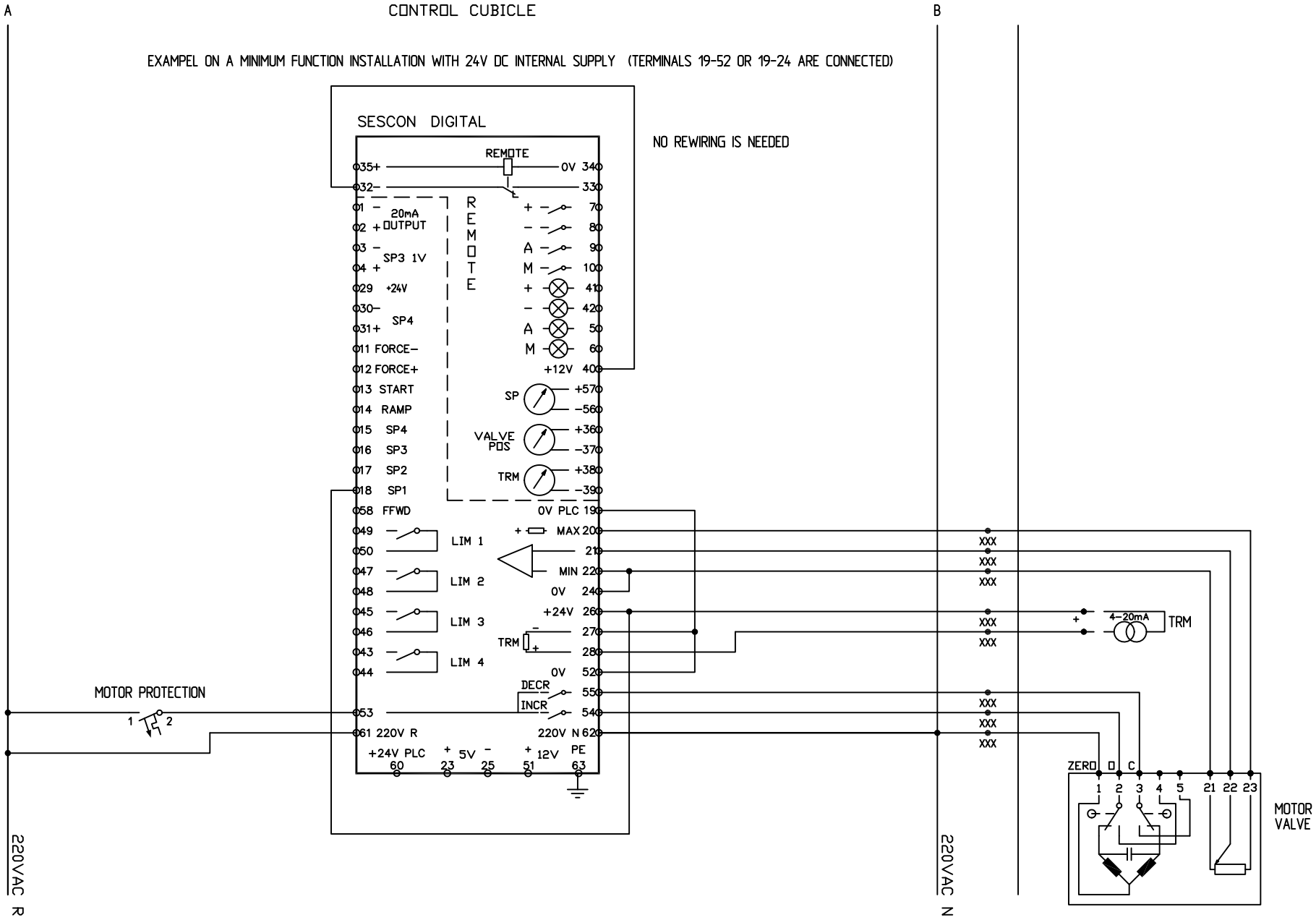
Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SECON 1 TO 2 REPLACEMENT			Jmf ritn/See drawing	Fortis/Next sh 4
	Best nr/Order No.	Benämning/Designation PROGRAMMING SWITCHES			Littera	Antbi/Tot sh Blad/Sheet 3
		Konstr/Design	Gransk/Check	Godk/Approv	Ersätter/Replaces	Ritning nr/Drawing No. 3151-31
			Datum/Date 1996-08-14	Fil nr/File No. 31513103		



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CONTROL CUBICLE

EXAMPEL ON A MINIMUM FUNCTION INSTALLATION WITH 24V DC INTERNAL SUPPLY (TERMINALS 19-52 OR 19-24 ARE CONNECTED)



Anmärkningar/Remarks	Senaste Ändring/ Last revision	Anläggning/Plant SESCON 1 TO 2 REPLACEMENT				Jmf ritn/See drawing	Forts/Next sh -
	Benämning/Designation INTERNAL DC SUPPLY				Littera	Antbl/Tot sh	Blad/Sheet 5
Best nr/Order No.	S.E.S. Scandinavian Electronics AB			Konstr/Design	Gransk/Check	Godk/Approv	Ersätter/Replaces
				Datum/Date 1996-08-15	Fil nr/File No. 31513105		Ritning nr/Drawing No. 3151-31
							Storl/Size A3