

Operating Instructions

Single "SES" Control System

Single® Temperiertechnik GmbH
 Ostring 17 - 19
 D-73269 Hochdorf
 Federal Republic of Germany

Telephone: (49) 7153 30 09-0
 Telefax: (49) 7153 30 09 50

E-Mail: info@single-temp.de
 Internet: <http://www.single-temp.de>

Status: 18.06.03 SES4302e

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Main switch or plug = supply reset

Please note: After supply reset, the displays show the date of the last software alteration

OFF (key)

- All systems "OFF"; LED is alight, for as long as voltage supply is live

ON (button)

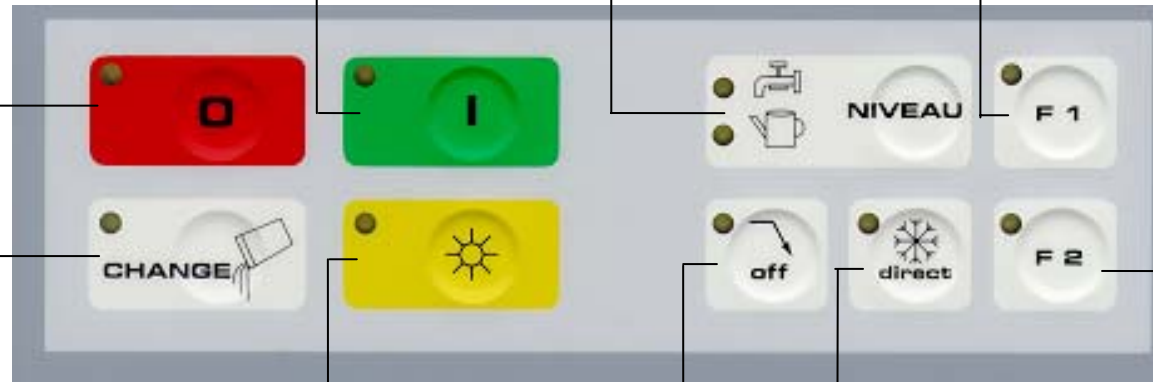
- system "working"; pump and controls "active"; potential-free contact on 8+9
- actuate this key, if "external" start applies; flashing LED shows readiness for start via terminal 27 + 28

Selection key "Filling"

- Manual or automatic filling, if water is the medium
- If Oil is the medium, fill-up manually only!
- Interlocked through configuration parameter "C4" (☞ p.11)

Special- functions key

- On heat-balancing units with interface change-over to "Remote operation"
- With connection for "external controllers", change-over to "external control"
- Interlocked through configuration "C7" (☞ p.11)
- Must be acknowledged with "Quit" after activation



Special- functions key

- For customer-specific design (refer separate information), otherwise unassigned
- interlocked through "C8" configuration (☞ p.11)

Mould evacuating

- When actuated, this function evacuates water from mould by
 - a) compressed air
 - b) pump
- time settable through parameter "A6" (☞ p. 4)
- followed by automatic pressure

Water as medium

- Mould evacuation by compressed air (optional)
- No function, when "system shut-down" active, i.e. "Closed" LED on information panel is alight.

Oil as medium

- Evacuate external volume (optional)
- Reversing switch for pump

Heating (Switch)

- Turning heating ON and OFF (stored safe from power-cut)

"Cooling" change-over switch

- to "direct cooling"
- confirm with "QUIT" on the inputting- and control panel
- Interlocked via "C6" configuration (☞ p. 11)

Pump-lag control

- System cools down and turns OFF
- Acknowledge with "QUIT" in the inputting- and control panel cooling-down temperature selectable with "C5"
- Interlocked via "C5" configuration (☞ p. 11)

Internal / external thermocouple change-over

- Selection: a) Push "Sensor" once = external probe (PT 100, NiCr-Ni, Fe-CuNi, selectable in the parameter record).
If no external probe fitted, although the "external" LED flashes, closed-loop control takes place internally- "Intern" is alight.
- b) Switching-over can also be carried out by an external, potential-free contact (terminal 11+12 of corresponding configuration "C10") (☞ p. 12)

Switch (for accessing various levels)

- 1 x "P" = working level
- 1 x "P" + "QUIT" = parameter level; followed with another "P" = individual parameter
- 1 x "P" + "QUIT" held for about 4 s. = configuration level; followed by another "P" = individual parameters

Value-alteration key

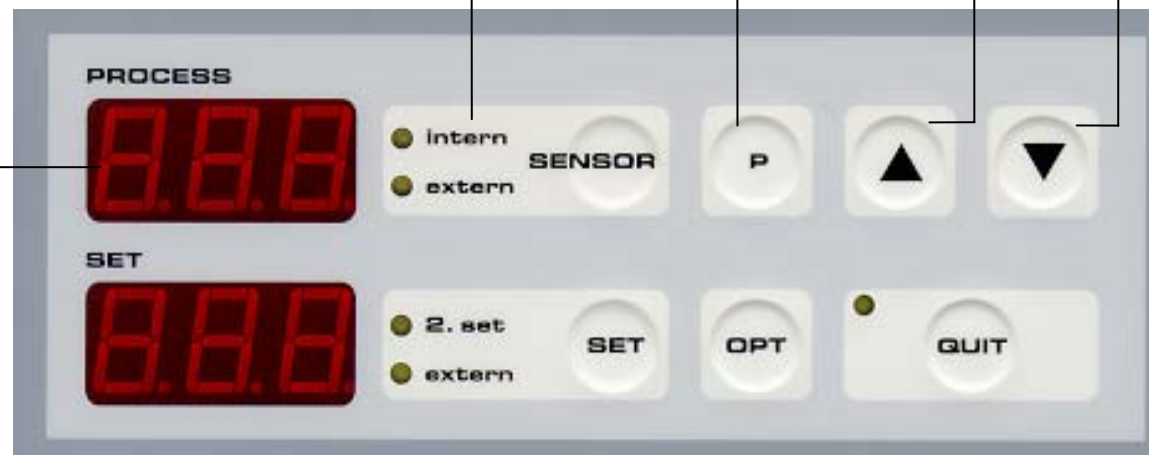
- For increasing set- and parameter-values
Attention!
Confirm with "QUIT" !

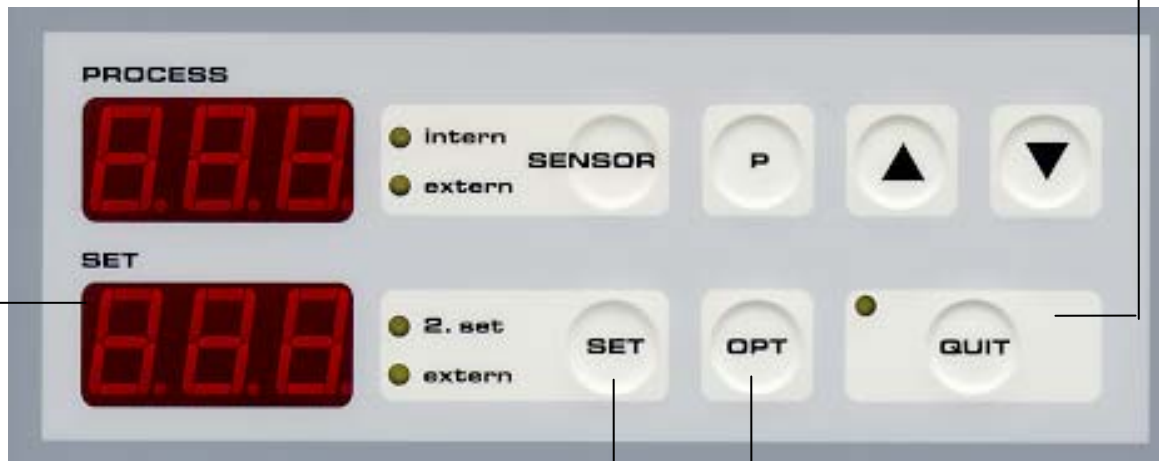
Value-alteration key

- For reducing the set- and parameters-values
Attention!
Confirm with "QUIT" !

Display (PROCESS)

- Display of inlet temperature's actual-value
- Display of parameter designation when operating at working-, parameter- and configuration- level.





Display (SET)

- Display of the current or programmed set-values
- Display of numerical values or parameter values when at working-, parameter- and configuration-level

Set-value inputting button

1. Input set-value active (no LED display)
2. 1 x "SET" = 2, set value active (confirm with "QUIT")
 - 2. Set illuminated
3. + 1 x "SET" = external set-value inputting (confirm with "QUIT")
 - "Extern" illuminated via analog signal 0-10V or 4-20mA or 0-20mA (voltage- or power-supply); range selectable at parameter level under parameter "C18 + C19". Externally input set-value is displayed.

4. + 1 x "SET" = return to "set-value"

Attention !

Both LED's flash, until confirmed with "QUIT"

5. SET-key can be interlocked through parameter record "C3" at configuration level (interlocked when delivered).
6. Change-over can also be effected via external potential-free contact (configuration "C12"), (☞ p. 12)

Acknowledgment-/ canceling-key

All alterations σ and τ must be acknowledged (confirmed) !
 (Set-values and parameters)
 Flashing yellow LEDs on preselection keys must be confirmed: OFF, direct and F1.
 Flashing LED in panel: acknowledgment required!

Fault-warnings must be canceled:

- a) Water: Steam temp. exceeded
- b) Oil: Oil-cracking temp. exceeded
 "Max."-level monitoring

Please note: - When the key is being actuated, an illuminated ring circulates the "SET"-panel contour

Automatic optimization (key)


- Actuation triggers an automatic optimization run (interlocked through "LOC", (only enabled at "OFF" and "SPT")
- If wrong input, cancel with "0" ("OFF") or by depressing "OPT" + "QUIT" simultaneously.
- During the optimization run, the "OPT"-message flashes alternately with the set-value in the "SET"-display

Attention !

By activating "at set-value" there is a brief lowering to 20K; triggering under 50°C not possible - in that case flashes in the "PROCESS" display - cancel with "QUIT"

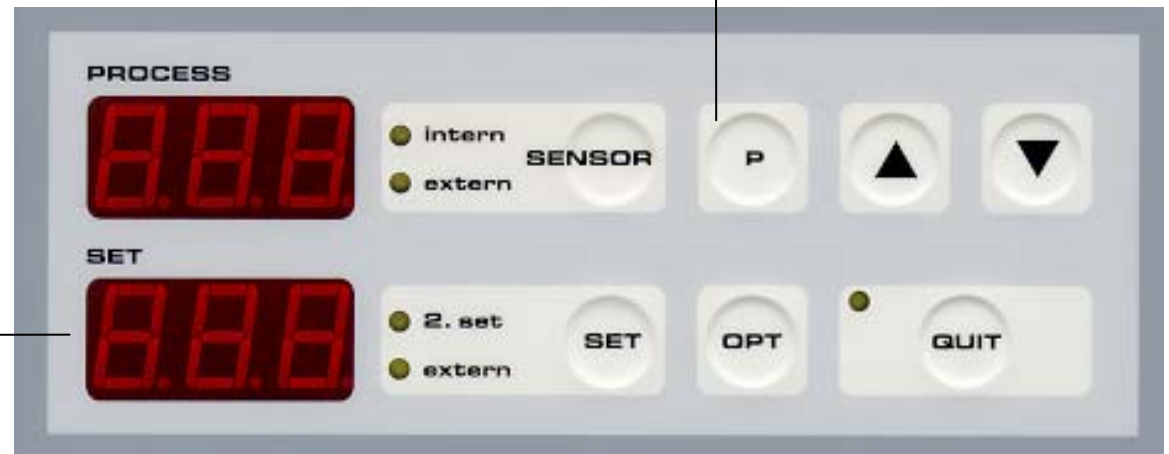
"Er.O" display -

Working level

Parameter No.	Inputting of:	Limit comparator 2. Set-value Inlet-temp. monitoring	Aquatimer Evacuation time Pressure input (low+high) Leak-stop function 2. Limit-comparator
A.2	+ 1 x P	"AL" = Alarm Limit = 1. Limit comparator (limiting value setting) Set temperature difference to the set-value with $\sigma\tau$ + "QUIT" no limiting value message: with σ until "OFF" appears + "QUIT". After "Start" (ON-key), limiting value message remains suppressed, until the actual value has reached the limit-band for the first time at "C27" of 7. Configuration of the switching behavior via parameter "C.27" "C.AL" Alarm on terminal 68/69	display LED • 
A.3	+ 1 x P	"SP2" = Second Set Point (set point 2) = Temperature selection 2. set-value (-30°C bis SPL= Set Point Limit) adjust value with σ and/or τ and confirm with "QUIT"; activate via "SET" (LED 2.set) or bridge terminal 19/20	
A.4	+ 1 x P	"AP.I" = Alarm Pre Intern = Inlet temperature monitoring (switching) Set value with σ and/or τ and confirm with "QUIT". Information via LED • \rightarrow temp (flashing); set value = 5K maximum with SPL; absolute limiting value.	
A.5	+ 1 x P	"Ati" = Aqua timer = maximum filling cycles (Aquatimer) pre-selectable 1 hour after turning ON, filling cycles not limiting! After 1 hour, cycles set to maximum are permissible, to prevent "infinite filling", when leaks have occurred. Set value with σ and/or τ , and confirm with "QUIT"; Alarm: unit switches OFF; "Ati" appears in display "OFF"= no monitoring function, e.g. with manual filling.	
A.6	+ 1 x P	"Cti" = Change time = mould-evacuation time by compressed air or pump set the time (in s) with σ and/or τ and confirm with "QUIT"; mould evacuation (optional) activated with "CHANGE" key when in the "OFF" position, "CHANGE" does not function	
A.7	+ 1 x P	"AFL" = Alarm Flow = Minimum volume input, if flow-rate display fitted (optional) Set values (liters/min) with σ or τ and confirm with "QUIT"; if alarm warning is not required, set "AFL" to "OFF" and confirm with "QUIT" Achtung! Selected value must not exceed "l/min" display on the information panel! If no flow-rate display fitted, "AFL" must be set to "OFF", otherwise alarm! Alarm-message: LED "l/min" alight + LED "flow" flashes	

By depressing "P", one enters the


Working level

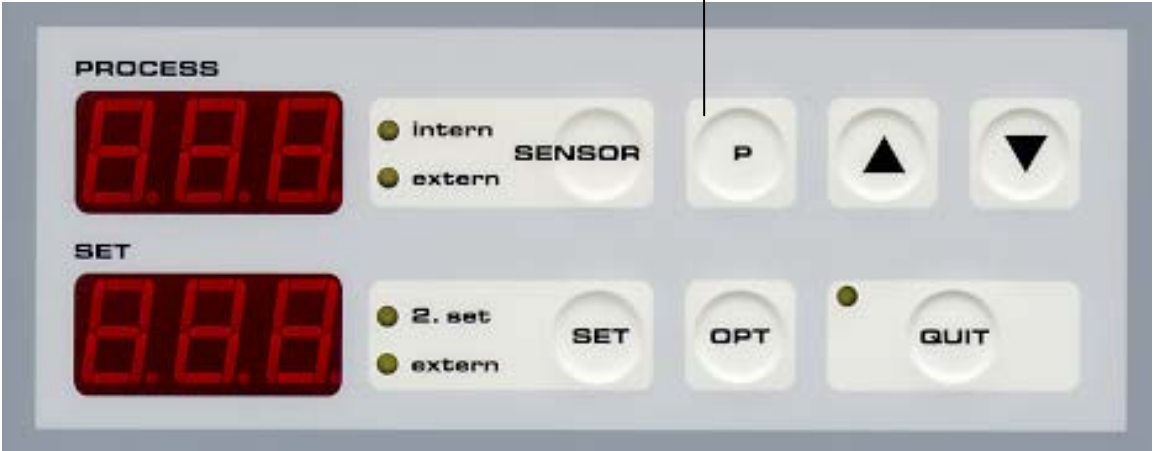


Display readings

"Ati"	Unit has turned OFF by the Aquatimer! Poss. causes: broken hose or leaks as such	→ check for leaks → cause for frequent filling → possibly increase Aquatimer cycles → arbitrarily frequent filling for 1h trough restart
"LOC"	Keyboard interlock is active! a.) Via configuration level (p. 12) b.) Via separate key-switch (option)	Cancel keyboard interlocking! a.) Set "LOC"-parameter to "OFF" b.) Release key-switch

Working level

Parameter No.	Inputting of:	Limit comparator 2. Set-value Inlet-temp. monitoring	Aquatimer Evacuation time Pressure input (low+high) Leak-stop function 2. Limit-comparator
A.8	=	Hi.P = High - Pressure Input for pressure monitoring - upper value (max. pressure) set value (in bar) with σ or τ and confirm with "QUIT" alarm information via "ASF" and LED "bar" alarm contact on output port 10 - terminal 85/86/87 (also please take note of parameter C.22 "CP" = pressure signal calibration) Range: OFF_0.1 to 25.0 bar	
A.9	=	Lo.P = Low - Pressure Input for pressure monitoring - lower value (min. Pressure) set value (in bar) with σ or τ and confirm with "QUIT" alarm information via "ASF" and LED "bar" alarm contact on output port 10 - terminal 85/86/87 (also please take note of parameter C.22 "CP" = pressure signal calibration) Range: OFF_0.1 to 25.0 bar	
A.10	=	LS = Leak - Stopp Change-over to "Leak-stop function" Activate with σ to "ON" Pump runs in leak-stop-, i.e. suction-mode Attention: electrical and hydraulic equipment must have been installed OFF=normal operation; ON=leak-stop mode	
A.11	=	AL.2 = Alarm 2 2. Limit comparator (limiting value) the value for the 2. Limit comparator should be set higher than that for A.2 (1. Limit comparator).	
A.12	=	Alarm on out 10 – display LED Pd.t Input of integration time for the capacity display Preset values: OFF, 1-500 min.	
A.13	=	Adr Appliance address	



Information panel

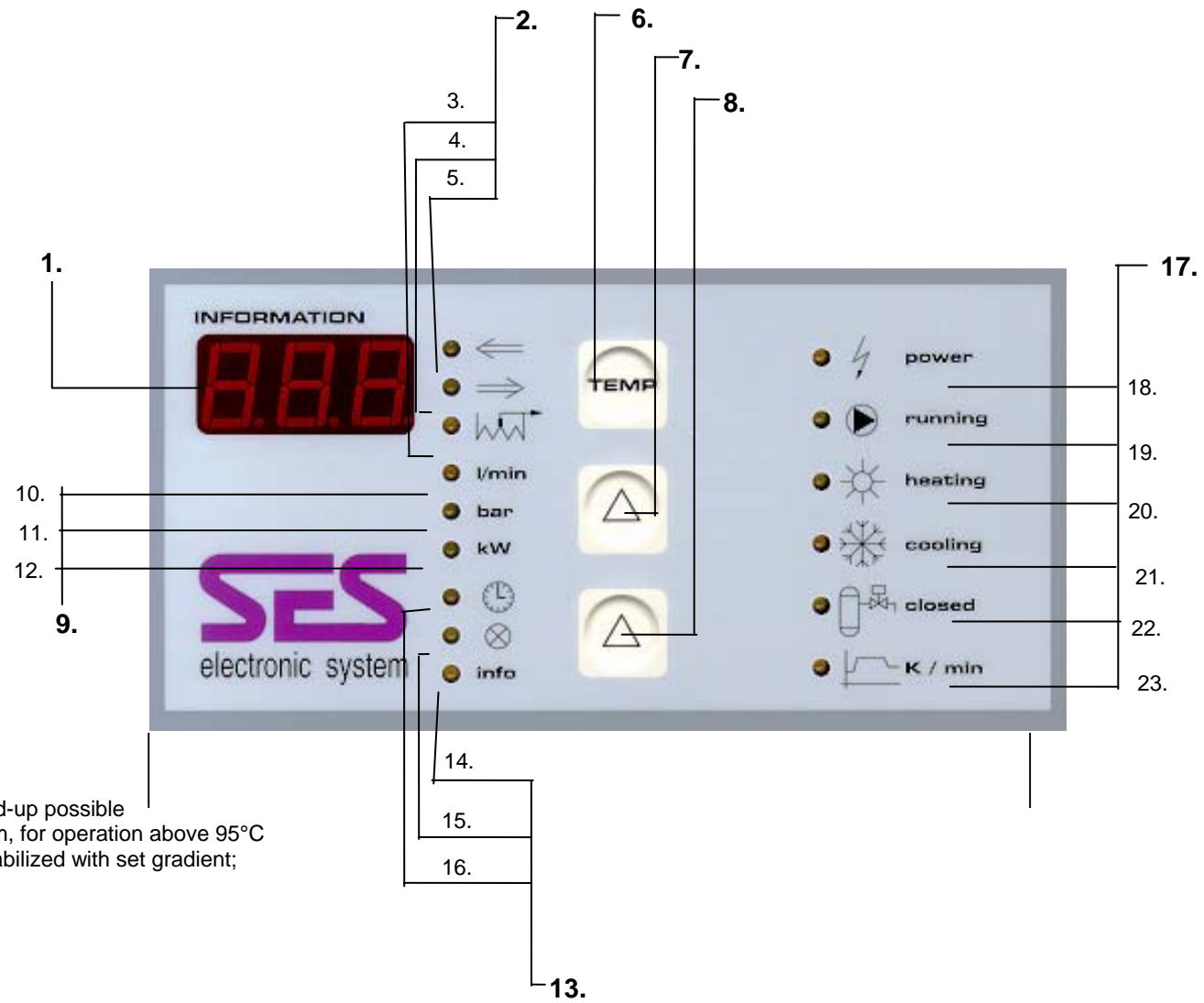
1. Display – Information
Display of parameter numbers










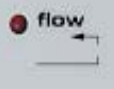



2. Temperature-display
 3. Oil-cracking temperature
 4. Inlet temperature
 5. Return temperature

6. Selection key temp. display
7. Selection key medium- information
8. Selection key unit information
9. Medium-information (optional)
 10. Flow-rate display
 11. Inlet pressure
 12. Actual heating or cooling capacity

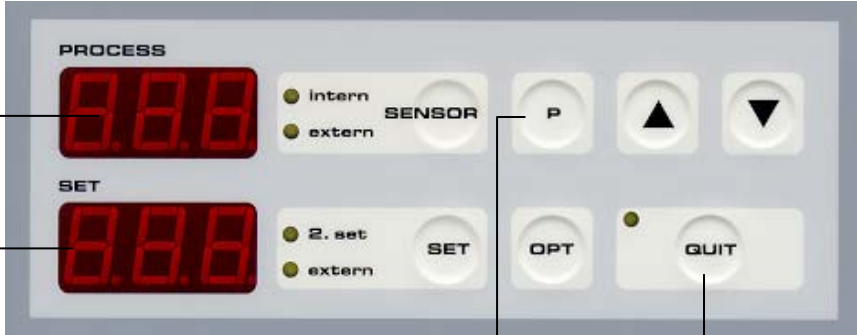
13. Unit information
 14. Unit serial number
 15. Lamp-check switching
 16. Operating hours counter

17. Displays
 18. Supply voltage available
 19. Pump running
 20. Heating ON
 21. Cooling ON
 22. System shut-off against atmosphere, pressure build-up possible only suitable for units with water as heating-medium, for operation above 95°C
 23. Gradient-mode in K/min – all set-value changes stabilized with set gradient;
 Illuminated LED means:
 a gradient has been input in the parameter record

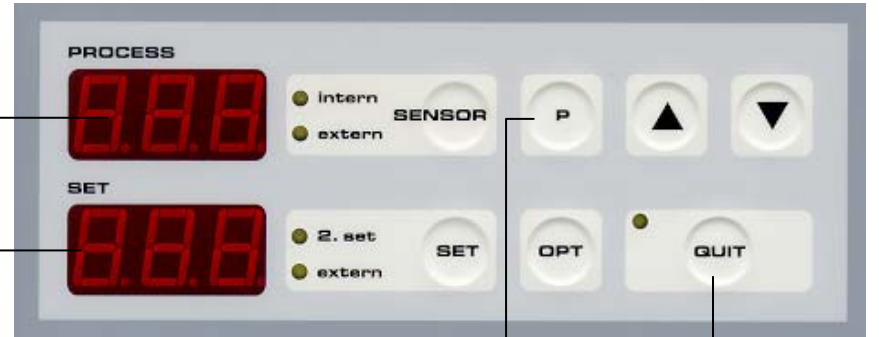


	ALARM	
<p>Cause LED alight (●) or flashing (✱) ● Wrong dir</p> <ul style="list-style-type: none"> ✱ Two-phasing ✱ Motor protection switch responded 		<p>Rectification / explanation</p> <ul style="list-style-type: none"> ⇒ Swap phases on plug ⇒ Check direction of rotation ⇒ Check phases (possibly supply-fuses) ⇒ Check and/or push motor protection switch
<ul style="list-style-type: none"> ● Minimum level not made ✱ Filling "active" ("Filling" solenoid valve open) 		<p>a.) Water: ⇒ refill at ●  ⇒ open supply valve, ●  if filling process runs (LED flashes) ✱</p> <p>b.) Oil: ⇒ fil or replenish with oil</p>
<ul style="list-style-type: none"> ✱ Expansion vessel overfilled 		<p>Only for units with heat-transfer oil as medium!</p> <ul style="list-style-type: none"> ⇒ Unit overfilled with oil ⇒ External volume too large Attention ! Cancel with "QUIT" ⇒ Drain-off oil
<ul style="list-style-type: none"> ✱ Limit comparator outside band-spread limiting value exceeded 		<ul style="list-style-type: none"> ⇒ Not up to temperature, or outside band-spread (limit) ⇒ Band-spread too narrow or limiting value reached ⇒ Turn OFF with "P" up to (A.2) (1. Param. at working level) + ▼ till "OFF", confirm with "QUIT"
<ul style="list-style-type: none"> ✱ Return-temperature up to limiting value 		<ul style="list-style-type: none"> ⇒ Check set limiting value ⇒ possibly too low a flow rate ⇒ turn OFF via (P.16) + ▼ till "OFF", confirm with "QUIT"
<ul style="list-style-type: none"> ✱ Inlet temperature up to limiting value Heating switches OFF 		<ul style="list-style-type: none"> ✱ ⇒ Check set limiting value; inlet temp. has reached max. permissible or set limiting value ⇒ Insufficient heat dissipation by consumer – setpoint too high ⇒ Subsequent to cooling by 1 – 2K, heating comes ON again
<ul style="list-style-type: none"> ● Safety temperature restrictor – additional component in control cabinet has responded ✱ Up to oil-cracking temperature (safety alert) Heating switches OFF Can only be canceled with "QUIT"! 		<ul style="list-style-type: none"> ⇒ With oil units: oil up to limiting value; safety temperature restrictor active ⇒ Improve heat transmission, i.e. ensure adequate flow around heating rod, clean dirt-trap, install bypass, if necessary ⇒ maximum temperature limiting-value for heating reached Check the flow (too little heat absorbtion from heater)
<ul style="list-style-type: none"> ● No flow (on units equipped with flow-monitor) ✱ Dropped below minimum volume (Input working parameter "AFL" (A.7)) 		<ul style="list-style-type: none"> ● ⇒ No minimum flow ⇒ Check flow-rate (clean dirt trap, if necessary) ⇒ Check differential pressure switch (reduce set- value if necessary) ✱ ⇒ Alarm minimum volume (LED "/min" alight additionally) ⇒ Inout minimum volume for operation with flow-metering unit (option) not achieved
<ul style="list-style-type: none"> ● Delta T monitoring and/or closed-loop control ✱ Alarm special functions 		<ul style="list-style-type: none"> ● ⇐ and ● ⇒ ⇒ flash alternately ⇒ With Delta T monitoring or closed-loop control "ASF" –display; alarm on 85/86/87 is activated by parameter "dt" (P.19) (set to "OFF", if necessary) ⇒ When LED  flashes simultaneously, fill-up with medium, unit will shortly be empty ⇒ + ● bar flashes = pressure monitoring min. or max. has responded ⇒ +  flashes = 2. Limit alarm has responded. Signal on terminal 85/86/81

Parameter No.	Designation	Value
	„PROCESS“ Panel	
		„SET“ panel
		Parameter level
		For accessing the parameter level, both keys must be depressed simultaneously. Parameter forward: push "P"; after 15s, display jumps to "Control function"; but by pushing "Quit" for 3s, the jump is carried out immediately.
		Attention: Alteration is only possible, if "LOC" (C.1) (at configuration level) is in the "OFF" position!
P.1	Y % present regulation ration	Heating prefix + Cooling prefix -
P.2	hL % regulation ratio "heating limit "	0... 100%
P.3	cL % regulation ratio "cooling limit "	0... 100%
P.4	hP xp-heating (heating proportional band) "P"	OFF_0,1...99,9%
P.5	hd Tv-heating (rate-time heating) "D"	OFF_1...200 s.
P.6	hl Tn-heating (reset-time heating) "I"	OFF_1...999 s.
P.7	cP xp-cooling (cooling proportional band) "P"	OFF_0,1...99,9%
P.8	cd Tv-cooling (rate-time cooling) "D"	OFF_1...200 s.
P.9	cl Tn-cooling (reset-time cooling) "I"	OFF_1...999 s.
P.10	db Dead band between "heating" and "cooling"	OFF_0,1...10,0°C
P.11	hC Heating cycle time	1...240 s.
P.12	cC Cooling cycle time	1...240 s.
P.13	SPL Set point limit	-30°C...400°C
P.14	SP \uparrow Set point ramp -rising	OFF_0,1...99,9 K/min:
P.15	SP \downarrow Set point ramp -falling	OFF_0,1...99,9 K/min:
P.16	Ab3 Limiting value zone 3 (return)	OFF_ -29°C...400°C relay out 10 value > set
P.17	AF5 Limiting value zone 5 (oil cracking temperature)	OFF_ -29°C...400°C relay out 10 value < set
P.18	SCL Water: Temperature preselection for system shut-off Oil: Evacuation only possible, if set-value is below SCL ("CHANGE")	OFF, if additional safety temp. restrictor fitted OFF_ -30°C...400°C OFF_35...95°C



Parameter No.	Designation	Value	Monitoring:	Boundary:	Parameter level
	„PROCESS“ panel	„SET“ panel			
P.19	dt Delta-T-monitoring / delimitation inlet-/ return-temperature Monitoring: ASF alight; alarm on change-over 85/86/87 Delimitation: ASF alight; Variable is being turned OFF		OFF - 1...20	exceeding 20 up to 1• ...20• (2. Group)	<p>Parameter level</p> <p>For accessing the parameter level, both keys must be depressed simultaneously. Parameter forward: push "P"; after 15s, display jumps to "Control function"; but by pushing "Quit" for 3s, the jump is carried out immediately.</p> <p>Attention: Alteration is only possible, if "LOC" (C.1) (at configuration level) is in the "OFF" position!</p>
P.20	SEn Selected sensor Zone 2 External thermocouple	Pt: PT 100 FE: Fe-CuNi ni: NiCr-Ni 0.20: 4.20:			
P.21	C F Change-over feature of the heat-balancing unit from °C to °F ATTENTION: "Re-enter" temperature values (in °F) Set-value dependent values (e.g. limit comparator) remain as Delta T °C = °F	C = °Celsius F = °Fahrenheit			
P.22	ESL <u>E</u> xternal <u>S</u> ensor <u>L</u> ogic Selection feature regarding the transient response of external thermocouples	= b during the start-up phase or following a set-value alteration, the APE – limitation (band for internal temperature) always remains active 1. = b during the start-up phase or following a set-value alteration, the internal temperature may overshoot the band just once. Band-limitation only becomes active, when the set-value equals the actual temperature			



Parameter level

For accessing the parameter level, both keys must be depressed simultaneously. Parameter forward: push "P"; after 15s, display jumps to "Control function"; but by pushing "Quit" for 3s, the jump is carried out immediately.

Attention: Alteration is only possible, if "LOC" (C.1) (at configuration level) is in the "OFF" position!

Parameter No.	Designation	„PROCESS“ panel
C.1	LOC Keyboard interlock	
	OFF	⇒ No interlock
	PC	⇒ Parameter- and configuration-level only are interlocked; i.e. the parameters can be locked at, but not adjusted; automatic optimization is blocked
	SP.t	⇒ The set-value only can be altered and all functions-keys are enabled as well, except for those, blocked by the configuration level
	o.SP	⇒ Set-point only, meaning that all keys are blocked, with the exception of the set-point, that can be altered, or the system can be turned ON and OFF
	ALL	⇒ Complete keyboard interlocking, switching ON or OFF possible only, not even set-point alterations can be carried out
	ATTENTION:	When altering "LOC" parameters, "QUIT" must be depressed, until the illuminated ring circulates a second time (approximately 5s).

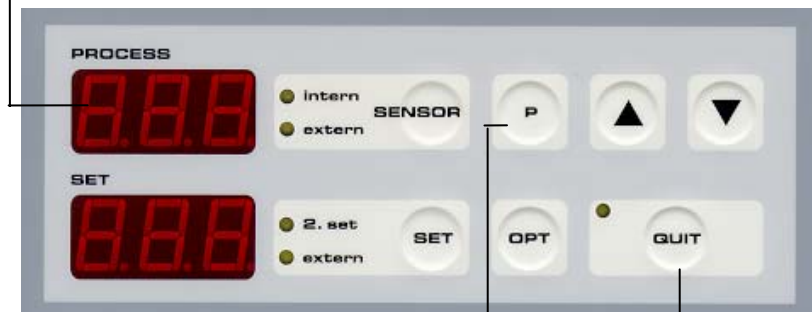
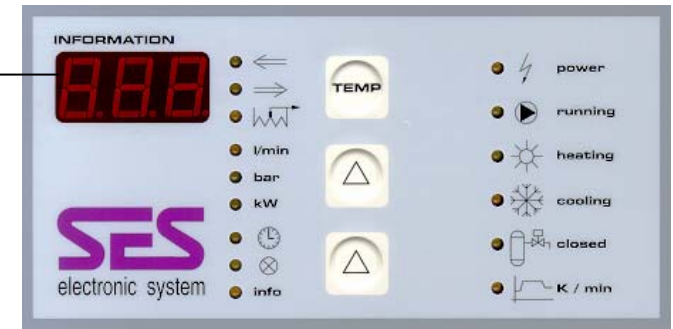
C.2 **AP.E Activation of inlet temperature-cascade control by an active external probe**

= Difference to the set-value, i.e. the inlet temperature is input as Delta-T to the set-value, and trails along, while a change is occurring to the set-value. This ensures constant monitoring of the inlet-temperature, as a function of the set-value. It is ideally employed in an external probe situation, for preventing any internal overshoot of the heating- or the chilling-system (cascade control). This inlet temperature monitoring is activated automatically, when switching over to "external probe".

ATTENTION: The transient response logic is selected with the parameter P.22 "ESL".
Info regarding the turned-OFF setting variable: LED ⇒ (inlet) is alight.

Value
OFF_1,2,3 ... 100K
at OFF = no limitation-/additional control-function,
which means, function is turned OFF.

Configuration level



Configuration level

simultaneous actuation of these two keys for more than 5s accesses the configuration level

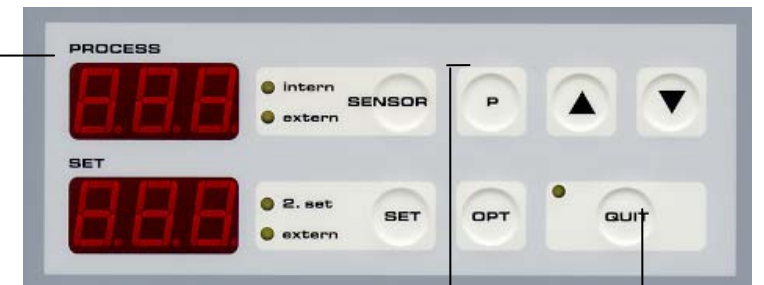
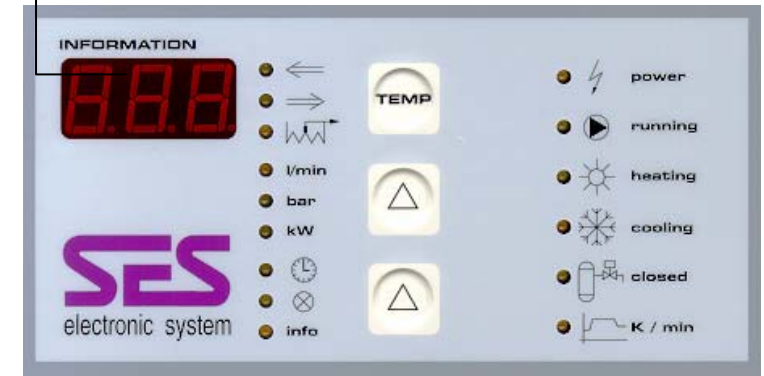
ATTENTION: Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Designation

Parameter No.

- C.3 **SEt Interlocking of the SET-key**
 At operator communication-level the "SET"-key is blocked by this parameter, so as to prevent the 2. Set-point gets activated impermissibly, or that the system gets switched to an external set-point
- ON** ⇒ SET-key enabling
LOC ⇒ SET-key blocked
- C.4 **niv Enabling AUTOMATIC or MANUAL filling**
ON ⇒ Change-over feature is enabled
 Selection automatic / manual filling
LOC ⇒ Change-over feature is blocked
 Subject to unit specifications, only the input status is possible
- C.5 **c60 Pump lag control**
 Configuration to enable this function
OFF ⇒ The "OFF"-key is blocked
 10... 100 ⇒ adjustable switching-OFF temperature 10 ... 100°C
- C.6 **cdi Configuration for direct cooling**
 The "direct" key can be blocked
ON ⇒ Change-over facility for direct cooling is enabled
OFF ⇒ Key is blocked, no direct cooling permitted
- C.7 **F1 Configuration F1 - Key**
 Change-over to external controller either with F1, or to "Remote" if on interface operation (=online), this key can be blocked
ON ⇒ F1- key enabled
LOC ⇒ F1- key blocked
- C.8 **F2 Key for special functions**
 With this key, various functions can be enabled and ensured, it can be configured as switch or push-button
LOC ⇒ F2 – key blocked
On.S ⇒ F2 – key configured as switch
On.t ⇒ F2 – key configured as push-button
 There is a possibility for locking the F2 in the switched-status via "LOC"

Configuration level



Configuration level

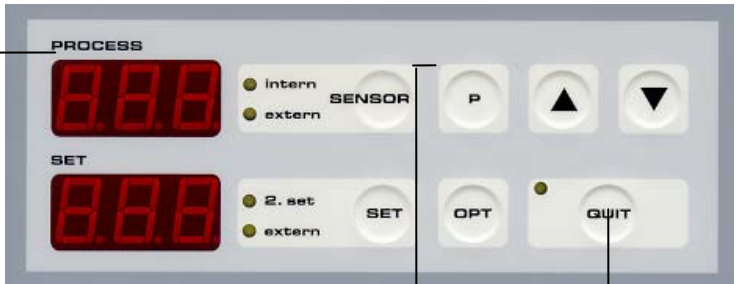
simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION:

Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Parameter No.	Designation	Description
C.9	Ph	<p>Rotary field identification, phase-testing Rotary field identification or phase failure recognition can be activated or turned OFF with this parameter record</p> <p>ON ⇒ Phase identification active OFF ⇒ Phase identification switched OFF</p>
C.10	c.S1	<p>Input port S1 (11/12) This input port can be configured in two ways</p> <p>E.SE ⇒ possibility to change-over to an external probe trough an external, potential-free contact E.Co ⇒ possibility for change-over to an external controller</p> <p style="background-color: #FFD700; padding: 2px;">Activation via potential-free contact, terminals 11+ 12</p>
C.11	c.S3	<p>Input port S3 (17/18) This input port can be configured in two ways</p> <p>bL ⇒ "almost empty" – signal for float-switch, with preliminary signal about medium-level information PC ⇒ Keyboard interlocking through external, potential-free contact, or key-switch SP.t o.SP Configuration of the kind or level of interlock, such as C.1 "LOC" page 9 ALL</p> <p style="background-color: #FFD700; padding: 2px;">Activation via potential-free contact, terminals 17+ 18</p>
C.12	c.S4	<p>Input port S4 (19/20) This input port can be configured in two ways</p> <p>SP.E ⇒ Change-over possibility to external set-value inputting (Same function as "SET"-key with LED "external") SP.2 ⇒ Change-over possibility to 2. Set-point via external, potential-free contact (similar function, as 2. SET via "SET"-key)</p> <p style="background-color: #FFD700; padding: 2px;">Activation via potential-free contact, terminals 19+ 20</p>

Configuration level



Configuration level

simultaneous actuation of these two keys for more than 5s accesses the configuration level

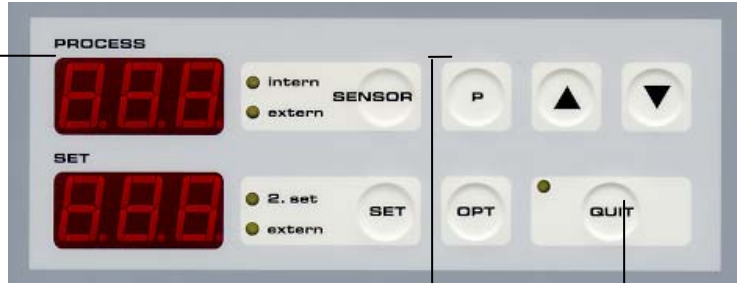
ATTENTION:

Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Parameter No.	Designation	„PROCESS“ panel
C.13	c.1	<p>Configuration “heating” output port</p> <p>rEL ⇒ relay - output biS⇒ bistabile output-port (0/18V_{dc}) for SSR A.0 ⇒ Steady output-port 0-20 mA A.4 ⇒ Steady output-port 4-20 mA</p>
C.14	c.2	<p>Configuration “cooling” output port</p> <p>rEL ⇒ relay - output biS ⇒ bistabile output-port (0/18V_{dc}) for SSR A.0 ⇒ Steady output-port 0-20 mA A.4 ⇒ Steady output-port 4-20 mA</p>
C.15	c.12	<p>Output port out 12 (8/9) This output port can be configured in two ways</p> <p>on.c ⇒ Normally open contact for signal, when system is active Et.c ⇒ Normally open contact, wich means, signal active or remote operation</p>

Information signal terminal 8 + 9 during „on“, or else activation of „F1“ / „S1“ via terminals 11 + 12

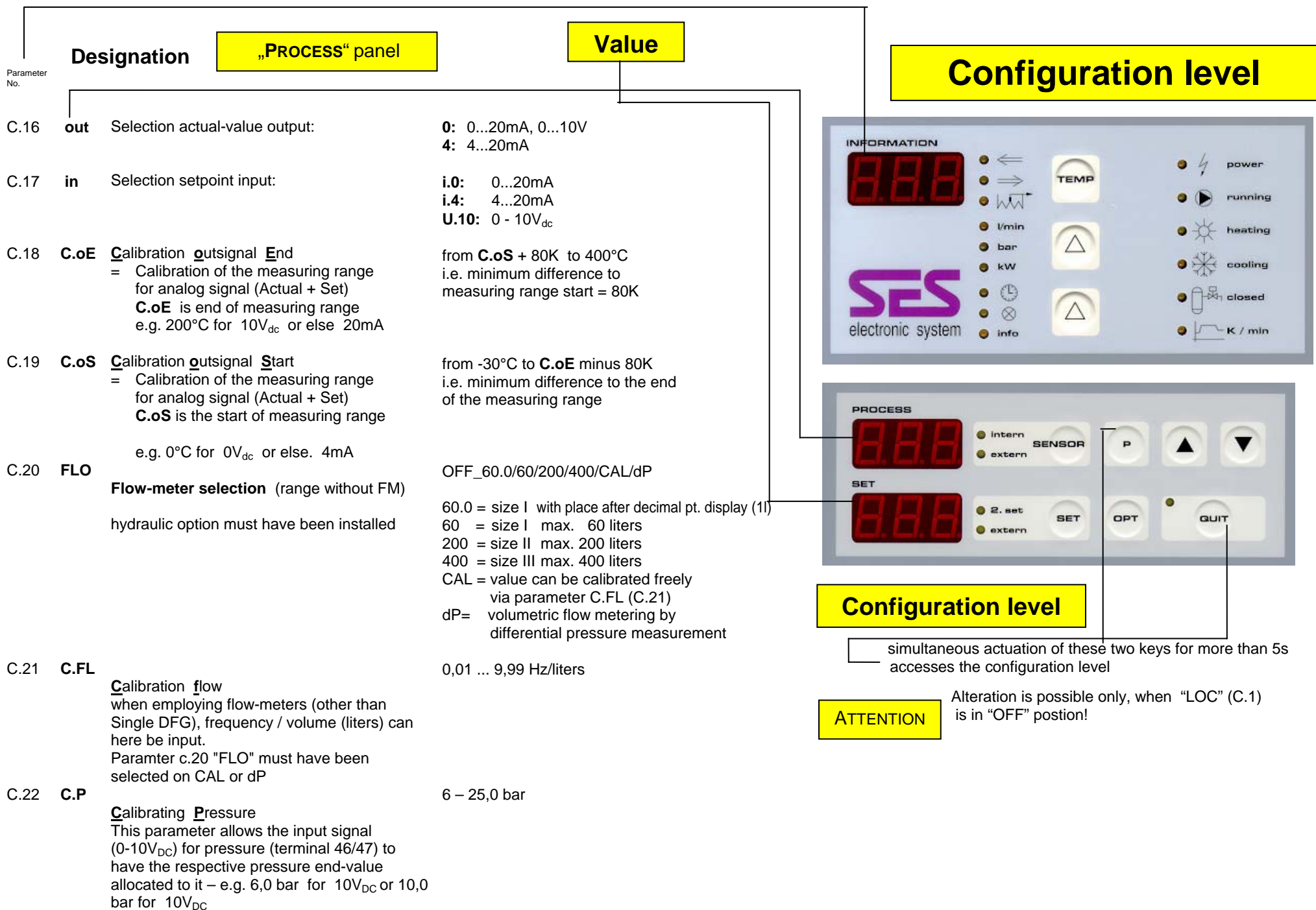
Configuration level



Configuration level

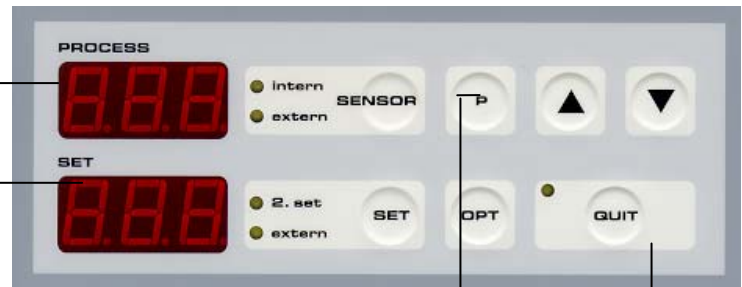
simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION: Alteration is possible only, when “LOC” (C.1) is in “OFF” position!



Parameter No.	Designation	Value
C.23	Cd.F Correction factor for flow metering in the "Öl" configuration	Setting range: 0.00 – 9.99
C.24	OF.F Offset for flow rate	Setting range: OFF; 1 – 99
C.25	F.dF Function of the flow monitor	Setting range: FLO/AL/AU Legend: FLO = Flow indication via contact S7 (pins 25 and 26) AL = Flow indication by volume determination and via parameter A.dF. The information is displayed in units of ltr/min AU = Flow indication by volumetric flow determination and via parameter A.dF. The information is displayed in units of 1/10 volts.
C.26	A.dF Setting of minimum quantity for volumetric flow rate measurement	Setting range: OFF; 1 – 999 ltr./min

Configuration level



Configuration level

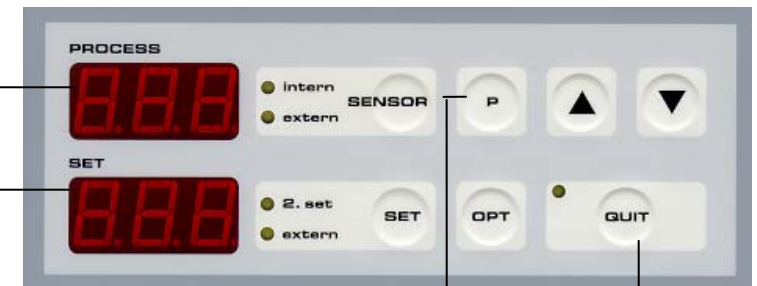
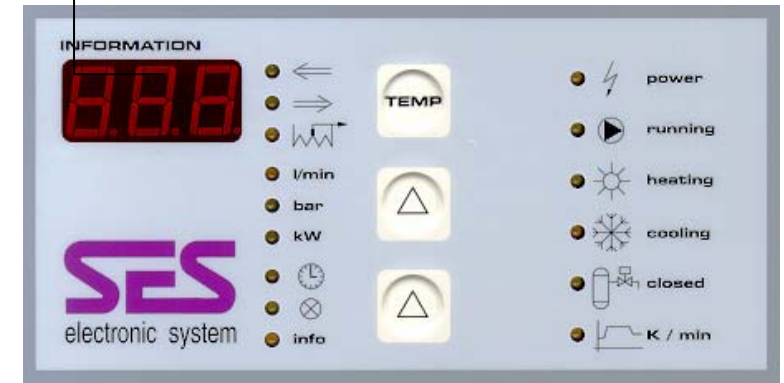
simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION

Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Configuration level

Parameter No.	Designation	„PROCESS“ panel	Value
C.27	C.AL	<p>Configuration Alarm 1</p> <p>= Alarm can be selected as signal, limit contact or as limit comparator. In the "ON" position, relay OUT04 is de-energized. In position "OFF", relay OUT04 is energized terminal 67/68/69</p>	<p>Setting range:</p> <p>OFF ⇨ Alarm has been turned OFF</p> <p>1 ⇨ Signal contact OFF-ON</p> <p>2 ⇨ Limiting value OFF-ON</p> <p>3 ⇨ Limit comparator OFF-ON-OFF</p> <p>4 ⇨ Signal contact ON-OFF</p> <p>5 ⇨ Limit contact ON-OFF</p> <p>6 ⇨ Limit comparator ON-OFF-ON</p> <p>7 ⇨ Limit comparator ON-OFF-ON</p> <p>-no alarm during set-value alteration-</p>
C.28	C.A2	<p>Configuration Alarm 2</p> <p>= Alarm can be selected as signal, limit contact or as limit comparator 2. limit-comparator alarm at OUT10 terminals 85/86/87</p>	<p>Setting range:</p> <p>OFF ⇨ Alarm has been turned OFF</p> <p>1 ⇨ Signal contact OFF-ON</p> <p>2 ⇨ Limiting value OFF-ON</p> <p>3 ⇨ Limit comparator OFF-ON-OFF</p> <p>4 ⇨ Signal contact ON-OFF</p> <p>5 ⇨ Limit contact ON-OFF</p> <p>6 ⇨ Limit comparator ON-OFF-ON</p> <p>7 ⇨ Limit comparator ON-OFF-ON</p> <p>- no alarm during set-value alteration -</p>
C.29	ChL	<p>Change Logic</p> <p>= Inputting of the change-routine. The change sequence will have to be selected as a function of the system's electro-hydraulic equipment</p> <p>dd = mould evacuation by compressed air</p> <p>LS = mould evacuation by pump (leak-stop function)</p> <p>Ldd = Unit with leak-stop function and evacuation by compressed air</p> <p>8-9 = Mold evacuation for "old systems" (reverse compatibility) or else units equipped with "system shut-OFF in the cooling water return-line" e.g. STW 1-HTK and STW 150/1-HK + HN</p>	<p>dd</p> <p>LS</p> <p>Ldd</p>



Configuration level

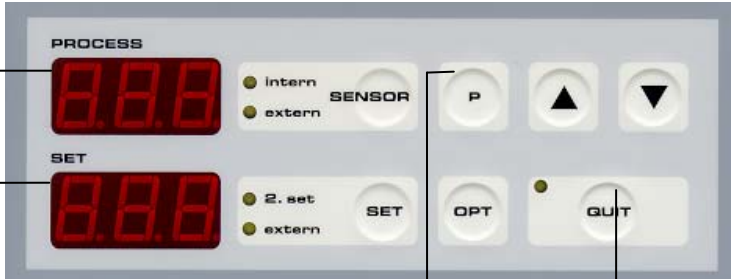
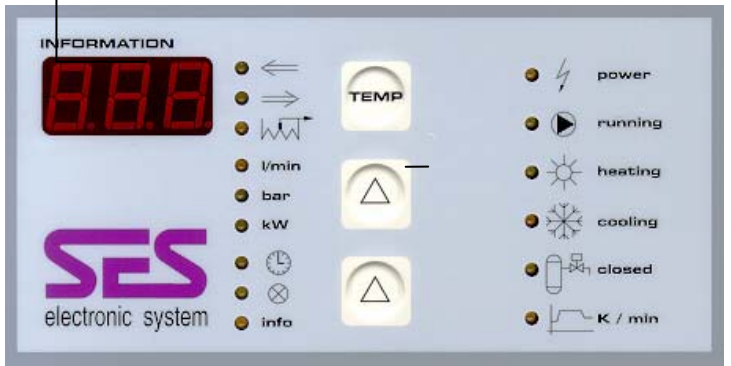
simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION:

Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Configuration level

Parameter No.	Designation	„PROCESS“ panel	Value
C.30	ASt	A quatimer- S tart- t ime Aquatimer (filling-impulse-counter) becomes active, once a time set in the "ASt" has timed-out. Previously, random filling cycles were unmonitored. Following the 'ON/OFF', the AST-time starts up again.	5....120 min.
C.31	EMO	Restarting-block after "mains failure" After net-reset, the plant is no longer independent The info-panel displays "EMO" LED in "OFF"-key flashes! RE-START: Quit EMO with the "0" key. + Start via "ON"-key (also works with "external ON" via terminals 27 + 28)	ON - OFF
C.32	OF1	Temperature correction, zone 1 (OFFSET)	-100_OFF_+100°C
C.33	OF2	Temperature correction, zone 2 (OFFSET)	-100_OFF_+100°C
C.34	OF3	Temperature correction, zone 3 (OFFSET)	-100_OFF_+100°C
C.35	OF4	Temperature correction, zone 4 (OFFSET)	-100_OFF_+100°C
C.36	OF5	Temperature correction, zone 5 (OFFSET)	-100_OFF_+100°C
C.37	OF6	Duty cycle offset info for system output cooling.	Setting range: 0 – 100 % Use of the parameter: To equalize unsteadiness of a cooling valve, an offset (OFF-Set) can be entered here in %.
C.38	P.Fi	Filter for stabilization of the actual-value display	Setting range: OFF; 1.0 – 60.0 seconds



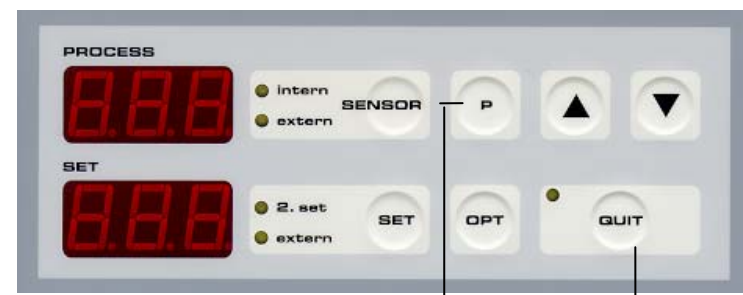
Configuration level

simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION: Alteration is possible only, when "LOC" (C.1) is in "OFF" position!

Parameter No.	Designation	
	Pro	OFF A: ARBURG b: Boy E: ENGEL St: SINGLE (standard) Pb: Profibus (Gateway) Pbd (internal Profibus) CAN: CAN-interface 1-255
	b	
	For	OFF_0,3/0,6/1,2/2,4/4,8/9,6/19,2
C.40	dn1 Baudrate, transmission speed	7E1/7o1/7E2/7o2/7n2/8E1/8o1/8n1/8n2
C.41	dn2 Transmission format	0...999
C.42	PS1 Heat-balancing unit number 1. part	0...999
C.43	Heat-balancing unit number 2. part	via secret code
C.44	Save or reactive control parameter records	

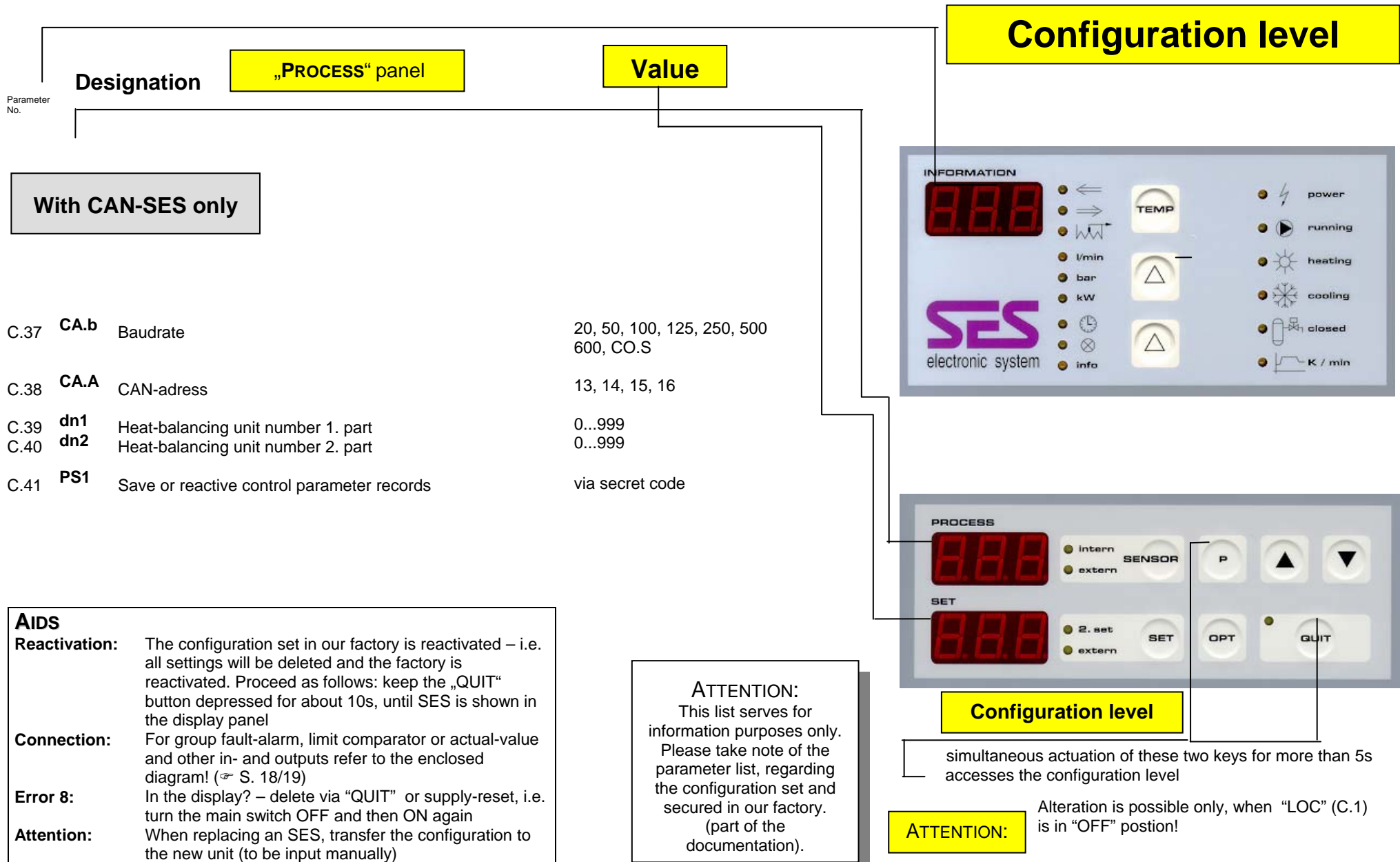
Configuration level



Configuration level

simultaneous actuation of these two keys for more than 5s accesses the configuration level

ATTENTION: Alteration is possible only, when "LOC" (C.1) is in "OFF" position!



Auxiliary Supply

Power supply

**rotation-
and phase failure
identification**

L1/230V_{AC}

L1/115V_{AC}

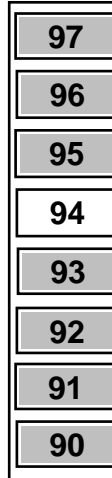
N/MP

N/MP

L3

L2

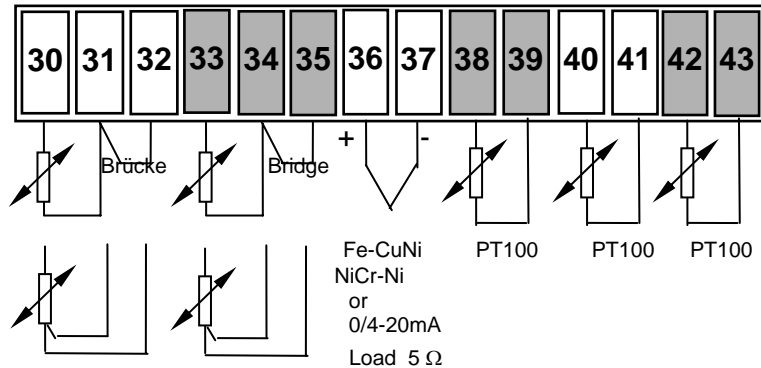
L1



115 V_{AC}, only possible following modification

Power supply
Terminal / at side

Probe inputs



PT100

Zone 1
Controller
„internal“

PT100

Zone 2.1
Controller
„external“

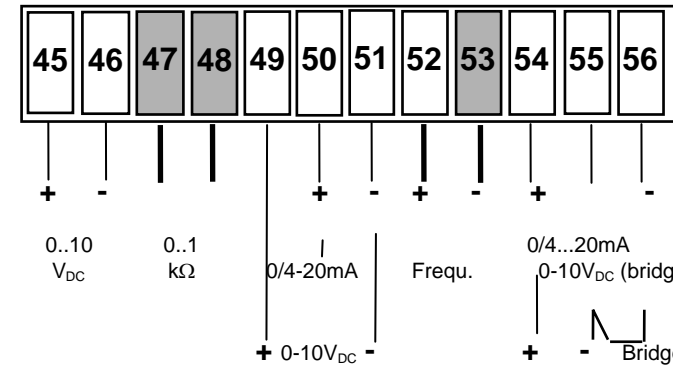
Zone 3
Return
temperature

Zone 4
Inlet
restrictor

Zone 5
Oil-cracking
temperature

Info-inputs / actual-value output

Terminal strip top / front



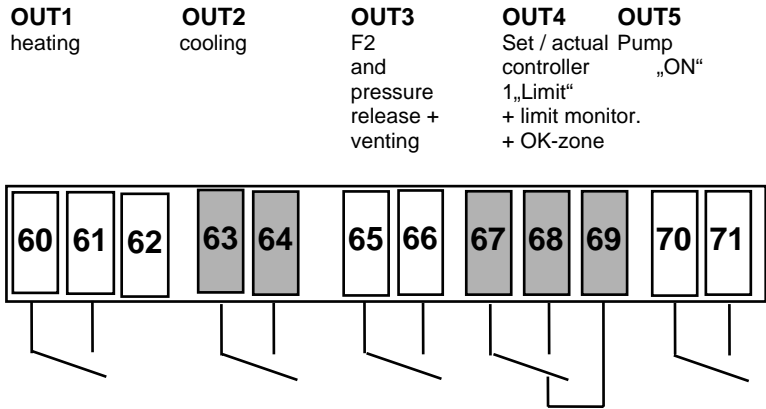
Zone 6
Pressure
trans-
duser

Zone 7
Level-
status

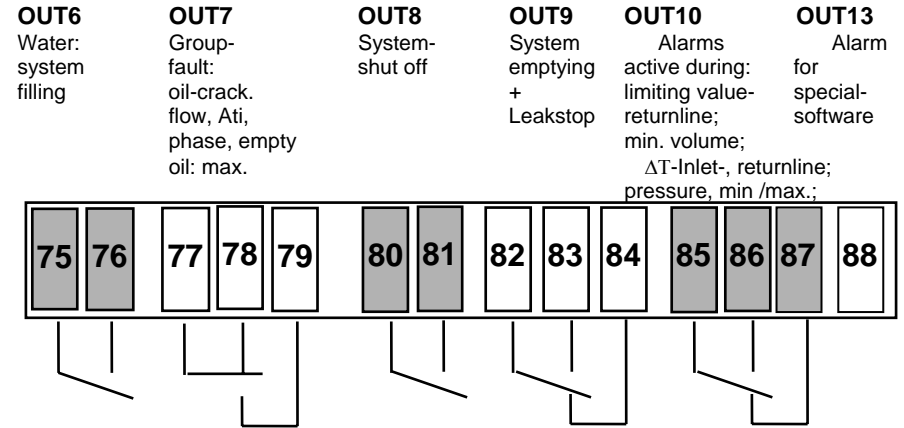
Zone 8
Set-value-
input

Zone 9
Flow-meter
(FM)

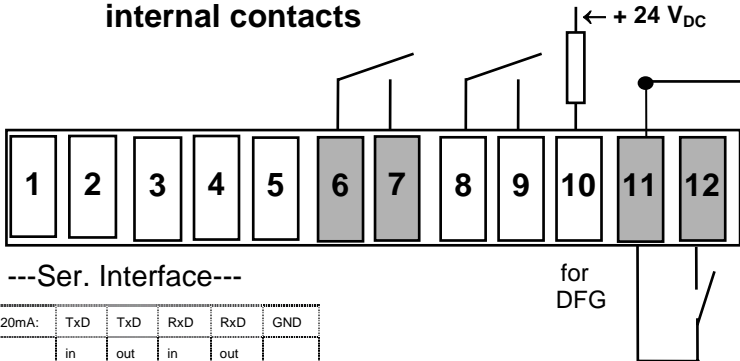
Zone 10
Actual-value
output



--- Outputs ---
(terminals strip down)



internal contacts



---Ser. Interface---

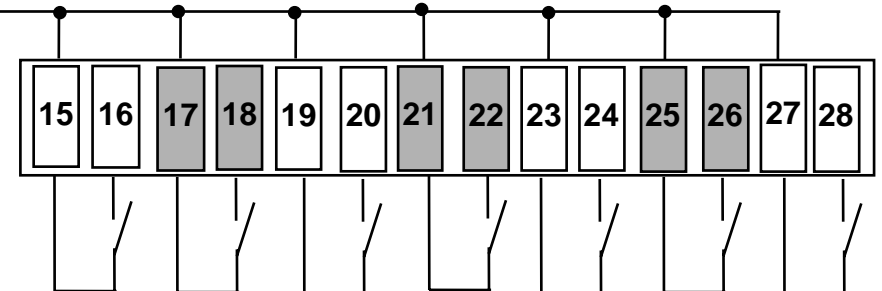
20mA:	TxD	TxD	RxD	RxD	GND
	in	out	in	out	

RS485:	B	A			
RS232:	RxD	TxD	RxD	TxD	GND

alternative assignment, selectable via configuration level:

OUT 11 Oil-crack: alarm zone 5 n/c contact	OUT 12 On: I = On n/o contact	S1 & F1
Unlocking STB n/c contact	S1 active F1 depr. n/o contact	ext. probe "active"

internal connections



S2 Config. oil-unit	S3 Water almost empty	S4 2. Set-value "active"	S5 Level min. (empty)	S6 Level made	S7 Flow-watchdog	S8 External "ON"
	external keyboard Interlock "LOC"	external set-value input "active"				