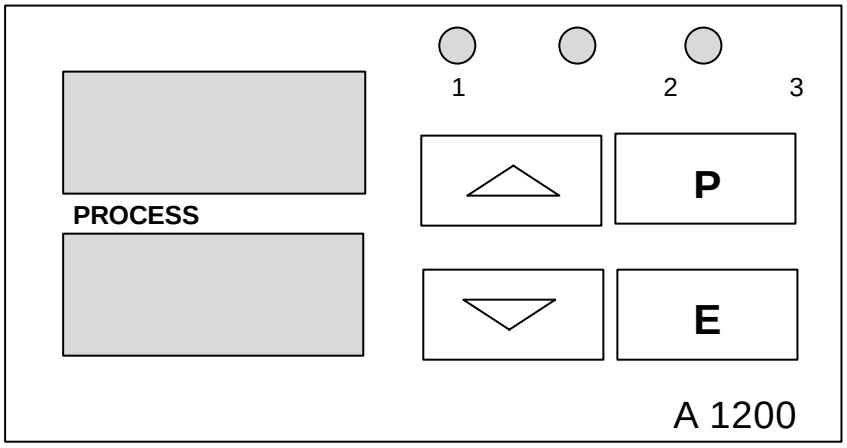
A 1200 : The Indicator with 3 Limit Contacts



Format: 96x48 mm (1/8-DIN)
Installation depth: 122 mm

Description and Operation Manual

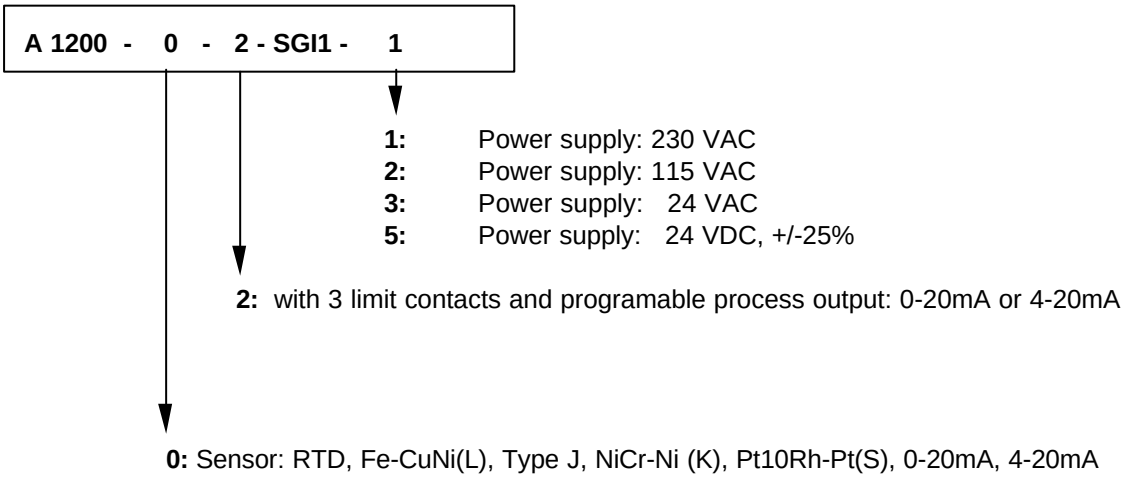
Nr.: A1200-0-SGI1-E 03.1/2002

Contents

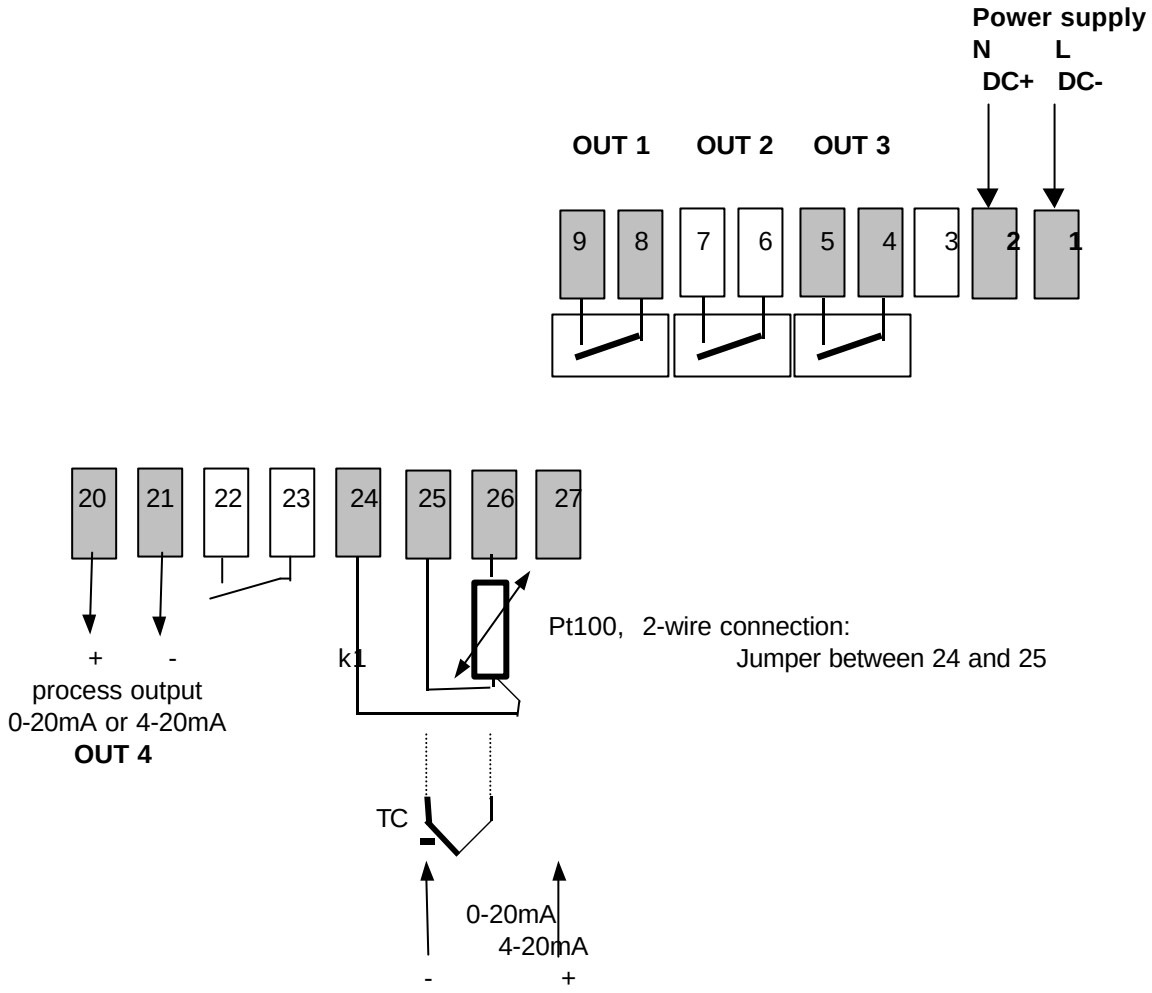
Please read this operating manual carefully before starting up.

Observe the installation and connecting instructions.

Type Code



Connection diagram



It is not permitted to connect the grounds of the sensor- and process-output with each other.

OUT1 = Relay Switches on setpoint SP1

OUT2 = Relay Switches on setpoint SP2

OUT3 = Relay **Switches, in case of RTD-line-error**

OUT4 = Analogue process value output 0-20mA or 4-20mA

Function of contact k1: k1: open = Adjustment lock only via "Software Code"
k1: closed = Adjustment locked (according to the chosen software code)

Technical Data

Input Thermocouple: Built-in internal compensation point and protection against sensor breakage and incorrect polarity.
Re-calibration not required for a line resistance of up to 50 Ohms.
Calibration accuracy: ≤ 0,25%

Input RTD: 2 or 3-wire connection possible.
Built-in protection against sensor breakage and short circuit.
Max. permissible line resistance by 3-wire connection: 80 Ohms
Sensor current: ≤ 0,5 mA
Calibration accuracy: ≤ 0,2 %

Input 0-20mA/4-20mA: Load max. 10 Ohm.

Linear error: ≤ 0,2 %
Influence of the ambient temperature: ≤ 0,01 % / K

Outputs: OUT1 – OUT3: NO-Relay (UR appr.), max. 250 VAC, max. 3 A (cos-phi = 1)

Process output: -OUT 4: Equivalent to the choosen range.
0/4...20 mA Load max. 500 Ohms
Linearity: ≤ 1,5 % Delay time: app. 2 secs.

7-Segment-Display: Process: 10 mm red, Set: 10 mm red

Data protection: EAROM

CE-Mark Tested according to 89 / 336 / EEC. EN 50081-2, EN 50082-2
Electr. safety: EN 61010

Power supply: Standard: 230 V AC. ± 10 %, 48...62 Hz. Others possible. See Type Code.
Appr. 5VA.

Connections: Screw terminals (UR appr.).
Protection mode IP 20 (DIN 40050), Insulation class C.

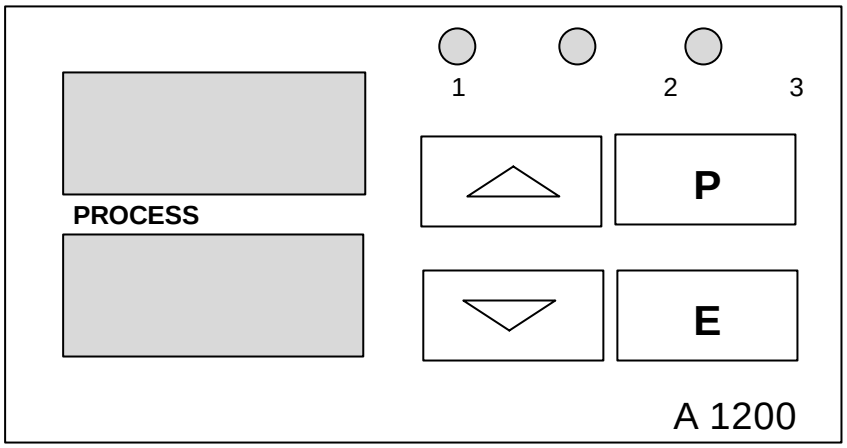
Permissible operating conditions: Operating temperature: 0...50 °C / 32...122 °F
Storage temperature: -30...70 °C / -22...158 °F
Climate class: KWF DIN 40040;
Equivalent to annual average max. 75 % rel. humidity.
No condensation.

Casing: Format: 96 x 48 mm (DIN 43700). Installation depth 122 mm
Panel cutout: 92 +0,8 mm x 45 +0,6 mm
Material: Noryl, self-extinguishing, non-drip, UL 94-V1
Protection mode: IP 20 (DIN 40050), IP 50 front side

Weight: app. 380g

Subject to technical improvments!

Display and Keyboard



Display PROCESS : Process Value
Display 2 : While standard operation: **Selected physical unit** or **no display**

LED 1: Output OUT1
LED 2: Output OUT2
LED 3: Output OUT3

P Parameter key

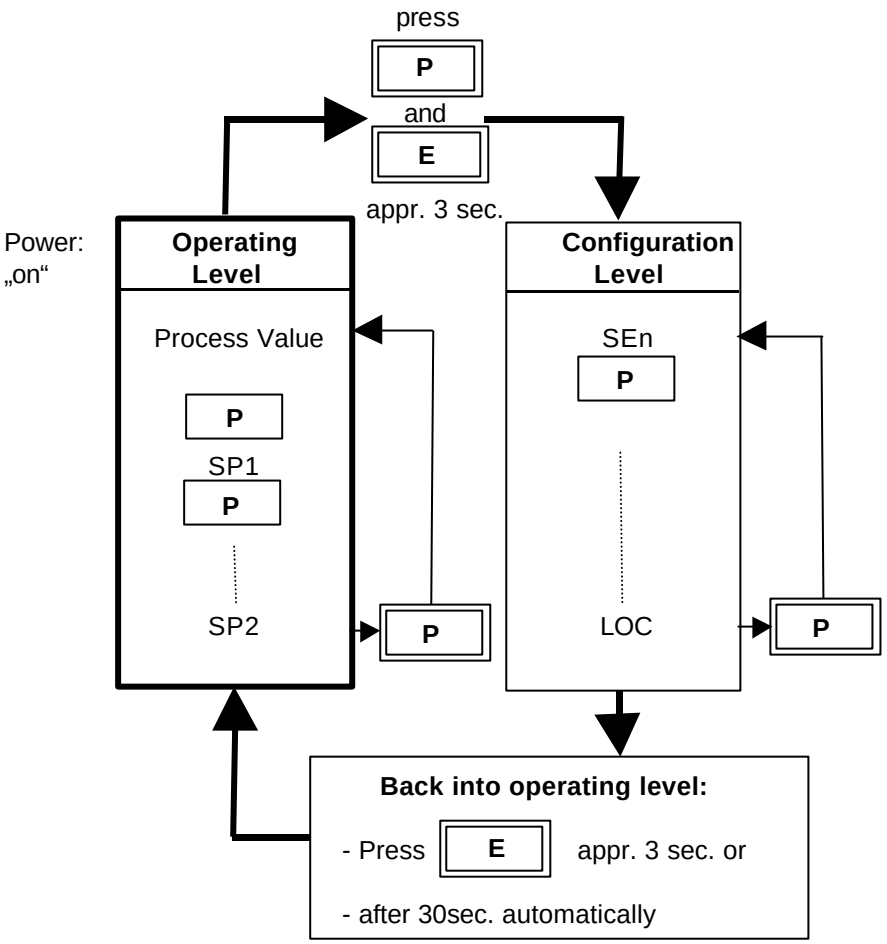
Adjustment of chosen parameter (e.g. setpoint) to higher or lower values.
E.g. setpoin adjustment.
Short operation: single-step adjustment
Longer operation: quick-scanning
When the parameter adjustments have been altered but not entered with the E-key, the display will flash bright/dark.

E Confirmation and storage of the pre-selected values
The display will shortly show a light chain as a control of this function.
To return to the process-display: press „E“ appr. 2 sec..

P Sets the parameter back to the originally stored value.
Any alterations made to the parameters, that are not confirmed (E-key) within 30 seconds, will not be accepted and the parameter will return to the process value display.

Operating Levels

The operation of the controller is divided into 2 levels.
Two seconds after switching on the unit, the controller will automatically be in the operating level.
To display the parameters press always key „P“.



Operating level
Process- and setpoint values will be displayed simultaneously.
Within the operating level the setpoints SP1 (OUT1) and SP2 (OUT2) can be adjusted by pressing the " △ " / " ▽ " - keys.
Every adjustment has to be quit by pressing the „ **E** “ - key.

Configuration level
Enter this level by pressing the „ **P** “ and „ **E** “-key appr. 3 sec. simultaneously.

In the configuration level the sensor type, the sensor range, the switching behaviour of the relay outputs OUT1 – OUT3 can be pre-selected.

This primary information has to be entered before taking the instrument into operation.

The display of each single parameter within the configuration level, and their adjustment, are made in the same way as within the operating level.
After either pressing the „**E**“ - key for approx. 3 second, or waiting for a period of approx. 30 seconds, the unit will automatically return to the operating level (display of process value).

Configuration Level

Press „P“ and „E“-key appr. 3sec..

Display "Process"	Parameter	Display 2		
Sen	**Sensor selection**	P1 °C	Pt 100,	-50,0...100,0 °C
		P1 °F	Pt 100,	-58,0...212,0 °F
		P2 °C	**Pt 100,**	**-100...200 °C (ex works)**
		P2 °F	Pt 100,	-148...392 °F
		P4 °C	Pt 100,	0...400 °C
		P4 °F	Pt 100,	32...752 °F
		P8° C	Pt 100,	0...800 °C
		P8 °F	Pt 100,	32...1472 °F
		L4 °C	T/C Fe-CuNi (L),	0...400 °C
		L4 °F	T/C Fe-CuNi (L),	32...752 °F
		L8 °C	T/C Fe-CuNi (L),	0...800 °C
		L8 °F	T/C Fe-CuNi (L),	32...1472 °F
		J8 °C	T/C Fe-CuNi (J),	0...800 °C
		J8 °F	T/C Fe-CuNi (J),	32...1472 °F
		n1 °C	T/C NiCr-Ni (K),	0...1200 °C
		n1 °F	T/C NiCr-Ni (K),	32...2192 °F
		S1 °C	T/C Pt10Rh-Pt (S),	0...1600 °C
		S1 °F	T/C Pt10Rh-Pt (S),	32...2912 °F
		0-20	Current-Input	0...20mA
		4-20	Current-Input	4...20mA

If the Sensor selection is changed, the following parameters will be reset (setting in brackets) and need to be re-adjusted:
All Setpoints (set to OFF); all switching hysteresis values (Sh);
process offset value (OFF)

The following parameters are only valid for standard signal inputs (0-20mA, 4-20mA). The difference between the bottom end of the display range and the top end must amount to a minimum of 100 units and a maximum of 2000 units. By adjustment of one of the above parameters, the other in this case will automatically follow.

rA.SP	decimal points	0; 1; 2	(ex works: 1)
rA.Hi	display range top end	rA.Lo ... 9999	(ex works: 100,0)
rA.Lo	display range bottom end	-1999 ... rA.Hi	(ex works: 0,0)

OUT4 Process value output

OFF	no process value output selected
Pr. 0	0-20mA process value output
Pr. 4	**4-20mA process value output**

Sc.Hi higher range value (20mA value)
valid for analogue process value output, if Out4 = Pr.0 or Pr.4
Adjustment range: Sc.Lo ... top range **(ex works: 200)**

Sc.Lo lower range value (0 or 4mA value)
valid for analogue process value output, if Out4 = Pr.0 or Pr.4
Adjustment range: bottom range ... Sc.Hi **(ex works: 0)**

The difference between Sc.Lo and Sc.Hi must be a minimum of 25% of the sensor range.

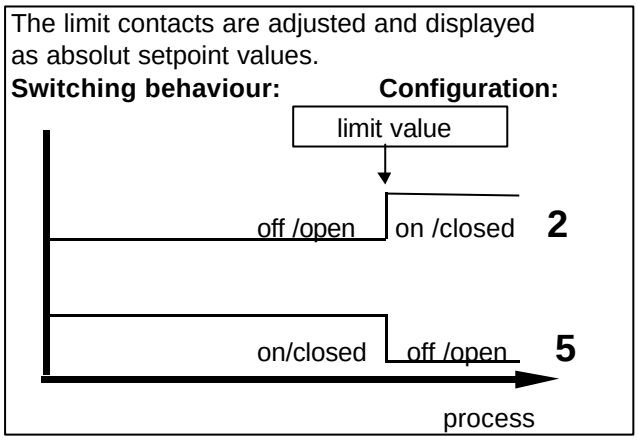
unit selectable physical unit
shown in Display 2
(e.g. : **°C**, °F, bar, volt, A, OHM, rot, rPM, MA, %, SEC, HZ ...)

Display "Process"	Parameter	Display 2

Configuration of the switching behaviour of the relais OUT1, OUT2, OUT3

corresponding to the setpoints SP1, SP2 and a RTD-line error.

The relais are switching like limit contacts.



on: Relay "activated, closed"
off: Relay "not active, open"

C.SP1	**Configuration setpoint SP1**	**2**	**Switching behaviour of relay 1: from open to close**
		5	Switching behaviour of relay 1: from close to open
C.SP2	**Configuration setpoint SP2**	**2**	**Switching behaviour of relay 2: from open to close**
		5	Switching behaviour of relay 2: from close to open
C.Sb	**Configuration RTD-line errror relay OUT3**	on	Switching behaviour of relay 3: from open to close
		OFF	**Switching behaviour of relay 3: from close to open**

If a RTD-line error is detected, the OUT1 and OUT2 relays will switch as follows:
Please set parameters:

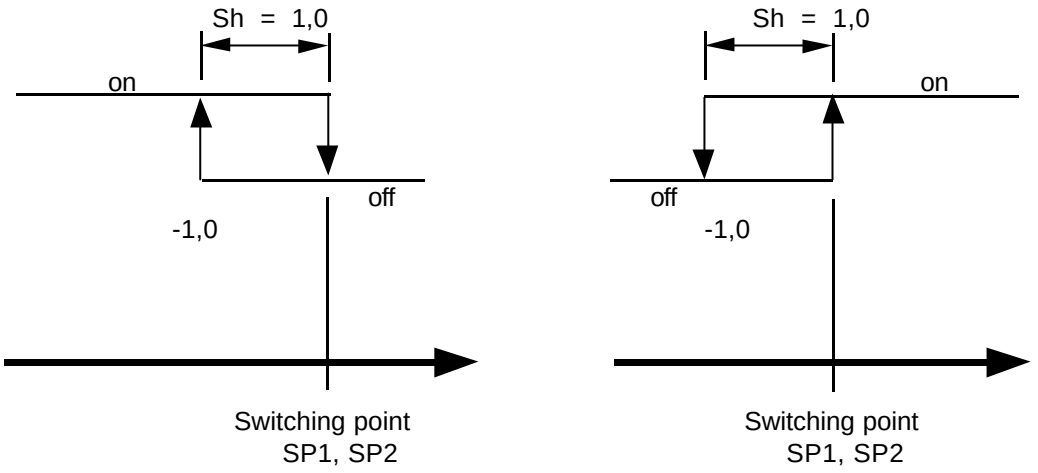
S.SP1	on	The relay OUT1 is closed in the case of sensor error.
	OFF	**The relay OUT1 is open in the case of sensor error.** (ex works)
S.SP2	on	The relay OUT2 is closed in the case of sensor error.
	OFF	**The relay OUT2 is open in the case of sensor error.** (ex works)

If the sensor is ok. again, the relays will switch like described above.

Display "Process"	Parameter	Display 2

1 Sh **switch-point hystereses OUT 1**

Adjustment range: 10% of the selected measuring range. With or without decimal point, depending to the selected range.



2 Sh **switch-point hystereses OUT 2**

Adjustment range: 10% of the selected measuring range. With or without decimal point, depending to the selected range.

OFSt **process value offset**

-999 ... OFF ...1000 °K (ex works: OFF)
-99,9 ... OFF ... 100,0 °K
-9,99 ... OFF ... 10,00 °K

This parameter serves to correct the input signal, e.g. for:

- the correction of a gradient between the measuring point and the sensor tip,
- the line resistance balancing of 2-line RTD (Pt100) sensors and
- correction of the control devition when using P- or PD-action.

If for example the offset value is set to +5°C, then the real temperature measured by the sensor (when process is balanced) is 5°C less than the setpoint and the displayed process value.

LOC **Adjustment lock**

OFF	no adjustment lock (ex works)
P C	parameter and configuration levels locked
ALL	all parameters locked

All parameters that have been locked with can be selected and read, but not altered. This adjustment cannot be changed if the external contact K2 is closed.

1200
GE.xx **Control number**

No function. End of configuration level

Operating Level

Display "Process"	Parameter	Display 2	
Process (process)	**and**	**physical unit** (display 2)	
SP1	**Setpoint 1**	Limit contact value OUT1 OFF = OUT1 not active	**(ex works: 50)**
SP2	**Setpoint 2**	Limit contact value OUT2 OFF = OUT2 not active	**(ex works: 60)**
		The range of adjustment is dependant on the sensor range.	

Error displays

Display	Cause	Possible remedy
rA.Lo	Lower range has been reached	Reduce limit, if need be
rA.Hi	Upper range limit has been reached	Increase limit, if need be
LOC	Parameter has been locked	Unlock, if need be
Er.Hi	Top range end has been exceeded, sensor defect	Check sensor and cable
Er.Lo	Bottom range end has been exceeded, sensor defect	Check sensor and cable
Er.SY	System error	Extinguish error signal by pressing the „E“-key. Check all parameters. If the error signal continues please send the instrument back for examination.

Installation Instructions

Make certain that the devices described here are used only for the intended purpose.
They are intended for installation in control panels.
The instrument must be installed so, that it is protected against impermissible humidity and severe contamination.
In addition, make sure that the permitted ambient temperature is not exceeded.
The electrical connections must be made according to the relevant locally applicable regulations.
If using a thermocouple sensor, the compensation cables must be laid directly to the controller terminals.
Transducers must be connected only in compliance with the programmed range.
Transducer cables and signal lines (e.g. logic or linear voltage outputs) must be laid physically separated from control lines and mains voltage supply cables (power cables).
To keep the CE-conformity it is nessesary, to use for sensor- and low voltage signal lines shielded cabels.
Spatial separation between controller and inductive loads is recommneded.
Interference from contactor coils must be suppressed by connecting adapted RC-combinations parallel to the coils.
Control circuits (e.g. for contactors) should not be connected to the mains power supply terminals of the controller.
IMPORTANT:
Before operation, the unit must be configurated for its intended purpose
(e.g. sensor type and range, switching point/setpoint adjustment etc.). Please see „Configuration Level“.

Disclaimer of liability
We have checked the contents of the document for conformity with the hardware and software described. Nevertheless, we are unable to preclude the possibility of deviations so that we are unable to assume warranty for full compliance.