Model 27HU Universal Temperature Transmitter

PC CONFIGURATOR Model: 27HUCFG

Users Manual

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1. GETTING STARTED

1.1 PC REQUIREMENTS

The following PC performance is required for adequate operation of the 27HUCFG.

PC	IBM PC compatible
OS	Windows XP Service Pack 3
	Windows Vista (32 bit) Service Pack 1
	Windows 7 (32 bit, 64 bit)
	Windows 10 (32 bit, 64 bit)
	The software may not operate adequately in certain conditions.
CPU/Memory	Must meet the relevant Windows' require-
	ments.
Hard disk	10MB minimum free space
Cable	HART modem cable (model: COP-HU)

NOTE

In 27HUCFG Ver3. XX, the number of preambles is fixed to 5 and can not be changed. When you switch from Ver2. XX or older version to Ver3. XX, set the number of preambles to 5 by the old version before installing Ver3. XX.

1.2 INSTALLING & UNINSTALLING THE 27HUCFG

INSTALL

The program is provided as compressed archive. Decompress the archive and execute 'setup.exe' to start up the 27HUCFG installer program. Follow instructions on the Windows.

UNINSTALL

Open Control Panel > Add/Remove Programs. Select the 27HUCFG from the program list and click Delete button.

1.3 STARTING UP THE 27HUCFG

Connect the model 27HU Universal Temperature Transmitter to the PC via HART modem cable. Press Start on the task bar and choose 27HUCFG from Program menu.

2. MODEL 27HU GENERAL DESCRIPTION

INPUT TYPES

The 27HU supports four types of input signals/sensors: DC millivolts, thermocouple, RTD and resistance. Other than typical IEC standard sensors, user-specific thermocouple and RTD characteristics data are also supported. For RTD input, calibrated RTD data can be incorporated for precise calibration using the Callendar-Van Dusen approximation formula.

MEASURING TYPES

The 27HU supports single and dual sensor measuring. With dual type, 'Difference,' 'Average,' and 'Average and Backup' functions are selectable. 'Drift Alarm' function is also available.

•**Difference**: PV = Sensor 1 – Sensor 2

•Average: PV = (Sensor 1 + Sensor 2) / 2

•Average and Backup: Average measuring while two sensors are in normal operating conditions.

Once one of the sensors is detected as burnout, the other sensor signal is supplied as PV.

• Drift Alarm: Detects alarm status when the deviation between the two signals exceeds the setpoint.

When 0 is specified as setpoint or with Average and Backup measuring, the drift alarm is canceled.

BURNOUT

Broken wire detection (Burnout) function can be enabled or disabled. When enabled, the 27HU applies an excitation voltage for a very short time period. The PV at burnout is not assured, and the output is according to the preset alarm action.

ALARM OUTPUT

Alarm output (Hold, High or Low) can be specified in case of an abnormality. The output signal is either at hold, or at a specific High or Low signals.

COLD JUNCTION COMPENSATION

For thermocouple inputs, the 27HU supports Internal CJC, External CJC, Constant (value) and no compensation.

•Internal CJC: The 27HU uses an internal temperature sensor attached to the terminal.

•External CJC: A Pt 100 sensor attached externally is used.

•Constant: A specific value is used as reference temperature.

TRANSFER FUNCTION

Transfer (Xfer) Function defines the output function against the PV. Linear, SQRT (Square Root Extraction) and Special Curve (Linearization) are supported.

3. OPERATING THE 27HUCFG PC CONFIGURATOR

Figure 1 shows the initial view of the 27HUCFG PC Configurator window.

In order to enable tools shown on the screen, the model 27HU Universal Temperature Transmitter must be connected to the PC via a HART modem.

Figure 1. Initial View

🎯 27 HUC F	🕲 27HUCFG PC Configurator Ver3.0.0											
	27HU Configue	J rator	Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
	Monitor			MAL	CFG	CLD		AFX	AOS	NPV	PV	
D	evice Infor	mation	PV	F	∾ %		Ter	m.		AO		Functions
Senso	or type	Millivolt	1000	1	.00		100			20		Connect
Measure	ment type	Single	_		_		80	_		- - -		Diagnostics
Senso	or wires	2 Wires	- 800-	8	30 —			-				Detailed Device Info
PV	unit	mV			_			_		16 _		Sensor Info
,	Upper	1000.000	-		20					-		Analog Output
PV range	Lower	0.000	-000				40	_		-		AO Alarm
) per limit	1100.000						_	¹² –			Trim DAC
P V dpj		1100.000	400—	2	10 —			_		-		Sensor Cal
PV lov	ver limit	-100.000					0	_				Wire Resistance
PV minin	num span	10.00	_					-		8 –		Custom TC
PV da	amping	0.000	200		20 —			_		-		Custom RTD
Burnout detection		OFF			_		-40			-		Special Curve
CJC mode		CJC OFF	0	3						4		Polling Address
Transfei	Transfer function LINEAR		0.00	0.00			-40	.00		0.00]	File
			m∨	%			degC			mΑ		Language
			PV Graph	PV	% Graph		Term	Graph		AO Gra	ph	Exit

3.1 CONNECTING THE DEVICE (27HU)

On the initial view, click [Connect] and the Device Connection menu appears on the screen.

Figure 2. Device Connection

🕲 27HUCFG PC Configurator Ver3.0.0											
27HU Configurator	Comm Status	omm Status COM PE OVE		OVE	FE		SME BOE T		TME		
Monitor	Device Status				AFX	AOS	NPV PV				
Device Connection	PV	F	∾ %		Ter	rm.		AO		Functions	
COM port	1000	1	.00		100		IC	20		Connect	
	_		_		QO	-		-		Diagnostics	
	800-	۹	30 _		00	_				Detailed Device Info	
Device address 0	-	·	-			_		16 -		Sensor Info	
						-				Analog Output	
	600—	60 —			40	_				AO Alarm	
Search device	_		_			-		12_		Trim DAC	
	- 400-	2	40			-				Sensor Cal	
	-		-		0	_		-		Wire Resistance	
Connect device			_			_		8 -		Custom TC	
	200—	2	20 —			_				Custom RTD	
	_				-4(]		-		Special Curve	
Disconnect device	n _		0					4			
										Polling Address	
	0.00	0.00			-40.00			0.00		File	
	mV	%			degC			mΑ		Language	
Close Device Connection	PV Graph	PV 9	% Graph	n	Term	Graph		AO Gra	ph	Exit	

COM port	Choose an adequately configured COM port to be connected.
Device address	Specify polling address of the device to be connected.
Search device	Searches connected devices among the ones whose polling address is already set between 0 and 15. Starts at the address specified in 'device address' field.
Connect device	Connects the device of which polling address is specified in the device address. Once the connection is established, the program uploads the device's configuration information and automatically opens the Device Information view. The view is the base for various operations to configure the 27HU.
Disconnect device	Disconnects the currently connected device.
Close Device Connection	Quits the Device Connection view.

3.2 MONITORING TRENDS

Once the device is connected, the Device Information menu and the trend monitors appears on the screen. The user can configure various parameters of the 27HU.

Figure 3. Device Information

🎯 27HUCF	🕲 27HUCFG PC Configurator Ver3.0.0											
	27HU Configurator Monitor			сом	PE	OVE	FE		SME	BOE	TME	
				MAL	CFG	CLD		AFX	AOS	NPV	PV	
D	Device Information		PV	PV %			Term.			AO		Functions
Senso	or type	Millivolt	300	1	.00		100)		20		Connect
Measure	ment type	Single	Ē		_		80	_		-		Diagnostics
Senso	r wires	2 Wires		8	30 —			_		-		Detailed Device Info
PV	unit	mV	3					_		16 -		Sensor Info
	Upper	300.000	²⁰⁰ —	- 60- - -							Analog Output	
PV range			-				40				AO Alarm	
	Lower	0.000	-							12 —		Trim DAC
PV upp	oer limit	800.000	3	2	40				-			Sensor Cal
PV low	ver limit	-100.000	100-									Wire Resistance
PV minin	num span	4.00						-		8 -		Custom TC
PV da	mping	10.000	-	20 –			-			=		Custom RTD
Burnout detection		ON		_			-4(-		Special Curve
	mode	CJC OFF	o <u>–</u>							4		Polling Address
Transfer	Transfer function LINEAR		91.20	30.40			29.05		8.00)	File
		,	m∨	%			degC			mΑ		Language
			PV Graph	PV °	% Graph		Term	Graph		AO Gra	ph	Exit

3.2.1 COMMUNICATION STATUS

Comm Status summarizes current communications status by lamps showing the communication status byte contents in HART commands.

[COM] lamp	Blinks with the normal communications condition.
[PE] lamp	Red light turns on when the device detects Parity Error.
[OVE] lamp	Red light turns on when the device detects Overrun Error.
[FE] lamp	Red light turns on when the device detects Framing Error.
[SME] lamp	Red light turns on when the device detects Sum Check Error.
[BOE] lamp	Red light turns on when the device detects Buffer Over Flow Error.
[TME] lamp	Red light turns on when the device detects the communications time out.

3.2.2 DEVICE STATUS

Device Status summarizes current device status by lamps showing the device status byte contents in HART commands.

[MAI] Jamp	Red light turns on when malfunction(s) occur(s) in the device such as below
	• Wire break detected
	· ADC module malfunction
	· CJC sensor error (T/C input in internal or external CJC mode)
	· Drift alarm in the difference or average measuring
	Analog output value depends upon the alarm trip type (Hold, High, Low) and alarm value.
[CFG] lamp	Red light turns on when the device configuration is modified.
	This lamp can be turned off by [Reset configuration change flag] in the Diagnostics view.
[CLD] lamp	Always OFF with the 27HU.
[AFX] lamp	Red light turns on when the analog output entered in fixed output mode.
	Fixed output mode is initiated by one or more of the following conditions:
	· Fixed output mode initiated by the application
	· Analog output saturated
	· Alarm output is provided, caused by malfunction status
	· Polling address between 1 and 15 is set
[AOS] lamp	Green light turns on when the analog output is diagnosed to be normal.
	Red light turns on when the output is saturated upscale or downscale.
[NPV] lamp	Green light turns on when the CJC sensor terminal is within normal temperature range
	(-50 to 100°C).
	Red light turns on when it is out of the range.
[PV] lamp	Green light turns on when the sensor input is in the specified range.
	Red light turns on when it is out of the range.

3.2.3 BARGRAPH & TREND GRAPH

Four bargraphs indicating PV in engineering unit, PV in % of the selected range, the terminal temperature and analog output current are available. When 'External CJC' is selected, the terminal temperature shows that of the external terminals. Otherwise it shows temperature of the internal terminals.

Graph scales can be modified except for the PV in engineering unit of which the scales are automatically determined and fixed according to the selected range.

• At the bottom of each bargraph is [Graph] button which opens a trend graph for the parameter. The example below shows the trend graph for [Term Graph]. Use [Start] and [Stop] buttons to activate/deactivate trending, and click [Close] to quit the graph view.

Figure 4. Trend Graph

🎯 27HUGF	🕲 27HUCFG PC Configurator Ver3.0.0												
	27HU Configurator		Comm Status	сом	PE	OVE	FE		SME	BOE	TME		
	Monitor			MAL	CFG	CLD		AFX	AOS	NPV	PV		
D	evice Infor	mation	Trend Graph										
Senso	or type	Millivolt	30, 480										1
Measure	ment type	Single	30.478									\sim	~
Senso	r wires	2 Wires	30. 476								~		
PV	unit	mV	30. 474						\sim				
PV range	Upper	300.000	30. 472				┢						
	Lower	0.000	30. 470			-							
PV upp	oer limit	800.000	30. 468										
PV lov	ver limit	-100.000	30. 466	$\downarrow \sim$	4								
PV minin	num span	4.00	30. 464										
PV da	mping	10.000	30 462										
Burnout	detection	ON	30,460	. .				,			. .		
CJC mode CJC OFF		0		10)		20			30		40	
Transfer	Transfer function LINEAR							(maintain)					
				Start Stop									
			Close Trend Graph										

3.3 DEVICE CONFIGURATION

In Figure 3, the Device Information menu on the left shows basic configuration information of the connected device. When you need to change configurations, click the left button for the required parameter to modify its setting.

Sensor type	Specifies sensor type, measurement type and number of extension wires (sensor wires). When a new sensor type is chosen, other default settings are automatically selected.
PV unit	Specifies engineering unit for the PV. When this setting is changed, other related parameters such as PV range, upper/lower limits, PV minimum span are automatically shown in the new unit.
PV range	An appropriate range is automatically set except for the difference measuring.
PV damping	Specifies time constant (0 to 30 seconds) for damping function. Set to 0 to cancel the function.
Burnout detection	Enables/disables burnout (wire break) function.
CJC mode	Enables/disables and choose type of cold junction compensation for thermocouple input. When a thermocouple is specified as the input sensor, the CJC mode is set to 'Internal CJC' at default.
Transfer function	Enables/disables Transfer (Xfer) Function, specifying either the output should be linear to the input signal or linearized to a custom curve data. Selecting this function without a pre-defined Special_Curve is defined as Error.

3.4 DETAILED INFORMATION

In Figure 3, clicking [Detailed Device Info] in Functions menu to the right opens the [Detailed Device Information] menu as shown in Figure 5.

Figure 5. Detailed Device Information

🍅 27HUCFG PC Configurator Ver3.0.0												
Cor	27HU	J rator	Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
	Nonit	or	Device Status	MAL	CFG	CLD		AFX	AOS	S NPV PV		
Detailed D	evice I	Information	PV	PV %			Term.			AO		Functions
Manufacture	er	M-System CO	300	1	.00		100			20		Connect
Device type	•	27HU	Ē		_		80	_		- -		Diagnostics
Device identifica	ation	293	-	8	30 —			-		-		Detailed Device Info
Number of prear	mbles	5	3					_		16 <u>–</u>		Sensor Info
Universal cmd re	vision	5	²⁰⁰ –							-		Analog Output
Turner and the			=	l f	iU — —		40 <u>-</u> -			=		AO Alarm
Transmitter specific	revision	1	-		_				12-		Trim DAC	
Hardware revi	sion	1.0	3	2	+0				-			Sensor Cal
Software revis	ion	2	100-		-							Wire Resistance
Final assembly nu	umber	1						-		8 -		Custom TC
Tag name	g name SAMPLE-2 20 - 20 -				_		-		Custom RTD			
Descriptor	Descriptor DESCRIPTOR123		3				-40 -			-		Special Curve
Date		2011/04/13								4		Polling Address
	Message			30.53			29.24			8.00		File
MESSAG	MESSAGE TEXT			%			degC			mA		Language
Close Detaile	Close Detailed Device Information			PV <	% Graph		Term Graph			AO Gra	ph	Exit

The menu shows the following parameters: Manufacturer, Device type, Device identification, Number of preambles, Universal command revision, Transmitter specific revision, Hardware revision, Software revision, Final assembly number, Tag name, Descriptor, Date and Message.

Final assembly number	You can enter a final assembly number.
Tag name	You can enter a tag name and its description (Descriptor). Date is automati- cally set with the data modified date. Max. 8 alphanumeric characters for the tag, max. 16 alphanumeric characters for the descriptor.
Message	You can enter a memo in this field. Up to 32 alphanumeric characters.
Close Detailed Device Information	Quits the view.

NOTE

Only capital letters are used as 'Tag name', 'Descriptor' and 'Message.' Small letters will be automatically converted to capital letters.

3.5 DIAGNOSTICS

Click [Diagnostics] button to open the Diagnostics view as shown in Figure 6.

Figure 6. Diagnostics

😂 27HUCFG PC Configurator Ver8.0.0										
27HU Configurator	Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
Monitor	Device Status	MAL	CFG	CLD		AFX	AOS	NPV	PV	
Diagnostics	PV	F	°V %		Ter	m.		AO		Functions
Master reset device	300	1	.00		100		IC	20		Connect
Reset configuration change flag	Ē		_		80	_		- -		Diagnostics
Execute diagnostics		8	30 —			_		-		Detailed Device Info
Start to display additional status	Ē					_		16-		Sensor Info
Stop to display additional status	²⁰⁰ –						- -		Analog Output	
	=	ł	iU — _		40	_		-		AO Alarm
	-		_		_			12 -		Trim DAC
	3	2	- 10			-				Sensor Cal
	100-		-		0	-				Wire Resistance
						-		8 –		Custom TC
		2	20 —			-		-		Custom RTD
					-40					Special Curve
			0					4		Dolling Address
	01 /0							0.00		
	91.00	3	0.50		 	3U - C		0.UU		, File
· · · · · · · · · · · · · · · · · · ·			70		ue	yc		mA		Language
Close Diagnostics	PV Graph	PV «	% Graph		Term	Graph		AO Gra	ph	Exit

Master reset device	Resets all the configurations to factory default. Basic configuration is read after resetting.
Reset configuration change flag	Turns off the CFG lamp in Device Status. The red CFG lamp is automatically turned on whenever configurations are changed, and remains on unless it is manu- ally reset using this button.
Execute diagnostics	Activates a diagnostics program and results are displayed in Additional Status (Figure 7). The section shows each Additional Status parameter and its status: green in normal status, while red in error.
Start to display additional status	Reads current contents of Additional Status from the device in the intervals of approx. 1 second.
Stop to display additional status	Stops showing Additional Status.
Close Diagnostics	Quits the view.

Figure 7. Diagnostics with Additional Status

10 27HUCFG PC Configurator Ver3.0.0										. (
27HU Configurator	Comm Status	сом	PE	OVE	FE		SME	BOE TM						
Monitor	Device Status	MAL	CFG	CLD		AFX	AOS	NPV	PV					
Diagnostics	Additional Status													
Master reset device	Sum	Error	-	Sensor Error										
Reset configuration change flag														
Execute diagnostics	Main N	Iodule F	ailed					nsor 1 C	wire bro	nde				
Start to display additional status	Oper	ator Fai	led							nigo –				
	Input 1	5ensor F	ailed											
Stop to display additional status	CJC S	ensor Fa	ailed				S	ensor 2	Wire Bro	ken				
							Se	nsor 2 C	out of Ra	inge				
						Sensor 1-2 Drift Alarm								
	Hardy	ware	Error	2		ADC and CJC Sensor Error								
	EEPROM S	5UM erro	r (Basic)	ļ			Inte	rnal CJC	Sensor	Failed				
	EEPROM SUN	1 error (Custom ⁻	TC)			Inte	rnal CJC	Out of P	Range				
	EEPROM SUM	error (C	ustom R	.TD)			Exte	rnal CJC	: Sensor	Failed				
	EEPROM SUM	External CJC Out of Range												
	EEPROM SU			ADC Mo	dule Faile	ed								
							ADC Mo	idule Co	mmunica	tion Error				
	ADC SCAL Failed													
Close Diagnostics	EEPROM	hardwai	e error					ADC S	iG Failed					

3.6 PV & CJC SENSOR INFORMATION

Click [Sensor Info] button to open the PV & CJC Sensor Information view as shown in Figure 8.

Figure 8. PV and CJC Sensor Information

🕸 27HUCFG PC Configurator Ver3.0.0													
27 Config	HU urator		Comm Status	сом	PE	OVE	FE		SME	BOE	TME		
Mon	Device Status	MAL	CFG	CLD		AFX	AOS	NPV	PV				
PV and CJC Sensor Information			PV	F	∾V %		Ter	m.		AO		Functions	
PV Se	ensor		300 <u>-</u> -		.00		100			20		Connect	
Туре	Millivolt		3		_		- - 80-			-		Diagnostics	
Serial No.	2			8	- 30 —			-				Detailed Device Info	
	300.00	mV								16 -		Sensor Info	
Sensor range	Sensor range		200		-		-			-		Analog Output	
	0.00	mv	=	(³⁰ —		40 <u>-</u>			-		AO Alarm	
Drift alarm	0.00	m∀	-							12 -		Trim DAC	
CJC Se	ensor		=	- 40				_		-		Sensor Cal	
Term temp unit	degC		100-		4					-		Wire Resistance	
CJC mode	CJC OFF	:			-			-	8 -			Custom TC	
Const. CJC	0.00	deaC		:	20 —					-		Custom RTD	
]		=		-		-40			-		Special Curve	
			n E		0			73		4		Delline Addres	
			04 70							0.00			
				30.59			29.38			8.UU		File	
					70					mΑ		Language	
Close PV and C	JC Sensor I	nto	PV Graph	PV °	% Graph		Term	Graph		AO Gra	ph	Exit	

3.6.1 PV SENSOR

Туре	Shows sensor type.
Serial No.	Specify PV sensor's serial No.
Sensor range	Specify upper and lower input range values of the PV sensor. These values deter- mine ADC gain and other values. Sensor range should be usually the same range as the PV range and should not be changed unnecessarily. However, when measurement type is set to 'Difference,' an actual input measuring range must be set. Default setting is at the maximum, which may affect the accuracy if the value is not changed to an appropriate one.
Drift alarm	Specify drift value for the drift alarm. Set to 0 to cancel alarm.

3.6.2 CJC SENSOR

Term temp unit	Specify temperature unit used to measure the terminal temperature.
CJC mode	Specify CJC mode.
Const. CJC	Specify reference temperature of the cold junction point when Constant is selected as CJC mode. 0°C is set at default.
Close PV and CJC Sensor Info	Quits the view.

3.7 FIXED ANALOG OUTPUT

Click [Analog Output] button to open the Analog Output view as shown in Figure 9.

Figure 9. Analog Output

😂 27HUCFG PC Configurator Ver8.0.0								
27HU Configurator	Comm Status	COM PE	OVE FE		SME	BOE	TME	
Monitor	Device Status	MAL CFG		AFX	AOS	NPV	PV	
Analog Output	PV	PV %	-	erm.		AO		Functions
Set AO for current PV output	300	100		00	IC	20		Connect
Set AO for specified value	Ē	_		- - -		- -		Diagnostics
Exit fixed AO mode		- 80						Detailed Device Info
	Ē			_				Sensor Info
	200					Ξ		Analog Output
	Ξ	60 —	4	0 		-	:	AO Alarm
		_			12-		1	Trim DAC
	3	- 40		-] =		Sensor Cal
	100—	-		0 —			1	Wire Resistance
						8 -		Custom TC
		20 —		_		-		Custom RTD
				-40 -		-		Special Curve
	<u> </u>	0				4		Delline Adduser
		20.70		0 41 -		0.00		Folling Address
	91.01 mV	30.00		9.41 leaC		0.UU m4		
Close Anales Output	DU Creek	DU QL Curch		nogo n Currh		100	- 6	Language
Close Analog Output	PV Graph	PV % Graph		m Graph		AO Graj	ph	Exit

Set AO for current PV output	The output current is held at the current value.
Set AO for specified value	You can set a specific fixed value for the output.
Exit fixed AO mode	Cancel the fixed output mode to return the device into normal output mode. It is rec- ommended to fix the analog output signal while those parameters affecting the output signal are configured, and then to reset the device to normal mode after the setting is complete.
Close Analog Output	Quits the view.

3.8 AO ALARM PROPERTY

Click [AO Alarm] button to open the AO Alarm Property view which specifies the transmitter's action in case of abnormality, as shown in Figure 10.

Figure 10. AO Alarm Property

🍘 27 HUC FG	i PC Configurator Ve	r3.0.0										
	27HU Configurator			сом	PE	OVE	FE		SME	BOE	TME	
	Monitor		Device Status	MAL	CFG	CLD		AFX	AOS	NPV	PV	
AO Alarm Property			PV	F	°V %		Ter	m.		AO		Functions
	AO saturation value		300	1	.00		100			20		Connect
High	21.40	mA			_		80	_		- - -		Diagnostics
Low	3.90	mA		8	30 —			_		-		Detailed Device Info
	AO alarm mode		3		_			_		16 -		Sensor Info
								-		-		Analog Output
	Low			6	³⁰ —		40 <u>-</u>			-		AO Alarm
	AO alarm value		-						12 -		Trim DAC	
High	22.60	mA	3	2	- 40			_				Sensor Cal
Low	3.78	mA	100-		-		0	_		-		Wire Resistance
	, 				_			-		8 -		Custom TC
				2	20 —		_			-		Custom RTD
					_		-40			-		Special Curve
			. <u> </u>		0					4		Delline Address
								\sim				
		91.87 mV	<u>3U.62</u>			29.46 degC			0.UL		File	
					<i>70</i>							Language
Close	AO Alarm Propert	y	PV Graph	PV	% Graph		Term	Graph		AO Gra	ph	Exit

AO saturation value	Specifies upper and lower limits of saturated output. When the output value proportional to the PV input is out of this range, the output is limited at the AO saturation value. The red AFX lamp in Device Status turns on while the output is limited.
AO alarm mode	Selects specific output values for High and Low alarm mode. The red MAL and AFX lamps in Device Status turn on while the output is in alarm status. Both the alarm and the saturated output must satisfy the following conditions: 3.75mA ≤ Low Alarm < 3.8mA ≤ Low Saturation ≤ 4.0mA
Close AO Alarm Property	Quits the view.

3.9 DAC TRIMMING

Click [Trim DAC] button to open the Trim DAC view as shown in Figure 11.

Figure 11. Trim DAC

🕸 27HUCFG PC Configurator Ver3.0.0										
27HU Configurator	Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
Monitor	Device Status	MAL	CFG	CLD		AFX	AOS	NPV	PV	
Trim DAC	PV	F	°V %		Ter	m.		AO		Functions
Enter 4mA trim mode	300	1	00		100			20		Connect
Enter 20mA trim mode	Ē		_		80	_		- - -		Diagnostics
Trim by actual measured value		6	30 _			-				Detailed Device Info
Clear trim DAC data	Ē		_			_		16 - -		Sensor Info
	200-	_						-		Analog Output
	=	6	50 — _		40	_	12			AO Alarm
	-		_							Trim DAC
	3	4	- 0							Sensor Cal
	100—		_		0				Wire Resistance	
			_			=		8 –		Custom TC
		2	20			_		-		Custom RTD
			-		-40 -			-		Special Curve
	_ <u>_</u> _		0					4		Polling åddrecs
	01.02	2	Г 0 4 4		20	50		8 00		File
	mV		%		z۶. de	gC		mA		Language
Close Trim DAC	PV Graph	PV 9	% Graph		Term	Graph		AO Gra	ph	Exit

3.9.1 ENTER 4mA TRIM MODE

- (1) Click [Enter 4mA trim mode]. The device outputs a fixed 4mA signal.
- (2) Measure actual output current at the receiving instrument to which the device output should be matched.
- (3) Click [Trim by actual measured value] to set the measured value. The actual value can be set from 3.8mA up to 4.2mA.
- (4) Repeat setting [Trim by actual measured value] until the measured output shows 4mA.

3.9.2 ENTER 20mA TRIM MODE

- (1) Click [Enter 20mA trim mode]. The device outputs a fixed 20mA signal.
- (2) Measure actual output current at the receiving instrument to which the device output should be matched.
- (3) Click [Trim by actual measured value] to set the measured value. The actual value can be set from 19.8mA up to 20.2mA.
- (4) Repeat setting [Trim by actual measured value] until the measured output shows 20mA.

3.9.3 RESETTING TO THE DEFAULT

Click [Clear trim DAC data] to return the device to the factory default trimming values. [Close Trim DAC] quits the view.

3.10 SENSOR CALIBRATION

Input values from the sensor can be finely calibrated. The mV and thermocouple inputs are calibrated against the measured voltage; while the RTD and resistance input is against the measured resistance. Calibration data is entered in PV's engineering unit value.

Click [Sensor Cal] button to open the Sensor Calibration view as shown in Figure 12.

Figure 12. Sensor Calibration

🎯 27 HUC F	G PC Configurator V	er3.0.0										
	27HU Configurator		Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
	Monitor		Device Status	MAL	CFG	CLD		AFX	AOS	NPV PV		
Sensor Calibration		PV	F	V %		Ter	m.		AO		Functions	
	Select sensor		300	1	.00		100			20		Connect
	Calibrating Sensor #1				_		80	_		- - -		Diagnostics
	Read calibration data		_	8	30 —			_		-		Detailed Device Info
d	ear sensor calibration data				_			_		16 -		Sensor Info
	Zero calibration							_		-		Analog Output
	Coro calibration		=					_		-		AO Alarm
	Span calibration		-	_					12-			Trim DAC
PV	91.936073	mV		2	- 10		_					Sensor Cal
Zero point	0.0000	mV	100-		_		0	_		-		Wire Resistance
Zero value	0.0000	m٧	3							8 -		Custom TC
Gain	1.0000				20 —					-		Custom RTD
,		,					-40	,		-		Special Curve
										4		Polling Address
				30.65			29.53			3.78		File
			m∨		%		degC			mΑ		Language
Clos	e Sensor Calibrati	on	PV Graph	PV °	% Graph		Term	Graph		AO Gra	ph	Exit

Select sensor	Selectable for dual sensor inputs. Specifies either Sensor #1 or #2 to calibrate.
Calibrating Sensor #1	Shows the sensor number to calibrate.
Read calibration data	Calls up and display present calibrated values in these fields.
Clear sensor calibration data	Returns the device to the factory default status (Zero point = Zero value = 0, Gain = 1.00).

The present measured value is indicated in the middle column of the PV row, updated every 0.5 seconds (approx.). Refer to this value when calibrating the sensor. It takes several seconds for the calibration result affects the measured value on the display.

Calibration points can be specified to any point within the measuring range, however, we recommend to use Low range of PV range for zero calibration, and High range for span.

Apply zero calibration point input signal and click [Zero calibration] to open the field where you can enter a target value. The result is shown in the PV display field. Data before calibration is shown in the Zero point field, while that after calibration is shown in the Zero value field.

Apply span calibration point input signal and click [Span calibration] to open the field where you can enter a target value. The result is shown in the PV display field. Span point gain against the zero point is shown in the Gain field. The calculated gain out of the range from 0.5 to 2.0 cannot be applied.

When the sensor type is changed, calibration data is reset to the factory default values.

[Close Sensor Calibration] quits the view.

3.11 WIRE RESISTANCE

Errors caused by extension wire resistance for 2-wire RTDs, 2-wire resistance and external CJC sensor can be compensated by using this function.

Click [Wire Resistance] button to open the Wire Resistance view as shown in Figure 13.

Figure 13. Wire Resistance

🏶 27HUCFG PC Configurator Ver3.0.0											
27HU Configurator	Comm Status COM PE (OVE	E FE S			SME BOE TME				
Monitor	Device Status MAL CFG CLD				AFX	AOS	NPV	PV			
Wire Resistance	PV PV %				Ter	m.		AO		Functions	
Write wire resistance	300	1	.00		100			20		Connect	
Calibrate wire resistance			_		80	_		- - -		Diagnostics	
0.00 Ohms		8	- 30 —			_		_		Detailed Device Info	
, · · · · ·	=		_			_		16 -		Sensor Info	
	200-					-				Analog Output	
	_				40 <u>-</u>			-		AO Alarm	
	-						12_			Trim DAC	
	Ē	2			-		-		Sensor Cal		
	100-		-		0	_				Wire Resistance	
			_			=		- 8		Custom TC	
		2	20 —			-		-		Custom RTD	
			_		-40			-		Special Curve	
	n =		0			7		4			
	04.00									Polling Address	
	91.93	30.64			29.56			8.UU		File	
	mv	%						mΑ		Language	
Close Wire Resistance	PV Graph	PV °	% Graph		Term	Graph		AO Gra	ph	Exit	

Write wire resistance	Specifies actual wire resistance value between 0 and 20.0 ohms.
Calibrate wire resistance	Available for 2-wire resistance input. The device automatically calculates wire resistance by entering the true value. (Typically, short across the sensor wires and enter 0 ohm.) Wire resistance is shown below the button.
Close Wire Resistance	Quits the view.

3.12 CUSTOM TC

The 27HU supports user-specific thermocouple table function. In order to use a user-specific table, data in text format must be defined and registered.

The file format is as following.

Define the minimum temperature value in Celsius at Minimum TC Temperature. Specify the Temperature Step used in the table, from 1°C to 50°C. Describe characteristics data within { }. Data must be entered in mV. Up to 250 points can be specified.

/* Custom TC Table Definition /* Ti=f(Xi) (0<=i<Size) /* Temperature Step (1 to 50 degC) /* -100<=Xi<800mV /* Xi<Xi+1 /* 2<=Size<=250 Minimum TC Temperature=0 ← Minimum temperature TO (°C) \leftarrow Temperature step (°C) Step=10 10.0000 ← Voltage value for T0 (mV) : 20.0000 \leftarrow Voltage value for Tmax (mV) }

Once the data file is ready, register the file on the 27HUCFG.

Click [Custom TC] button to open the Custom TC as shown in Figure 14.

Figure 14. Custom TC

籋 27HUCFG PC Configurator Ver3.0.0													
27HU Configurator			Comm Status	tatus COM PE		OVE	FE		SME BOE		TME		
Monitor			Device Status	MAL	CFG	CLD		AFX	AOS	NPV	ΡV		
Custom	TC		PV	F	∾ %		Ter	m.		AO		Functions	
Read table fro	m device		300	1	.00		100	` -		20		Connect	
Write table to) device		Ē		_		80	_		- - -		Diagnostics	
Write table	to file			{	- 30 —			_		-		Detailed Device Info	
Read table fi	rom file		3					_		16 - -		Sensor Info	
Display Custom	Display Custom IC graph			200						-		Analog Output	
Custom TC Tab				t	iU — —		40 — -					AO Alarm	
	le Conte	nts			-			-		12		Trim DAC	
Status	Confi	guring		- 40							Sensor Cal		
Min temperature	2	degC	100-		-		o _			-		Wire Resistance	
Max temperature	12	degC			-					8 -		Custom TC	
Temperature step	10	degC		2	20 — _					-		Custom RTD	
Table size	2	Max size	-		-	10	-4(-		Special Curve	
	j 230		o <u>–</u>							4		Polling Address	
	91.90	30.63			29.58			8.00		File			
	mV	%			degC			mA		Language			
Close Cust	tom TC		PV Graph	PV °	% Graph		Term	Graph		AO Gra	ph	Exit	

Read table from file	The program uploads a file stored in the PC. When uploaded, the file contents summery is indicated under Custom TC Table Contents. I/O characteristic data longer than 250 points are ignored.
Display Custom TC graph	I/O characteristics data can be shown in a graph.
Write table to file	The program saves currently displayed I/O characteristics data to a file.
Write table to device	The program downloads currently displayed I/O characteristics to the 27HU. When downloading is successfully complete, Status under Custom TC Table Contents shows 'Configured.' Then the option 'TC Spec (Custom TC)' becomes available to choose among the sensor type selections. If 'TC Spec' has been already selected before this setting is done, you can not download a particular data file.
Read table from device	The program uploads I/O characteristics table registered in the 27HU. If there is no file registered, Status under Custom TC Table Contents shows 'Non configured.'
Close Custom TC	Quits the view.

3.13 CUSTOM RTD

The 27HU supports calibrated RTD and user-specific RTD table functions. In order to use these functions, RTD's characteristics data must be defined and registered.

CALIBRATED RTD

Callendar-Van Dusen approximation formula as shown below is used.

- $\begin{array}{ll} Rt=R0*(1+A*T+B*T^2+(T-100)*C*T^3) & (if\ T\geq 0,\ C=0)\\ where \ Rt & : \ Resistance \ at\ T^\circ C \ (ohms) \end{array}$
 - R0 : Resistance at 0°C (ohms)
 - T : Temperature (°C)
 - A, B, C : Coefficient

Calibrate the RTD and determine the coefficients A, B, C and R0.

Click [Write calibrated RTD] button and enter these values to automatically create a sensor characteristic data. Once the data is incorporated by pressing [Read table from device], its contents can be reconfirmed by [Display Custom RTD graph] and [Write table to file].

USER-SPECIFIC RTD TABLE

User-specific RTD data is defined in the format of texts. The file format is as following. Define the minimum temperature value in Celsius at Minimum RTD Temperature. Specify the Temperature Step used in the table, from 1°C to 50°C. Describe characteristics data within { }. Data must be entered in ohms. Up to 250 points can be specified.

/* Custom RTD Table Definition /* Ti=f(Xi) (0<=i<Size) /* Temperature Step (1 to 50 degC) /* 0<=Xi<4000 Ohm /* Xi<Xi+1 /* 2<=Size<=250 Minimum RTD Temperature=0 ← Minimum temperature TO (°C) \leftarrow Temperature step (°C) Step=10 { ← Resistance value for T0 (Ω) 100.000000 : 200.000000 \leftarrow Resistance for Tmax (Ω) }

Once the data file is ready, register the file on the 27HUCFG.

Click [Custom RTD] button to open the Custom RTD as shown in Figure 15.

Figure 15. Custom RTD

🏶 27HUCFG PC Confi	igurator V	'er3.0.0											
27HU Configurator			Comm Status	сом	PE	OVE	FE		SME	BOE	TME		
Monit	Monitor			MAL	CFG	CLD		AFX		NPV	ΡV		
Custom	RTD		PV	F	∾V %		Term.			AO		Functions	
Write caibrat	ed RTD		300	1	.00		100	` -		20		Connect	
Read table fro	m device		Ē		_		80	_		- - -		Diagnostics	
Write table to	o device			{	- 30 —			_		-		Detailed Device Info	
Write table	to file		3					_		16 -		Sensor Info	
Read table fr	Dead table from file									-		Analog Output	
Diselas Custon				ł	5U — — Uč		40 <u>-</u> -					AO Alarm	
Display Custom I	RTD graph				-			-		12-		Trim DAC	
Custom RTD Tab	ole Conte	ents	-	2	- 40 —			_		-		Sensor Cal	
Status	Config	jured	100-		_		0	_		-		Wire Resistance	
Min temperature	56	degC			-			Ξ		8 -		Custom TC	
Max temperature	1106	degC	-	2	20 —			_		-		Custom RTD	
Temperature step	5	degC			-		-4(-		Special Curve	
Table size	211	Max size 250			0					4		Polling Address	
	, , ,		91.90	30.63			29.59			8.00		File	
		m∨	%			degC			mA		Language		
Close Custo	om RTD		PV Graph	PV «	% Graph		Term Graph			AO Gra	ph	Exit	

Read table from file	The program uploads a file stored in the PC. When uploaded, the file contents summery is indicated under Custom RTD Table Contents. I/O characteristic data longer than 250 points are ignored.
Display Custom RTD graph	I/O characteristics data can be shown in a graph.
Write table to file	The program saves currently displayed I/O characteristics data to a file.
Write table to device	The program downloads currently displayed I/O characteristics to the 27HU. When downloading is successfully complete, Status under Custom RTD Table Contents shows 'Configured.' Then the option 'RTD Spec (Custom RTD)' becomes available to choose among the sensor type selections. If 'RTD Spec' has been already selected before this setting is done, you can not download a particular data file.
Read table from device	The program uploads I/O characteristics table registered in the 27HU. If there is no file registered, Status under Custom RTD Table Contents shows 'Non configured.'
Close Custom RTD	Quits the view.

3.14 LINEARIZATION TABLE SETTING

The 27HU supports user-specific linearization table function (Special_Curve). In order to use the Special_Curve, data in text format must be defined and registered. The file format is as following.

Describe characteristics data within { }. Sets of X and Y values must be entered in %. Up to 125 points can be specified.

```
/* Linearization Table (Special Curve) Definition
/*
  Yi=f(Xi) (0<=i<Size)
/*
    -15<=X,Y<115%
/*
    Xi<Xi+1
/*
    2<=Size<=125
{
0.000000,
                     ← The minimum X and Y values
         0.00000
100.000000,100.000000
                ← The maximum X and Y values
}
```

Once the data file is ready, register the file on the 27HUCFG.

Click [Special Curve] button to open the Special Curve as shown in Figure 16.

Figure 16. Special Curve

🕲 27HUCFG PC Conf	igurator V	'er3.0.0										
27H	27HU			сом	PE	OVE	FE		SME	BOE	TME	
Configu Monit	Configurator Monitor			MAL	CFG	CLD		AFX	AOS	NPV	PV	
Special C	Curve		PV	F	V %		Ter	m.		AO		Functions
Read table fro	m device		300	1	.00		100	' -		20		Connect
Write table to	o device				_		80	_		-		Diagnostics
Write table	to file		-	8	- 08		00	_				Detailed Device Info
Read table fi	rom file		-		-			_		16 -		Sensor Info
Display Special C				-				-		-		Analog Output
	Display Special Curve graph			6	60 —		40 <u>–</u> –			=		AO Alarm
Special Curve Ta	able Cont	ents	_		_					12—		Trim DAC
Status	Config	jured		- 40-				-		-	=	Sensor Cal
Minimum value	0.00	%	100-				0	_				Wire Resistance
Maximum value	100.00	%	3					-		8 -		Custom TC
Table size	3	Max size		2	20					-		Custom RTD
	125				-	11	-40	, _				Special Curve
	o .=		0					4		Polling Address		
	91.98	30.66			29.64			8.00		File		
							degC			mΑ		Language
Close Speci	al Curve		PV Graph	PV <	% Graph		Term	Graph		AO Gra	ph	Exit

Read table from file	The program uploads a file stored in the PC. When uploaded, the file contents summery is indicated under Special Curve Table Contents. I/O characteristic data longer than 125 points are ignored.
Display Special Curve graph	I/O characteristics data can be shown in a graph.
Write table to file	The program saves currently displayed I/O characteristics data to a file.
Write table to device	The program downloads currently displayed I/O characteristics to the 27HU. When downloading is successfully complete, Status under Special Curve Table Con- tents shows 'Configured.' Then the option 'Special_Curve' become available to choose among the transfer function selections. If 'Special_Curve' has been already selected before this setting is done, you can not download a particular data file.
Read table from device	The program uploads I/O characteristics table registered in the 27HU. If there is no file registered, Status under Special Curve Table Contents shows 'Non configured.'
Close Special Curve	Quits the view.

3.15 POLLING ADDRESS

Click Polling Address button to open the Device Address view as shown in Figure 17.

Figure 17. Polling Address

籋 27HUCFG PC Configurator Ver3.0.3											
Comm Status	COM PE OV	/E FE	SME BOE	TME							
Device Status	MAL CFG CL	.D AFX	AOS NPV	PV							
PV	PV %	Term.	AC)	Functions						
800	100	100	20		Connect						
	_	80 -			Diagnostics						
	80 -			-	Detailed Device Info						
	-	_	16	-	Sensor Info						
-				-	Analog Output						
- 400-	60 —	40			AO Alarm						
-	_		12-	-	Trim DAC						
	- 40			-	Sensor Cal						
200—	-	0 -			Wire Resistance						
-		=	8	-	Custom TC						
_	20 -			3	Custom RTD						
0 —	1	-40 -		-	Special Curve						
-100 -		7	4	Ξ	Delline Address						
01 40	01.00			0	Folling Address						
91.49 mV	%	deaC	4.U								
BY Graph	PV % Graph	Term Graph	Ang	anh	Evit						
	.3 Comm Status Device Status PV 800 - - - - - - - - - - - - -	.3 Comm Status COM PE OV Device Status MAL CFG CL PV PV V 800 - 100 - 400	.2 Comm Status COM PE OVE FE Image: constraint of the status Device Status MAL CFG CLD Image: constraint of the status PV PV PV Term. 800 100 100 100 600 80 80 80 600 60 40 40 400 40 40 40 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	.2 Comm Status COM PE OVE FE SME BOE Device Status MAL CFG CLD AFX AOS NPV 800 100 100 100 100 100 100 20 600 80 100 100 100 100 100 100 600 40 40 100 100 100 100 100 400 60 40 40 100 100 100 100 100 100 0 100	.9 Comm Status COM PE OVE FE SME BOE TME Device Status MAL CFG CLD AFX AOS NPV PV						

Device address	Shows the polling address of currently connected device.
Write device address	Write to the device a new polling address. Selectable addresses are from 0 to 15. The output current is fixed to 4mA, and [Analog Output] or [Trim DAC] functions become unavailable.
Number of preamble	Shows number of preamble at HART communication. Not rewritable.
Close Polling Address	Quits the Polling Address view.

3.16 FILE MANAGEMENT

The 27HU's configurations can be saved in a file and then read out to be downloaded to multiple modules.

Click [File] button to open the File Management view as shown in Figure 18.

While this view is active, the device connection is severed, therefore the 27HU device can be connected and disconnected freely except during Upload or Download operations.

The view is divided in two sections: 'File Configuration' and 'Device Configuration.' 'File Configuration' shows data transfer (Read or Write) between the PC Configurator and the PC, while 'Device Configuration' shows data transfer (Upload or Download) between the configurator and the 27HU device.

The 27HUCFG's configuration views consist of two pages. Click [Page] button to switch between pages. The second page appears as shown in Figure 19.

Click [Exit] to complete the file management operations. The device will remain disconnected and must be 'Connected' to start monitoring.

NOTE

Validity of the selected range values is not verified in this view. Please make sure to set them according to the described specifications.

Figure 18. File, 1st Page

👹 27HUCFG PC Configurator Ver3.0.0													
F.	Page		Read File		Write File	•		Upload	Download				
EXIC	1		Compare	All Copy <<			;	>> All Copy	Compare		•		
Properties			File Confi	iguratio	n			Device Configuration					
Tag r	name	СНБ				<	>				СНБ		
Desc	riptor	СНБ				<	>		СНБ				
Mes	sage	СНБ				<	>				СНБ		
Da	Date					<	>	СН					
Device ide	Device identification					<	>				CHG		
Senso	r type												
Senso	r wires	СНБ				-	~				СНБ		
Measuren	nent type						Ĺ						
PV	unit	СНБ									СНБ		
PV uppe	er range	сна									СНС		
PV lowe	r range					Ù	Ĺ						
PV da	mping	СНБ			Sec	<	>			Sec	СНБ		
Drift	alarm	СНБ				<	>				СНБ		
Burnout	detection	СНБ		<		>				СНБ			
Transfer	function	СНБ				<	>				СНБ		

Figure 19. File, 2nd Page

🕸 27HUCFG PC Configurator Ver3.0.0															
ſ	Page			Read File	Write File				Upload	Download					
	EXIC	2		Compare		All Copy <<			>> All Copy		Compare				
	Properties		File Configuration					Device Configuration							
Γ	Term temp	erature unit	СНБ				<	>				СНБ			
	CJC	mode	СНБ	<u> </u>			<	>				СНБ			
Í				,					,						
Γ	Wire re	sistance	СНБ			Ohms	<	>			Ohms	СНБ			
	Sensor up	pper range	СНБ				2					СНБ			
	Sensor lower range							Ĺ							
	Sensor serial No.		СНБ			<	>				СНБ				
	Final assembly number		СНБ	снд			<	>				СНБ			
	AO alar	rm mode	СНБ				<	>				СНБ			
	AO alarm	high value	СНБ			mA	<	>			mA	СНБ			
	AO alarm	low value	СНБ			mA	<	>			mA	СНБ			
	AO saturation high value		СНС			mA	<	>			mA	СНБ			
	AO saturation low value		СНБ			mA	<	>			mA	СНБ			

3.16.1 TRANSFERRING DATA TO/FROM DEVICE

Click [Upload] button to connect to the 27HU device, to read out its configuration data and to show it in 'Device Configuration' fields on the screen (Figure 20). COM port and Device Address can be changed in 'Connect' view. Once the uploading is complete, all background colors are back to the initial state.

Click [Download] button to connect and write configuration data in 'Device Configuration' fields to the 27HU device.

If an error occurs and downloading is stopped during the process, erred data field is highlighted in med pale red background color.

When the downloading is successfully complete, the configuration data is automatically uploaded and the background color returns to the initial state.

Connection to the device is automatically severed after each uploading or downloading, to allow it removed.

NOTE

'Device identification' is an identifier inherent to each device. It cannot be changed or downloaded to a device.

Figure 20. Data Uploaded

🕲 27HUCFG PC Configurator Ver3.0.0													
5	Page	Read File			Write File	•		Upload	Download		Ч		
EXIC	Exit Compare		Compare	All Copy <<			>> All Copy		Compare		,		
Properties		File Configuration						Device Configuration					
Tag r	name	СНБ				<	>	SAMP	чLE-2		СНБ		
Desci	iptor	СНБ				<	>	DESCRIPTOR123			СНБ		
Message		СНБ				<	>	MESSAGE TEXT			СНБ		
Date		СНБ](<	>	2011/04/13			СНБ		
Device identification		CHG				<	>	29	3		СНБ		
			,					<u></u>					
Senso	r type							Millivolt					
Sensor	wires	СНБ						2 Wires			СНС		
Measuren	ient type							Single					
PV	unit	СНБ						mV			СНБ		
PV uppe	r range	сна						300.000		mV			
PV lowe	r range	ange		Ù	Ĺ	0.000		mV					
PV da	mping	СНБ			Sec	<	>	10.000		Sec	СНБ		
Drift (alarm	СНБ				<	>	0.000		mV	СНБ		
Burnout detection		СНБ				<	>	ON			СНБ		
Transfer function		СНБ			<	>	LINE	JEAR		СНБ			

3.16.2 READING/WRITING FILES

Click [Read File] button to read the configuration data from a specified file and to show it in 'File Configuration' fields on the screen (Figure 21). All background colors are back to the initial state.

Click [Write File] button to write the configuration data in 'File Configuration' fields to a specified file.

Figure 21. File Read Out

🕲 27HUCFG PC Configurator Ver3.0.0												
Fb	Page		Read File	Write File				Upload	Download		d	
1			Compare	All Copy <<			:	>> All Copy	Compare		,	
Prop	erties		File Confi	guration		Device Configuration						
Tag r	name	СНБ	TAG1	100		<	>				СНБ	
Desci	riptor	СНБ	DESCRIPTOR123			<	>				СНБ	
Message		СНБ	MESSAGE TEXT			<	>				СНБ	
Date		СНБ	2010/06/21			<	>				СНБ	
Device identification		СНБ	293			<	>				СНБ	
Senso	r type		Туре	е Т								
Senso	' wires	CHG 2 Wir		√ires							СНБ	
Measuren	nent type		Single		le		Í					
PV	unit	СНБ	degC								СНБ	
PV uppe	r range	CHC	400.000		degC						CHC	
PV lowe	r range		-200.000	degC			Ĺ					
PV da	mping	СНБ	0.000		Sec	<	>			Sec	СНБ	
Drift	alarm	СНБ	100.000		degC	<	>				СНБ	
Burnout detection		СНБ	ON			<	>				СНБ	
Transfer function		СНБ	LINE	AR		<	>				СНБ	

3.16.3 MODIFYING PARAMETERS

Click [CHG] button at the left of each field to modify the parameter. Fields in which the parameter has been changed will be highlighted in light yellow background color. [CHG] buttons placed across multiple fields indicate that these parameters can be modified in single sequence.

When one parameter has been changed, related fields are also affected. For example, when 'Sensor type' is modified, 'PV unit' and 'PV range' may be automatically changed.

Parameters can be copied between 'File Configuration' and 'Device Configuration' using [<] and [>] buttons. Copied fields will be highlighted in light yellow background color.

Using [All Copy <<] or [All Copy >>] buttons enables transferring all parameters between the sections. Copied fields will be highlighted in light yellow background color.

NOTE

- (1) 'Date' is automatically set to the day when 'Tag name' and/or 'Descriptor' are changed. 'Date' can be modifiable.
- (2) Only capital letters are used as 'Tag name', 'Descriptor' and 'Message.' Small letters will be automatically converted to capital letters.
- (3) 'Device identification' is an identifier inherent to each device. It cannot be copied from 'File Configuration' to 'Device Configuration' field.

Figure 22. Parameters Modified

😂 27HUCFG PC Configurator Ver3.0.0													
Evit	Page		Read File	Write File				Upload	Download				
1			Compare		All Copy <<			>> All Copy	Compare		,		
Prop	erties		File Confi	iguration	1		Device Configuration						
Tagır	name	СНБ	SAM	PLE		<	>	SAMP	LE-2		СНБ		
Desci	riptor	СНБ	DESCRIPTOR123			<	>	DESCRIPTOR123			СНБ		
Message		СНБ	MESSAGE TEXT			<	>	MESSAGE			СНБ		
Da	ite	СНБ	2010/11/21			<	>	2011/04/13			СНБ		
Device identification		CHG	293			<	>	293			CHG		
Senso	r type		Тура	e R				Millis	/olt				
Sensor	' wires	CHG 2 Wir		Vires				2 Wires			CHG		
Measuren	ient type		Single			Ì		Single					
PV	unit	СНБ	deç	gC				m'		СНБ			
PV uppe	r range	СНС	1760.00		degC			700.000		mV			
PV lowe	r range		-50.00		degC		Ĺ	0.000		mV			
PV da	mping	СНБ	0.000		Sec	<	>	10.000		Sec	СНБ		
Drift (əlarm	СНБ	100.000		degC	<	>	0.000	.000		СНБ		
Burnout o	detection	СНБ	ON			<	>	ON			СНБ		
Transfer	function	СНБ				<	>	SQRT			СНБ		

3.16.4 COMPARING FILE TO DEVICE

You can compare the configuration data in 'File Configuration' fields and 'Device Configuration' fields.

Click [Compare] button in 'Device Configuration' fields to compare its data to those in 'File Configuration' fields. Deviations will be highlighted in med pale red background color.

Click [Compare] button in 'File Configuration' fields to compare its data to those in 'Device Configuration' fields. Deviations will be highlighted in med pale red background color.

Figure 23. Parameters Compared

🕲 27HUCFG PC Configurator Ver3.0.0												
E.it	Page		Read File	Write File All Copy <<				Upload	Download		ł	
EXIC	1		Compare				;	>> All Copy	Compare		,	
Prop	erties		File Confi	guration		Device Configuration						
Tag r	name	СНБ	TAG100			<	>	SAMPLE			СНБ	
Descriptor		СНБ	DESCRIPT	OR123	3	<	>	DESCRIPTOR 123			СНБ	
Message		СНБ	MESSAGE TEXT			<	>	MESSAGE			СНБ	
Date		СНБ	2010/06/21			<	>	2010/11/21			СНБ	
Device identification		СНБ	293			<	>	29	CHG			
Senso	r type		Type	e T				Millivolt 2 Wires				
Sensor	wires	CHG 2 Wi		Vires							СНС	
Measuren	ient type		Single				Ĺ	Single				
PV	unit	СНБ	deg	IC				mV			СНБ	
PV uppe	r range		400.000		degC			400.000		degC		
PV lowe	r range		-200.000		degC	Ĺ	Ĺ	-200.000		degC		
PV da	mping	СНБ	0.000	000 Sec		<	>	10.000		Sec	СНБ	
Drift (alarm	СНБ	100.000		degC	<	>	100.000		degC	СНБ	
Burnout detection		СНБ	ON			<	>	ON			СНБ	
Transfer function		СНБ	LINEAR			<	>	LINEAR			СНБ	

3.17 LANGUAGE

Click [Language] button to open the Language view as shown in Figure 24. The user can select the display language of the 27HU.

Figure 24. Language

🕲 27HUCFG PC Configurator Ver3.0.0										
27HU Configurator	Comm Status	сом	PE	OVE	FE		SME	BOE	TME	
Monitor	Device Status MAL C		CFG	CLD		AFX	AOS	NPV	PV	
Language	PV	PV %			Term.			AO		Functions
Select language English	300	1	.00		100			20		Connect
			_		80	_		-		Diagnostics
		8	80 —		00	_				Detailed Device Info
	-		-			_		16 -		Sensor Info
	200-				=			-		Analog Output
	-				40				AO Alarm	
	-							12_		Trim DAC
		2	40				=		Sensor Cal	
	100-		-		0	_		-		Wire Resistance
			-			-		8 –		Custom TC
		:	20 —			_		-		Custom RTD
			_		-40			-		Special Curve
	0 -		0					4		Polling Address
	92 17	3	IN 72_		29	92		8 00		File
	mV	%			degC			mA		Language
Close Language	PV Graph	PV % Graph			Term Graph			AO Graph		Exit

Click [Select language] to select the available language. The selected language is shown on the screen immediately. English is available in each language version of Windows, while Windows in your PC must support other language in order to display it.

[Close Language] quits the view.