EN

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TIF352U0089

Temperature Sensor



Interface Description

Subject to change without notice
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1. Commands

1.1. Overview of Commands

Command	Function
R	Return sensor to default settings
S	Adjust switching points SP1 and SP2
P	Adjust temperatures A.Lo and A.hI
Q	Adjust analog voltage of current output AnA
A	Adjust switching logic SL1 and SL2
O	Adjust output functions Ofn1 and Ofn2
F	Adjust response time
e	Adjust emission factor
U	Adjust display unit
L	Adjust laser
D	Query measured temperature (one-time only or continuously)
W	Query sensor settings (start command for the query followed by the command for the desired query, e.g. “D”)
V	Query sensor version
M	Prefix for response to a configuration command

Notes:

x = placeholder for entered or read out values

qq = placeholder for checksum

The baud rate of the sensor is standardized with 38400 baud. It can not be changed.

Checksum Calculation

The checksum is generated via an EXOR link to the frame, beginning with the start byte and ending with the last character of the user data.

Example:

/	2Fh	=	0010 1111		
0	30h	=	0011 0000		
	XOR	=	0001 1111		
2	32h	=	0011 0010		
	XOR	=	0010 1101		
0	30h	=	0011 0000		
	XOR	=	0001 1101		
D	44h	=	0100 0100		
	XOR	=	0101 1001		
0	30h	=	0011 0000		
	XOR	=	0111 1001		
0	30h	=	0011 0000		
	XOR	=	0101 1001	→	checksum = 59h

1.2. Configuring the Sensor

Function	Command	Response	Range
Switching point 1 (SP1)	/040S1xxxqq.	/020MS132.	xxx: value in °C
Switching point 2 (SP2)	/040S2xxxqq.	/020MS231.	xxx: value in °C
Temperature, 4 mA / 0 V (A.Lo)	/040pbxxxqq.	/050Mpbxxxqq.	xxx: value in °C
Temperature, 20 mA / 10 V (A.hi)	/040pexxxqq.	/050Mpexxxqq.	xxx: value in °C
Analog voltage output (AnA)	/020Q004C.	/030MQ0000.	
Analog current output (AnA)	/020Q014D.	/030MQ0101.	
Switching logic 1 (SL1) → NO	/020A105D.	/030MA1011.	
Switching logic 1 (SL1) → NC	/020A115C.	/030MA1110.	
Switching logic 2 (SL2) → NO	/020A205E.	/030MA2012.	
Switching logic 2 (SL2) → NC	/020A215F	/030MA2113.	
Output function 1 (Ofn1) → PNP	/020O1053.	/030MO101F.	
Output function 1 (Ofn1) → NPN	/020O1152.	/030MO111E.	
Output function 2 (Ofn2) → PNP	/020O2050.	/030MO201C.	
Output function 2 (Ofn2) → NPN	/020O2151.	/030MO211D.	
Pin function (PInF)	/020T0xqq.	/030MT0xqq.	x: momentary setting 0: switching output 1: analog output
Response time (rESP)	/010Fxqq.	/020MFxqq.	x: Response Time 0: 0,065 s 1: 0,1 s 2: 0,34 s 3: 1,1 s 4: 1,33 s 5: 3 s 6: 5 s 7: 10 s 8: 30 s
Emission factor (EF)	/030exxxqq.	/040Mexxxqq.	xxx: emission factor × 0.01 Example: xxx = 095 = 0.95. The value “000” is invalid.
Display unit (d.U)	/010Uxqq.	/020MUxqq.	x: momentary setting 0: °C 1: °F
Laser (Lasr) → ON	/020L0150.	/020L0150.	
Laser (Lasr) → OFF	/020L0051.	/020L0051.	

1.3. Reading Sensor Values and Settings

Query	Command	Response	Range
Sensor version	/000V49.	/070V8a:bbccqq.	a: software version bb: sensor group cc: sensor type
Measured temperature	/020D0e0C.	/090Doooo:aaaaqq.	oooo: object temperature in °C or °F aaaa: sensor temperature in °C or °F Temperature with one decimal = oooo/10 or aaaa / 10 Example: oooo = 3002 = 300,2 Example: aaaa = 0202 = 20,2
Activation – continuous read-out of measured temperature	/020D0p19.	/090Doooo:aaaaqq.	oooo: object temperature in °C or °F aaaa: sensor temperature in °C or °F Temperature with one decimal = oooo/10 or aaaa / 10 Example: oooo = 3002 = 300,2 Example: aaaa = 0202 = 20,2
Deactivation – continuous read-out of measured temperature	/020D0a08.	/040DOP:04A.	
Switching point 1 (SP1)	/020WC138.	/050WC1xxxqq.	xxx: value in °C
Switching point 2 (SP2)	/020WC23B.	/050WC2xxxqq.	xxx: value in °C
Temperature, 4 mA / 0 V (A.Lo)	/020Wb28.	/040Wbxxxqq.	xxx: value in °C
Temperature, 20 mA / 10 V (A.hI)	/020We2F.	/040Wexxxqq.	xxx: value in °C
Analog voltage or current output (AnA)	/010WQ18.	/020WQxqq.	x: momentary setting 0: voltage output 1: current output
Output function 1 (Ofn1)	/020WO134.	/030WO1xqq.	x: momentary setting 0: PNP 1: NPN
Output function 2 (Ofn2)	/020WO237.	/030WO2xqq.	x: momentary setting 0: PNP 1: NPN
Switching logic 1 (SL1)	/020WA13A.	/020WA1xqq.	x: momentary setting 0: NO 1: NC
Switching logic 2 (SL2)	/020WA239.	/020WA2xqq.	x: momentary setting 0: NO 1: NC
Pin function (PInF)	/010WT1D.	/030WT0xqq.	x: momentary setting 0: switching output 1: analog output

Response time (rESP)	/010WF0F.	/040WFxqq.	x: Response Time 0: 0,065 s 1: 0,1 s 2: 0,34 s 3: 1,1 s 4: 1,33 s 5: 3 s 6: 5 s 7: 10 s 8: 30 s
Emission factor (EF)	/010Wm2C.	/040Wexxxqq.	xxx: emission factor × 0.01 Example: xxx = 095 = 0.95. The value “000” is invalid.
Display unit (d.U)	/010WU1C.	/020WUxqq.	x: momentary setting 0: °C 1: °F
Laser (Lasr)	/010WL05.	/020WLxqq.	X: current setting 0: OFF 1: ON
Binary I/O status	/010WD0D.	/030WDxxqq.	xx: I/O status code (6 bit) Bit 5: status of + key Bit 4: status of mode key Bit 3: temperature warning Bit 2: overload warning Bit 1: switching output A2 Bit 0: switching output A1

1.4. Execute Sensor Reset

Function	Command	Response
Reset	/000R4D.	/020MRS51.