

TEDS

Transducer Electronic Datasheet Manual and Programming Guide

Sensor Solutions Source Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

www.futek.com

Table of Contents

What is TEDS?	3
FUTEK Sensors and Solutions that are compatible with TEDS	3
How is TEDS Implemented?	4
How to Program TEDS	5
TEDS Layout	10
TEDS EEPROM Chip	15







لين 13485



What is TEDS?

TEDS stands for **Transducer Electronic Data Sheet**. It is an EEPROM device embedded in the sensor or sensor's connector that contains calibration information such as serial number, calibration dates, and other calibration factors.

TEDS was introduced as IEEE P1451.4 in 1997 and established the concept of "smart transducers." These chips store important calibration data that facilitate communications between sensors and their instruments, greatly reducing the calibration and setup work that the user must perform.

It is a convenient technology that allows users to bypass the tedious process of calibrating a sensor with an instrument. This avoids potential confusion, saves time and energy, and makes the sensor a true "plug and play" experience.

ADVANTAGES OF A SYSTEM WITH TEDS

- TEDS streamlines the setup of a sensor with an instrument by allowing you to bypass complicated calibration steps. This gives you a ready-to-go, plug-and-play system and greatly diminishes the opportunity for scaling & calibration errors.
- TEDS facilitates multiple sensors for one instrument, making it cost effective, easy to troubleshoot, and simple to operate.

FUTEK Sensors and Solutions that are compatible with TEDS

SENSORS		SOLUTIO	NS
TYPE ¹	EXAMPLES	TYPE	CAMPLES gital Panel Mount; Hand Held. st and Measurement Software
Load	Pancake; S-Beam; Load Buttons; Load Washers; Threaded	Displays	Digital Panel Mount; Hand Held.
	Rod, Donut Load Cell	SENSIT	Test and Measurement Software
Torque	Reaction and Rotary Torque; Socket Extension Torque		
Pressure	Miniature; Male/Female Port		

www.futek.com









How is TEDS Implemented?



SENSORS

A single TEDS chip is embedded within the sensor's connector, such as DB9 or 12-Pin Binder.

Alternatively, the chip is embedded within the sensor body.

INSTRUMENTS

FUTEK displays such as the IPM650 (Intelligent Panel Mount Display) and IHH500 (Intelligent Hand Held Display) are equipped with TEDS during manufacturing, so there is no need for modification. IPM650 and IHH500 can read TEDS data upon startup or by loading it through the menu. Additionally, TEDS data will automatically create a custom channel that is programmed specifically for your sensor, allowing for easy and immediate use.

DS Template TEDS Data								
TEDS Template	Basic	c TEDS Transducer Type Temple	calibration T	emplate User Data				
Read TEUS Template		Function	Select	Description	Bits	Value		Unit
New TEDS Template	Þ	ID		Template ID	8	33		-
Save TEDS Template		Measurement	Select Case	Physical Measurand (Units)	6	lb	•	-
		Measurement	Case 0-45	Minimum Physical Value	32	0.000		
asic TEDS Options		Measurement	Case 0-45	Maximum Physical Value	32	50.000		
FUTER Basic TEDS		Electrical Signal Output	-	Transducer Electrical Signal Type		Bridge Sensor	-	-
Standard Basic TEDS		Electrical Signal Output	Select Case	Full-Scale Electrical Value Precision	2	32-bit Precision	•	
ual Scaling		Electrical Signal Output	Case 2	Minimum Electrical Output	32	0.000		V/V
) Enable Dual Scaling		Electrical Signal Output	Case 2	Maximum Electrical Output	32	0.004		V/V
Disable Dual Scaling		Electrical Signal Output		Mapping Method		Linear		
		Electrical Signal Output		Bridge Type	2	Full	-	
		Electrical Signal Output		Bridge Element Impedance	18	350.0		0
		Electrical Signal Output		Response Time	6	0.001009		s
		Excitation Supply		Excitation Level, Nominal	9	5.0		v
		Excitation Supply		Excitation Level, Minimum	9	1.0		v
		Excitation Supply	-	Excitation Level, Maximum	9	10.0		v
		Calibration Information	-	Calibration Date	16	1/16/2015		-
		Calibration Information	-	Calibration Initials	15	JST		-
		Calibration Information		Calibration Period	12	365		days
		Miscellaneous	-	Measurement Location ID	11	1		
	Re	ecord: << < 1 0	f 19 > >					

SENSIT[™] SOFTWARE

Users of SENSIT[™] software have the ability to read and write TEDS information to their sensors by creating new templates. This allows users to edit the data on the TEDS chip if they should require a different setting.

www.futek.com











IHH500 SENSOR CONNECTIONS

PIN	SYMBOL	DESCRIPTION
А	+E	+Excitation
В	+S	+Signal
С	-E	-Excitation, TEDS return
D	–S	–Signal
E	TEDS_IO	TEDS Data
F	24_OUT	24V output
G	GND_OUT	Ground/Shield
Н	5_OUT	5V Output
J	-V	-V and -mA Amplified Input Connections
К	+V	+V and +mA Amplified Input Connections
L	PLEAD	Leading pulse from sensor
М	PLAG	Lagging pulse from sensor



IPM650 STRAIN GAUGE INPUT SYMBOL DESCRIPTION PIN G Ground/Shield 1 2 TEDS **TEDS** Data 3 –S –Signal 4 +S +Signal –E -Excitation 5 +Excitation 6 +E

NECESSARY COMPONENTS

- TEDs chip .
- IHH500/IPM650
- SENSIT™ Test and Measurement Software
- IHH500 USB Cable (FSH03570) or IPM650 USB Cable (GOD04123)



TEDS TEMPLATE

This SENSIT[™] software tab allows the user to read and write to a TEDS Chip. The table displays information related to the Basic TEDS Information and the TEDS Template Information.







かべ

13485



www.futek.com

Sensor Solution Source

Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

للماي رول 17025

🚭 Transducer Type Template ID

33

Please Select The Transducer Type Template ID

30: High-Level Voltage Output Sensors 33: Bridge Sensors

File Edit	view Format	Help	
Display Mode	Data Logging Mode	Transducer Electronic Data Sheets (TEDS)	
De	evice	Release Notes Software Manual	Readin
1	1	About SENSIT Test and Measurement	0.000

X

OK

Cancel

HOW TO ACCESS TEDS TEMPLATE

Open the SENSIT[™] software, verify serial number displayed in initial loading window, click Help tab, and then Transducer Electronic Datasheets (TEDS). This will open a new window allowing access to the TEDS template to read or write to the TEDS chip.

HOW TO READ TEDS TEMPLATE INFORMATION

Click Read TEDS Template.

HOW TO CREATE NEW TEDS TEMPLATE INFORMATION

- Click New TEDS Template and specify the Template ID number in the input box below. (Type 33 for Bridge Sensors and 30 for High Voltage Amplified output sensors. Both follow the same procedure with different inputs.)
- Calibration Template ID

 Please Select The Calibration Template ID

 40: Calibration Table

 Press The Cancel Button To Proceed Without Creating A Calibration Template.
 - Dual Scaling
 Enable Dual Scaling
 Disable Dual Scaling

- Specify the Calibration Template ID. In the new window press OK with no input. Note: In the following steps a LRF350 500lbs 2 mV/V output will be used as an example for template 33 and a PMP300 50 PSI 0-10 VDC Output for template 30.
- For sensors with dual direction output click Enable Dual Scaling or else leave as Disable Dual Scaling ONLY if dual direction output value available. Dual Direction output will be input later in User Data.

www.futek.com









TEDS Template	Basic	TEDS Trans	ducer Type	Template Calibration T	emolate	Liver Data		
Read TEDS Template		Function	Select	Description	Rite	Value		Units
New TEDS Template		Basic		Manufacturer ID	14	Futek Advanced Sensor Technology, Inc.		
Save TEDS Template	Ľ	Basic		Product Type	5	L		
Pasia TEDS Options		Basic	-	Product Category	10	RF	•	
FUTEK Basic TEDS		Basic	-	Product Series	11	350		
Standard Basic TEDS		Basic	-	Serial Number	24	123456		-

4. Input Product Type, Product Category, Product Series, and Serial number for unit in **Basic TEDS** Tab. (LRF350 and PMP300 used as examples for reference.)

PRODUCT	ТҮРЕ
SYMBOL	PRODUCT
L	Load Cell
Т	Torque Sensor
Р	Pressure Sensor
М	Multi-Axis Sensor

Product Category: Letters specifying which product family sensor is part of. (Ex: RF for LRF350 and MP for PMP300)

 $\ensuremath{\textbf{Product Series:}}$ Numbers used to specify sensor model. Ex: 350 for LRF350 and 300 for PMP300









3) (4



- 5. On Transducer Type Template, Input sensor information corresponding to specs.
 - Template ID, Full Scale Electrical Value Precision, Mapping Method, Bridge Type, Bridge Element Impedance, Response Time, and Measurement Location ID can be left untouched with template provided values.
 - Maximum Electrical Output must be converted from mV/V to V/V. (Example: 2 mV/V would be 0.002 V/V.)
 - Excitation Levels, voltage that will be supplied to sensor for power, can be found on Unit spec sheet. Nominal excitation level can be stated using Calibration excitation on spec sheet.

Transducer Electronic Data Sheets (TEDS)

TEDS Data							
EDS Template	Basi	c TEDS Transducer Type Templa	te Calibration T	emplate User Data			
Read TEDS Template		Function	Select	Description	Bits	Value	Units
New TEDS Template		ID		Template ID	8	33	
Save TEDS Template		Measurement	Select Case	Physical Measurand (Units)	6	К	
		Measurement	Case 0-45	Minimum Physical Value	32	0	
asic TEDS Options		Measurement	Case 0.45	Maximum Physical Value	32	0	
FUTEK Basic TEDS Standard Basic TEDS Il Scaling Enable Dual Scaling Disable Dual Scaling		Electrical Signal Output		Transducer Electrical Signal Type		Bridge Sensor	
Standard Basic TEDS		Electrical Signal Output	Select Case	Full-Scale Electrical Value Precision	2	32-bit Precision	-
ual Scaling		Electrical Signal Output	Case 2	Minimum Electrical Output	32	0	V/V
Enable Dual Scaling		Electrical Signal Output	Case 2	Maximum Electrical Output	32	0	V/V
Disable Dual Scaling		Electrical Signal Output	-	Mapping Method		Linear	-
-		Electrical Signal Output		Bridge Type	2	Full	
		Electrical Signal Output	-	Bridge Element Impedance	18	1	Ω
		Electrical Signal Output	-	Response Time	6	0.001	s
		Excitation Supply	-	Excitation Level, Nominal	9	0	v
		Excitation Supply		Excitation Level, Minimum	9	0	v
		Excitation Supply	-	Excitation Level, Maximum	9	0	v
		Calibration Information	-	Calibration Date	16	11/3/2016	-
		Calibration Information	-	Calibration Initials	15	AAA	-
		Calibration Information	-	Calibration Period	12	365	days
		Miscellaneous	-	Measurement Location ID	11	1	-
	R	acord: << < 1 0	f 19 > ≫				

		Function	Select	Description	Bits	Value	U	Inits
w TEDS Template	•	ID		Template ID	8	30	T	
ve TEDS Template		Measurement	Select Case	Physical Measurand (Units)	6	к		
		Measurement	Case 0.45	Minimum Physical Value	32	0	T	
ITEDS Options		Measurement	Case 0-45	Maximum Physical Value	32	0	Unit 	
POTEK Basic TEDS		Electrical Signal Output		Transducer Electrical Signal Type		Voltage Sensor		
Standard Basic TEDS		Electrical Signal Output	Select Case	Full-Scale Electrical Value Precision	2	0-10V		
Scaling		Electrical Signal Output	Case 0	Minimum Voltage Output		0		v
Enable Dual Scaling		Electrical Signal Output	Case 0	Maximum Voltage Output		10		v
Disable Dual Scaling		Electrical Signal Output		Mapping Method		Linear		
		Electrical Signal Output		AC or DC Coupling	1	DC		
		Electrical Signal Output		Sensor Output Impedance	12	1		Ω
		Electrical Signal Output		Response Time	6	0.001	1	\$
		Power Supply	Select Case	Excitation / Power Requirements	1	No Power Supply / Excitation Source		
		Power Supply	Case 0	No Power Supply Or Excitation Source			1	
		Calibration Information		Calibration Date	16	3/6/2017		
		Calibration Information		Calibration Initials	15	AAA		+
		Calibration Information		Calibration Period	12	365	d	ays
		Miscellaneous		Measurement Location ID	11	1		

Template 33 before Sensor information input

DS Template	Basi	c TEDS Transducer Type Templa	te Calibration T	emplate User Data			
ead TEDS Template		Function	Select	Description	Bits	Value	Units
ew TEDS Template		ID		Template ID	8	33	
ave TEDS Template		Measurement	Select Case	Physical Measurand (Units)	6	lb	
		Measurement	Case 0-45	Minimum Physical Value	32	0	lb
sic TEDS Options		Measurement	Case 0.45	Maximum Physical Value	32	500	lb
FUTEK Basic TEDS		Electrical Signal Output		Transducer Electrical Signal Type		Bridge Sensor	
Standard Basic TEDS		Electrical Signal Output	Select Case	Full-Scale Electrical Value Precision	2	32-bit Precision	
al Scaling		Electrical Signal Output	Case 2	Minimum Electrical Output	32	0	V/V
Enable Dual Scaling		Electrical Signal Output	Case 2	Maximum Electrical Output	32	0.002	V/V
Disable Dual Scaling		Electrical Signal Output	-	Mapping Method		Linear	
		Electrical Signal Output		Bridge Type	2	Full	
		Electrical Signal Output	-	Bridge Element Impedance	18	1	Ω
		Electrical Signal Output	-	Response Time	6	0.001	s
		Excitation Supply	-	Excitation Level, Nominal	9	10	V
		Excitation Supply		Excitation Level, Minimum	9	1	V
		Excitation Supply	-	Excitation Level, Maximum	9	18	V
		Calibration Information	-	Calibration Date	16	11/3/2016	
		Calibration Information	-	Calibration Initials	15	NWH	
		Calibration Information		Calibration Period	12	365	days
		Miscellaneous	-	Measurement Location ID	11	1	
	R	ecord: << < 1 0	f 19 🕞 ≫				, <u>a</u>

Template 33 after Sensor information input

Template 30 before Sensor information input

•	Function	Select	Description	Bits	Value		Unite
۲	ID						Onnes
		-	Template ID	8	30		
	Measurement	Select Case	Physical Measurand (Units)	6	psi	*	
	Measurement	Case 0.45	Minimum Physical Value	32	0		psi
	Measurement	Case 0-45	Maximum Physical Value	32	50		psi
	Electrical Signal Output	-	Transducer Electrical Signal Type	-	Voltage Sensor	*	-
	Electrical Signal Output	Select Case	Full-Scale Electrical Value Precision	2	0-10V	•	
	Electrical Signal Output	Case 0	Minimum Voltage Output		0		v
	Electrical Signal Output	Case 0	Maximum Voltage Output		10		v
Disable Dual Scaling	Electrical Signal Output		Mapping Method		Linear	•	
	Electrical Signal Output		AC or DC Coupling	1	DC	*	
	Electrical Signal Output		Sensor Output Impedance	12	1		0
	Electrical Signal Output		Response Time	6	0.001		\$
	Power Supply	Select Case	Excitation / Power Requirements	1	Power Supply / Excitation Source	-	
	Power Supply	Case 1	Power Supply Level, Nominal	9	24		v
	Power Supply	Case 1	Power Supply Level, Minimum	9	14		v
	Power Supply	Case 1	Power Supply Level, Maximum	9	30		v
	Power Supply	Case 1	Power Supply Type	2	DC	*	-
	Power Supply	Case 1	Maximum Current at Nominal Power Level	6	0.001		Α
	Calibration Information	-	Calibration Date	16	11/3/2016		
Percentical Signal Output Transducer Electrical Signal Type Voltage Sensor Voltage Sensor • All Electrical Signal Output Select Case / IL-Schee Electrical Values Output 0 0.101/0 - All Electrical Signal Output Case 0 Maximum Voltage Output 0 0 - All Electrical Signal Output Case 0 Maximum Voltage Output 0 10 - Electrical Signal Output Case 0 Maximum Voltage Output 1 0 - - Electrical Signal Output A Car DC Coupling 1 0 -							
	Calibration Information		Calibration Period	12	365	• - • - V V • - Ω - Ω - V - V - V - V - V - V - V - A - - - days -	
				44	4		
		Measurement Measurement Electrical Signal Output Electrical Signal Output Power Supply Power Supply Power Supply Power Supply Power Supply Power Supply Power Supply Power Supply Power Supply Power Supply Electrical Signal Output Electrical Signal Output Power Supply Power Supply Power Supply Calibration Information Calibration Information	Measurement Case 0.45 Measurement Case 0.45 Electrical Signal Output - Electrical S	Measurement Case 0.45 Minimum Physical Value Measurement Case 0.45 Minimum Physical Value Exercical Signal Output I - Transducer Exercical Signal Physe Exercical Signal Output I - Genet Case 0 Minimum Voltage Output Exercical Signal Output I - Maximum Voltage Output Exercical Signal Output I - Mayoing Method Exercical Signal Output I - Mayoing Method Exercical Signal Output I - Sector Output Impedance Exercical Signal Output I - Prover Supply Level, Immunal Power Supply Case 1 Power Supply Level, Immunal Casil Exaction Immunal Case Cast Immuna Distributed Califormation Immunal Case Cast Immuna Distribute Califormation Immunal Califormation Immunal Califormation Caster Califordia Deviced Califordia Deviced	Measurement Case 0.45 Minimum Physical Value 32 Measurement Case 0.45 Minimum Physical Value 32 Extertical Signal Output - Transducer Electrical Signal Output - 32 Electrical Signal Output - Full-Scale Electrical Value Precision 2 Electrical Signal Output - Case 0.45 Minimum Voltage Output - - Electrical Signal Output - Maximum Voltage Output - - Electrical Signal Output - - Electrical Signal Output - Maping Method - - - Electrical Signal Output - Sensor Output Impedance 12 Electrical Signal Output - Sensor Output Impedance 12 Electrical Signal Output - Sensor Output Impedance 12 Electrical Signal Output - Sensor Output Impedance 12 Power Supply Case 1 Power Supply Level, Maximum 5 Power Supply Level, Maximum 5 Power Supply Case 1 Power Supply Level, Maximum 5 Power Supply Level, Maximum 5 Power Supply Case 1 Power Supply Level, Maximum 5 2	Measurement Case 0.45 Minimum Physical Value 52 0 Measurement Case 0.45 Minimum Physical Value 52 50 Exectical Signal Output - Transducer Electrical Signal Type - Voltage Sensor Exectical Signal Output - 0 - 0 - Exectical Signal Output - 0 - 0 - Exectical Signal Output - 0 - 0 - Exectical Signal Output - 0 - 10 - - 0 Exectical Signal Output - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 <	Measurement Case 0.45 Minimum Physical Value 32 0 Measurement Case 0.45 Minimum Physical Value 32 0 Electrical Signal Output - Transducer Electrical Signal Output - Voltage Sensor > Electrical Signal Output - Full Scale Electrical Value Precision 2 0.10V > Electrical Signal Output - Case 0 Minimum Voltage Output - 0 Electrical Signal Output - Maximum Voltage Output - 10 <

Template 30 after Sensor information input



17025





15 Template TEDS Data								
EDS Template	Bask	TEDS Trans	ducer Type	Template Calibration Template User Data				
Read TEDS Template		Function	Select	Description	Bits	Value	Units	_
New TEDS Template		User Data		IPM500: Decimal Points	7	0		
Save TEDS Template		User Data		IPM500: User Text (20 Chars)	140	-		
		User Data	-	IPM500: Analog Output Setup	2	Current Un-Filtered		
asic TEDS Options		User Data		IPM500: Analog Low	32	0		
FUTEK Basic TEDS		User Data	-	IPM500: Analog High	32	0		
Standard Basic TEDS		User Data		IPM500: -Gain Correction	32	0		
Qual Scaling		User Data	-	IHH500/IPM650: Reverse Electrical Output	32	0.002	V/V	

 On User Data tab, if reverse direction output is known input value in IHH500/IPM650: Reverse Electrical Output. Verify Enable Dual Scaling is enabled on Dual Scaling option.

HOW TO SAVE TEDS TEMPLATE INFORMATION

After you have filled in all of the required Basic TEDS Information and TEDS Template Information, click Save TEDS Template.

Please Note: When writing to the TEDS Chip, the data will be overwritten. Please be cautious as there is no way to retrieve the information once it has been overwritten.







りゃ



The following information is as found in the IEEE 21451-4 First Edition International Standard manual reference number ISO/IEC/IEEE 21451-4:2010(E)

As per the IEEE 1451.4 TEDS standard basic TEDS information shall occupy the Application Register and have the following format and information starting at the first byte of TEDS Memory.



Memory map, IEEE 1451.4 Basic TEDS









FUTEK utilizes template 30 for amplified voltage output sensors and 33 for non-amplified sensors.

HIGH-LEVEL VOLTAGE OUTPUT TEMPLATE (ID = 30) SUMMARY								
FUNCTION	SELECT	PROPERTY/ COMMAND	DESCRIPTION	ACCESS	BITS	DATA TYPE (AND RANGE)	UNITS	
ID	_	TEMPLATE	Template ID		8	Integer (value = 30)	_	
Measurement	Select Case—Physic	al Measurand			6	Select Case	_	
	Cases 0–45	%MinPhysVal	Minimum physical value	CAL	32	Single	Variousª	
		%MaxPhysVal	Maximum physical value	CAL	32	Single	Variousª	
Electrical signal	_	%ElecSigType	Transducer Electrical Signal Type	ID	_	Assign = 0, "Voltage Sensor"	_	
ουτρυτ	Select Case—Full-Se	cale Electrical Value Precisi	on		2	Select Case	_	
	Case 0	%MinElecVal	Minimum voltage output	CAL	_	Assign = 0.0	V	
		%MaxElecVal	Maximum voltage output	CAL	_	Assign = 10.0	V	
	Case 1	%MinElecVal	Minimum voltage output	CAL	_	Assign = -10.0	V	
		%MaxElecVal	Maximum voltage output	CAL	_	Assign = 10.0	V	
	Case 2	%MinElecVal	Minimum voltage output	CAL	11	ConRes (-20.5 to 20.4, step 0.02)	V	
		%MaxElecVal	Maximum voltage output	CAL	11	ConRes (–20.5 to 20.4, step 0.02)	V	
	Case 3	%MinElecVal	Minimum voltage output	CAL	32	Single	V	
		%MaxElecVal	Maximum voltage output	CAL	32	Single	V	
	_	%MapMeth	Mapping Method	ID	—	Assign = 0, "Linear"	—	
	_	%ACDCCoupling	AC or DC coupling	ID	1	Enumeration: DC AC	_	
	_	%SensorImped	Sensor output impedance	ID	12	ConRelRes (1 to 1.1M, ±0.17%)	Ω	
	_	%RespTime	Response Time	ID	6	ConRelRes (1E-6 to 7.9, ±15%)	S	
Power supply	Select Case—Excita	tion/Power Requirements			1	Select Case	_	
	Case 0	_	No power supply or excitation source	—	_	_		
	Case 1	%ExciteAmplNom	Power-supply level, nominal	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
		%ExciteAmplMin	Power-supply level, min.	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
		%ExciteAmplMax	Power-supply level, max	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
		%ExciteType	Power-supply type	ID	2	Enumeration: DC Bipolar DC AC		
		%ExciteCurrentDraw	Max current at nominal power level	ID	6	ConRelRes (1E-6 to 1.6, ±13%)	А	

Sensor Solution Source Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

www.futek.com









3) (4

TEDS Manual and Programming Guide

HIGH-LEVEL VOLTAGE OUTPUT TEMPLATE (ID = 30) SUMMARY								
FUNCTION	SELECT	PROPERTY/ COMMAND	DESCRIPTION	ACCESS	BITS	DATA TYPE (AND RANGE)	UNITS	
Calibration information	_	%CalDate	Calibration Date	CAL	16	DATE	—	
	_	%CalInitials	Calibration initials	CAL	15	CHR5	_	
	_	%CalPeriod	Calibration period	CAL	12	UNINT	days	
Misc.	_	%MeasID	Measurement location ID	USR	11	UNINT	_	
			Total bits required for T	Total bits required for TEDS (range):				

^aUnits for %MinPhysVal and %MaxPhysVal are determined by value of the Select Case "Physical Measurand" as summarized in Table A.22.







りべ



BRIDGE SENSORS TEMPLATE (ID = 33) SUMMARY								
FUNCTION	SELECT	PROPERTY/ COMMAND	DESCRIPTION	ACCESS	BITS	DATA TYPE (AND RANGE)	UNITS	
ID	_	TEMPLATE	Template ID		8	Integer (value = 33)	_	
Measurement	Select Case—Physical Measurand			_	6	Select Case	_	
	Cases 0–45	%MinPhysVal	Minimum physical value	CAL	32	Single	Variousa	
		%MaxPhysVal	Maximum physical value	CAL	32	Single	Variousa	
Electrical signal	_	%ElecSigType	Transducer Electrical Signal Type	ID	_	Assign = 3, "Bridge Sensor"	_	
output	Select Case—Full-So	Select Case—Full-Scale Electrical Value Precision				Select Case	_	
	Case 0	%MinElecVal	Minimum electrical output	CAL	11	ConRes (±1, step 1E-3)	V/V	
		%MaxElecVal	Maximum electrical output	CAL	11	ConRes (±1, step 1E-3)	V/V	
	Case 1	%MinElecVal	Minimum electrical output	CAL	19	ConRes (±6.55E-3, step 25E-9)	V/V	
		%MaxElecVal	Maximum electrical output	CAL	19	ConRes (±6.55E-3, step 25E-9)	V/V	
	Case 2	%MinElecVal	Minimum electrical output	CAL	32	Single	V/V	
		%MaxElecVal	Maximum electrical output	CAL	32	Single	V/V	
	_	%MapMeth	Mapping Method	ID		Assign = 0, "Linear"	_	
Excitation supply	_	%BridgeType	Bridge Type	ID	2	Enumeration: Quarter Half Full	_	
	_	%SensorImped	Bridge element impedance	ID	18	ConRes (1 to 26.2k, step 0.1)	Ω	
	_	%RespTime	Response Time	ID	6	ConRelRes (1E-6 to 7.9, ±15%)	S	
	_	%ExciteAmplNom	Excitation level, nominal	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
	_	%ExciteAmplMin	Excitation level, min.	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
	_	%ExciteAmplMax	Excitation level, max	ID	9	ConRes (0.1 to 51.1, step 0.1)	V	
Calibration information	_	%CalDate	Calibration Date	CAL	16	DATE	_	
	_	%CalInitials	Calibration initials	CAL	15	CHR5	_	
	_	%CalPeriod	Calibration period	CAL	12	UNINT	days	
Misc.	_	%MeasID	Measurement location ID	USR	11	UNINT	_	
	Total bits required for TEDS (range): 209 to 251 bits							

^aUnits for %MinPhysVal and %MaxPhysVal are determined by value of the Select Case "Physical Measurand" as summarized in Table A.22.







りべ



FUTEK utilizes the additional memory locations in the TEDS chip for IIPM500 legacy support and IHH500 and IPM650 dual direction support as shown below for use with Template 30 and Template 33.

FUTEK USER DATA TEMPLATE (ID = 1) SUMMARY										
FUNCTION	SELECT	PROPERTY/ COMMAND	DESCRIPTION	ACCESS	BITS	DATA TYPE (AND RANGE)	UNITS			
User Data	_	IPM500: Decimal Points	IPM500: Decimal Points	CAL	7	ASCII	—			
-	_	IPM500: User Text (20 Chars)	IPM500: Decimal Points	CAL	140	ASCII	—			
	_	IPM500: Analog Output Setup	IPM500: Analog Output Setup	CAL	2	Enumeration: Current Un-Filtered Current Filtered Voltage Un-Filtered Voltage Filtered	—			
	_	IPM500: Analog Low	IPM500: Analog Low	CAL	32	Single	—			
	_	IPM500: Analog High	IPM500: Analog High	CAL	32	Single	_			
	_	IPM500: -Gain Correction	IPM500: -Gain Correction	CAL	32	Single	_			
	_	IHH500/IPM650: Reverse Voltage Output	IHH500/IPM650: Reverse Voltage Output	CAL	32	Single	_			
			Total bits required for T	EDS (range):	277 bit	s				

www.futek.com







ひょ くく



TEDS EEPROM Chip

FUTEK utilizes the Maxim DS24B33 Chip. The template utilized by FUTEK can also be utilized for the DS2430, DS2431, DS2432 and DS2433.



Operating Range: +2.8V to +5.25V, -40°C to +85°C

Drawing Number: EM1049

Copyright © FUTEK Advanced Sensor Technology, Inc. Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder.

This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied.

This document provides preliminary information that may be subject to change without notice.

10 Thomas, Irvine, CA 92618 USA Tel: (949) 465-0900 Fax: (949) 465-0905

www.futek.com







13485



U.S. Manufacturer