

DTM-CFG Configuration Software for

DTM Distributed Transmitter-Monitor

User Manual

Installation, Operation, Maintenance



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DTM-CFG Software Introduction

DTM-CFG is the configuration and calibration software used to configure all DTM modules. It can be connected to the DTM modules with the interface of a USB-RS485 cable kit. The DTM-CFG software combined with the DTM96 allows the user to remotely interface with 32 DTM devices networked together in the field.

DTM-CFG Features

Module Configuration

- ✓ Module type selection
- ✓ Module ID address
- ✓ Modbus Range
- ✓ Communication parameters: baud rate, stop bit, etc
- Automatic or manual search of communication port
- ✓ English or metric unit selection
- ✓ Password and Security

Operation Configuration

- Transducer and sensitivity selection
- Measurement unit selection
- ✓ Full-scale
- ✓ Dual alarm set-points, alarm time delay, alarm latching
- ✓ Relay energized/de-energized, Relay bypass

Maintenance Calibration

- ✓ ZERO calibration, SPAN calibration
- Probe linearization calibration
- ✓ Real-time overall and status display
- Record of overall and status
- ✓ Configuration parameters saved as file

DTM-CFG Running Environments

- Recommended Operating System: Windows 2000, Windows XP SP2 or a later version
- Processor: 1.7GHz or faster
- Memory: 512MB or more
- Hard Disk: 40G or more





- Drive: A DVD Drive
- Screen Resolution: 1280*1024 high color, 32-bit (Recommended)
- Regional Options: You should set "Standards and formats" on Regional Options tab to "English (United States)". See picture below:

ning al Onking	le les el	
gional Uption:	Languages Advanced	
Standards and	d formats	
This option a dates, and tir	ifects how some programs format ne.	numbers, currencies,
Select an iter	n to match its preferences, or clic nats:	k Customize to choose
English (Uni	ed States)	Customize
Samples		
Number:	123,456,789.00	
Currency:	\$123,456,789.00	
Time:	09:39:40	
Short date:	4/23/08	
Long date:	Wednesday, April 23, 2008	
Location		
I o help servi weather, sele	ces provide you with local informa ct your present location:	ation, such as news and
United State	s	•

Please follow the steps to check or change the setting:

- 1. Open Control Panel;
- 2. Double click Regional Options tab;
- 3. On Regional Options tab, select "English (United States)" from combo box of "Standards and formats".



DTM-CFG Configuration Software Installation

System Wiring Diagram for Configuration

DTM with DTM96



DTM USB <-> RS232 and DTM96 can be used



DTM without DTM96





Load USB-RS485 or USB-RS232 Converter Driver

Please follow the steps to load USB-RS485 or USB-RS232 converter driver.

 Put the DTM-CFG installation CD into the DVD-ROM. Connect USB-RS485 or USB-RS232 converter to a spare USB port on your computer. The computer will launch the following picture. Select "No, not this time". And then click **Next** button.



2. On picture below, select "Install the software automatically (Recommended)" and then click Next button.



3. The computer now is beginning to scan the installation file and then install the USB-RS converter driver.

Found New Hardware Wizard			
Please wait while the wizard searc	hes		
USB <-> Serial Cable			
	<u>C</u>		
	< <u>B</u> ack	<u>N</u> ext >	Cancel

Picture below shows the condition that the USB-RS converter driver hasn't been installed. To view the information, right click "My Computer" and select "Manage". On "Computer Management" window, navigate "Device Manager" and then select "Other devices/USB Serial Port".



📮 Computer Management		_ 🗆 ×
🗐 Eile Action View Wind	iow <u>H</u> elp	<u>_8×</u>
🗢 🔿 🗈 📧 🚰 🎒	2 3	
Computer Management (Loc. System Tools Computer Viewer Shared Folders Cocal Users and Grou Device Manager Cocal Users and Grou Device Manager Cocal User Cocal Users and Grou Device Manager Cocal User Cocal Us	PVT-113 Computer Objely adapters Disk drives Disk drite Disk drives Disk drives Disk drives Disk	<u> </u>
	System devices Grad Bus controllers	

4. The installation of USB-RS converter driver was finished. Click **Finish** button.



After the USB-RS converter driver was installed, the computer will begin to install COM port. And installation process is the same as the installation of USB-RS converter driver, so we don't repeat it here. After the two were installed, see picture below: a new USB Serial Port "COM3" is added below "Ports (COM&LPT)" and "USB Serial Converter" is added below "Universal Serial Bus controllers".





Install DTM-CFG Software

Put the DTM-CFG installation CD into the DVD-ROM. From the root folder, open "DTMCFG-Setup" folder and double click **Setup.exe** to start the installation program. Follow the information on the related windows to install the software.

NOTE: If "Locked File Detected" window (see picture shown like below) is launched during the installation process, mark "Don't display this message again" and then click **Ignore** button.

Locked File Detected	×
An option you selected requires that your system, or both, A locked file, D found while performing the needed f your system, click the Ignore button to perform the operation when your :	s be installed to or uninstalled from VINDOW/S\system32\msvcit.dll, was perations. To leave this file as it is on retry the file operation, click. Retry; or em is rebooted, click. Reboot.
<u>R</u> eboot Ig	e Retry Cancel

Uninstall DTM-CFG Software

Select Start->All Programs->DTM System->Uninstall DTM-CFG command, and then click OK button on "Confirm File Deletion" window.

Confirm File Deletio	n		×
Do you want to com	pletely remove the sele	ected application and al	l of its components?
	ОК	Cancel	

NOTE: If "Locked File Detected" window (see picture shown like below) is launched during the uninstallation process, mark "Don't display this message again" and then click **Ignore** button.





DTM-CFG Standard Edition Operation

Start DTM-CFG Standard

Double click the shortcut icon of DTM-CFG on the desktop or select **Start**->**All Programs**->**DTM System**->**DTM-CFG** to start the software. A few seconds later, the main window will appear:

TM System Configuration				? ×
Operation Help				
				Metric O English Unit
			Ch	
	STEP1	Get connected		Baud Rate
	STEP2	Configuration		
A PROVIDE CH	STEP3A	Calibration		
	STEP3B	Overall and status		
		Exit		Standard vs Advanced
				Help

After start the software, you should set the DTM ID first:

- 1. Select **Advanced** command from **Operation** menu, and then click **Yes** button on the "CAUTION" window;
- 2. Select **Module ID Setup** command from **Module-Configuration** menu, and then type the correct ID of the connected DTM on the "DTM ID Setup" window. Finally, click **OK** button;
- 3. Select **Standard** command from **Operation** menu to return the main window of the DTM-CFG standard edition.

The topics covered to operate DTM-CFG standard edition are:

- Step1: <u>Get connected</u>
- Step2: Configuration
- Step3A: <u>Zero calibration</u>
- Step3B: Overall and status



Get connected

The default baud rate is 115200 bits/second, the alter baud rate is 9600 bits/second

Ensure DTM device is correctly connected to the computer. Click **STEP1 Get connected** button to launch the searching communication parameter window. See picture below:

Communication failure,Step One:	
🗖 Check communicaton cable connec	stion
Check power supply with correct vo	ltage
Try again	
Wiring diagram	1
 DTM10 with DTM96 module 	
C DTM10 with RS485 to USB	
C DTM20 with DTM96 module	
C DTM20 with RS485 to USB	View
Exit	<u>H</u> elp

Description of the options on the window:

- Check communication cable connection: Mark this option to detect whether the system wiring is good.
- Check power supply with correct voltage: Mark this option to detect whether the power supply is good.
- ✓ Try again (Button): This button is enabled only when the two options above are both marked. Click this button to connect the DTM-CFG and DTM device again.
- ✓ DTM10 with DTM96 module: Select this option and then click View button to display System Wiring Diagram for Configuration-DTM10 with DTM96 module.
- ✓ DTM10 with RS485 to USB: Select this option and then click View button to display System Wiring Diagram for Configuration-DTM10 without DTM96 module.
- ✓ DTM20 with DTM96 module: Select this option and then click View button to display System Wiring Diagram for Configuration-DTM20 with DTM96 module.
- ✓ DTM20 with RS485 to USB: Select this option and then click View button to display System Wiring Diagram for Configuration-DTM20 without DTM96 module.

Please mark the two check boxes in window above and click **Try again** button, and then the software will re-connect the DTM-CFG software and DTM device. If the communication still failed, following window is launched.



(Communication failure ,Step Two:
	First diagnosis(Two minutes)
	Second diagnosis(Twenty minutes)
	Third diagnosis(Two hours)
	Exit
	Hardware Reset Help Get more helpE-mail

Description of the buttons on the window:

• First diagnosis (Two minutes)

It is the lowest level of diagnosis. Click this button and software will scan the available communication parameters such as baud rate, COM port...and so on. The process may take you two minutes. If the communication succeeded, the software will go back to the main window. If the communication still failed, you are recommended to try the Second diagnosis.

• Second diagnosis (Twenty minutes)

More advanced searching tools are used in the Second diagnosis. Also more time are needed to finish the Second diagnosis. You may wait twenty minutes. The software will go back to the main window if the communication succeeded. If the communication still failed, you are recommended to try the Third diagnosis.

• Third diagnosis (Two hours)

It is the highest level of diagnosis and will take you two hours.

• Hardware Reset:

The DTM-CFG software with the current or a former version doesn't support this function. It may be available in the future release.





Configuration

STEP2 Configuration button on main window will be enabled if DTM-CFG software and DTM device can normally communicate with each other. Click this button and configuration window about the current DTM device will be launched. Moreover, parameters of the current DTM device are uploaded to the configuration window.

Factory Default Settings for Different Type of DTM Device

• DTM10-C0/DTM10-302 Default Setting

Channel Type: Proximity probe input, shaft po	sition output	Alarm Latchin	
Transducer Type: TM0180/5m	<u> </u>		5
Transducer Sensitivity: 8 mv/	m Alarm Option: Du	ual SPDT Relays	-
Alert Time Delay: 3 🛓 s	Alarm Set Point		
Danger Time Delay: 🤉 📩 s 🗖 100 ms	Danger High: 75	30 u	im 🛛
Teeth Per Cycle: 1	Alert High: 50)O u	im
Hysteresis Voltage: 1	Alert Low: -5	.00 u	im 🛛
Trigger Voltage(Gap): -10 v Adjust	Danger Low: -7	50 u	ım 🛛
Zero Position(Gap): -10 v Adjust	GAP High: -1	9 v	
Full Scale High: 1000 um	GAP Low: -1	v	
Full Scale Low: -1000 un	Transducer Directi	ion	
Sample Rate: 4.0KHZ	 Toward Probe 	C Away From	Probe
Measurement Type: average 💌	Threshold Type		
Measurement Unit: um 💌	Auto	C Manual	
Alarm Type: Alert		Eactory s	etting

• DTM10-C0/DTM10-301 Default Setting

Channel Type: Proxi	imity probe input,shaft vib	ration output	-	
Transducer Type: TN	/0180/5m	•	Alarm Latch	ning
Transducer Sensitivity:	8 mv/u	m Alarm Option:	Dual SPDT Relay	s 🔻
Alert Time Delay:	3 🕂 s	Alarm Set Poir	nt	
Danger Time Delay:	3 ÷ s ⊏ 100 ms	Danger High:	150	um
Teeth Per Cycle:	1	Alert High:	100	um
Hysteresis Voltage:	1 V	Alert Low:	0	um
Trigger Voltage(Gap):	-10 v Adjust	Danger Low:	0	um
Zero Position(Gap):	-10 v Adjust	GAP High:	-19	v
Full Scale High:	200 um	GAP Low:	-1	v
Full Scale Low:	0 um	- Transducer Dir	ection	
Sample Rate:	4.0KHZ -	Toward Pro	obe – C. Away Fro	m Probe
Measurement Type:	PK-PK	- Threshold Type	e	
Measurement Unit:	um	@ Aut	o C Manual	
Alarm Type:	Alert •		[Factor	



• DTM10-C0/DTM10-502 Default Setting (channel type is "Speed")

Channel Type: Speed			•	
Transducer Type: TM0180/	ōm	•	🔽 Alarm Lat	ching
Transducer Sensitivity: 8	mv/um	Alarm Option:	Dual SPDT Rela	ays 🔻
Alert Time Delay:	s	Alarm Set Poir	nt	
Danger Time Delay:	s 🗖 100 ms	Danger High:	4500	RPM
Teeth Per Cycle: 1		Alert High:	3000	RPM
Hysteresis Voltage: 1	v	Alert Low:	0	RPM
Trigger Voltage(Gap): -10	v Adjust	Danger Low:	0	RPM
Zero Position(Gap): -10	v Adjust	GAP High:	-24	٧
Full Scale High: 6000	RPM	GAP Low:	-1	٧
Full Scale Low:	RPM	Transducer Dir	ection	
Sample Rate: 4.0KH	HZ 💌	C Toward Pro	obe – C Away F	rom Probe
Measurement Type: NA	•	Threshold Type	,	
Measurement Unit: RPM	•	 Auto 	o C Manua	al
Alarm Type: Alert	-		Eacto	rv setting

• DTM10-C0/DTM10-502 Default Setting (channel type is "Phase Reference Output")

				_	
Channel Type: Phas	se reference output		,		
Transducer Type: 📊	/10180/5m		Ψ	Manu Lato	mng
Transducer Sensitivity:	8	mv/um	Alarm Option:	Dual SPDT Relay	/s 🔻
Alert Time Delay:	0 s		Alarm Set Poin	t	
Danger Time Delay:	0 s 🗖 100] ms	Danger High:	0	RPM
Teeth Per Cycle:	1		Alert High:	0	RPM
Hysteresis Voltage:	1	v	Alert Low:	0	RPM
Trigger Voltage(Gap):	-10 v Ad	just	Danger Low:	0	RPM
Zero Position(Gap):	-10.00 v Ad	just	GAP High:	-24.00	v
Full Scale High:	0	RPM	GAP Low:	-1.00	v
Full Scale Low:	0	RPM	- Transducer Dire	ection	
Sample Rate:	4.0KHZ 💌		Toward Pro	ibe – C. Away Fr	om Probe
Measurement Type:	NA		Threshold Type		
Measurement Unit:	RPM 💌		 Auto 	o C Manual	
Alarm Type:	Alert			Foster	

• DTM10-C1/DTM10-202 Default Setting



Configuration Parameters				_	
Channel Type: Proxin	nity probe input,sh	aft position out	put	<u> </u>	
Transducer Type: TM	0180/5m		•	I✓ Alarm Latc	hing
Transducer Sensitivity:	8	mv/um	Alarm Option:	Dual SPDT Relay	s 💌
Alert Time Delay:	3 <u>+</u> s		Alarm Set Poir	t	
Danger Time Delay:	3 ÷ s 🗆 10	0 ms	Danger High:	750	um
Teeth Per Cycle:	1		Alert High:	500	um
Hysteresis Voltage:	1	v	Alert Low:	-500	um
Trigger Voltage(Gap):	-10 v Ad	ljust	Danger Low:	-750	um
Zero Position(Gap):	-10 v Ad	ljust	GAP High:	-19	v
Full Scale High:	1000	um	GAP Low:	-1	v
Full Scale Low:	-1000	um	-Transducer Dir	ection	
Sample Rate:	4.0KHZ 🔻		Toward Pro	ibe – C. Away Fro	om Probe
Measurement Type:	average 🔻		Threshold Type		
Measurement Unit:	um 🔻		🖲 Auto	o C Manual	
Alarm Type:	Alert 💌			Factor	y setting

• DTM10-C1/DTM10-201 Default Setting

Channel Type: Prox	timity probe input,shaft vib	ation output 💌	1	
Transducer Type:	M0180/5m	-	Alarm Latel	ning
Fransducer Sensitivity:	8 mv/u	n Alarm Option:	Dual SPDT Relay	s 🔻
Alert Time Delay:	3 🕂 s	Alarm Set Point		
Danger Time Delay:	3 🔹 s 🗖 100 ms	Danger High:	150	um
Teeth Per Cycle:	1	Alert High:	100	um
Hysteresis Voltage:	1	Alert Low:	0	um
Trigger Voltage(Gap):	-10 v Adjust	Danger Low:	0	um
Zero Position(Gap):	-10 v Adjust	GAP High:	-19	v
Full Scale High:	200 um	GAP Low:	-1	v
Full Scale Low:	0 um	Transducer Dire	ction	
Sample Rate:	4.0KHZ	Toward Prol	be C Away Fro	om Probe
Measurement Type:	PK-PK	Threshold Type		
Measurement Unit:	um	👁 Auto	C Manual	
Alarm Type:	Alert		Eactor	(cotting

• DTM10-C1/DTM10-501 Default Setting (channel type is "Speed")



onfiguration Parameters					
Channel Type: Speed				·	
Transducer Type: TMC)180/5m		-	I Alarm Latcl	ning
Fransducer Sensitivity:	3	mv/um	Alarm Option:	Dual SPDT Relay	s 💌
Alert Time Delay:	s		Alarm Set Poir	nt	
Danger Time Delay:) s 🗖 100		Danger High:	4500	RPM
Teeth Per Cycle:	1		Alert High:	3000	RPM
Hysteresis Voltage:	1	۷	Alert Low:	0	RPM
Trigger Voltage(Gap):	-10 v Ad	just	Danger Low:	0	RPM
Zero Position(Gap):	-10 v Adj	just	GAP High:	-24	٧
Full Scale High:	5000	RPM	GAP Low:	-1	v
Full Scale Low:)	RPM	Transducer Dir	ection	
Sample Rate:	4.0KHZ		Toward Pro	obe – C. Away Fro	om Probe
Measurement Type:	NA 🔻		Threshold Type	,	
Measurement Unit:	RPM 💌		 Aut 	o C Manual	
Alarm Type:	Alert 💌			Factor	y setting

• DTM10-C1/DTM10-501 Default Setting (channel type is "Phase Reference Output")

Channel Type: Phase reference output			•	
Transducer Type: TM0180/5m		Ŧ	🗹 Alarm Latel	hing
Fransducer Sensitivity: 8	mv/um	Alarm Option:	Dual SPDT Relay	s 🔻
Alert Time Delay: 🛛 s		Alarm Set Poir	nt	
Danger Time Delay: 🚺 s 🗖 100	ms	Danger High:	0	RPM
Teeth Per Cycle: 1		Alert High:	0	RPM
Hysteresis Voltage: 1	v	Alert Low:	0	RPM
Trigger Voltage(Gap): -10 v Adj	ust	Danger Low:	0	RPM
Zero Position(Gap): -10.00 v Adj	ust	GAP High:	-24.00	v
Full Scale High: 0	RPM	GAP Low:	-1.00	٧
Full Scale Low: 0	RPM	Transducer Dir	ection	
Sample Rate: 4.0KHZ		Toward Pro	obe – C. Away Fro	om Probe
Measurement Type: NA 💌		Threshold Type		
Measurement Unit: RPM		• Aut	o C Manual	
Alarm Type: Alert			Factor	/ cotting

DTM20/DTM20-101 ICP Transducer Default Setting



	×
DTM	20-101 ICP Transducer
Configuration Parameters Real Time Waveform	
Channel Type: Accoloration input valacity output	
Translation Translation Translation Translation	→ ✓ Alarm Latching
TMD/82A or any T00mWg	
Transducer Sensitivity: 100 mw/g	Alarm Option: Dual SPDT Relays
Alert Time Delay: 12 🔹 s	Alarm Set Point
Danger Time Delay: 12 🕂 s	Danger High: 37.5 g
Teeth Per Cycle: 1	Alert High: 25 g
Hysteresis Voltage: 1 V	Alert Low: 0 g
Trigger Voltage(Gap): -10 v Adjust	Danger Low: 0 g
Zero Position(Gap): -10 v Adjust	GAP/Bias High: 15 v
Full Scale High: 50 g	GAP/Bias Low: 4
Full Scale Low: 0 g	Transducer Direction
LowPass: 20000 Hz	C Away From Probe
Measurement Type: PK	Threshold Type
Measurement Linit: mm/s	C Auto C Manual
Alarm Type: Alert	
Download (To DTM) And Save Upload(From DTM)	Save As Undo OK Cancel <u>H</u> elp

DTM20/DTM20-101 Seismic Velocity Transducer Default Setting

TI CFG-[DTI CFG.CFG]	DTM 20-101	Seismic Velocity Transducer	
Configuration Parameters	Real Time Waveform		
Channel Type: Veloci	ty input,velocity output		
Transducer Type: Seis	smic Velocity transducer		
Transducer Sensitivity:	4 mw/mm/s	Alarm Option: Dual SPDT Relays 💌	
Alert Time Delay:	3 🕂 s	Alarm Set Point	
Danger Time Delay:	3 🕂 s	Danger High: 37.5 mm/s	
Teeth Per Cycle:	1	Alert High: 25 mm/s	
Hysteresis Voltage: │	1V	Alert Low: 0 mm/s	
Trigger Voltage(Gap):	-10 v Adjust	Danger Low: Mm/s	
Zero Position(Gap):	-10 v Adjust	GAP/Bias High: 15 v	
Full Scale High:	50 mm/s	GAP/DIas Low. P3	
Full Scale Low:	mm/s	Transducer Direction Toward Broke C Away From Broke	
LowPass:	3000 Hz	Threehold Ture	
Measurement Type:	PK -	C Auto C Manual	
Measurement Unit:	mm/s		
Alarm Type:	Alert		
Doumload (To DTM) And 9	Save Unload(From DTM)	Save As Linda OK Cancel Hela	

DTM20/DTM20-A4 Looseness Default Setting



DTH CFG-IDTH CFG.CFG	1		GAP/Rias Hinh 15				
	2	DTM	1 20-A4/Loosene	(220			
Configuration Parameters	Deal Time Mound		120-A4(2003ene				
Conliguration Farameters	Real lime vvave	iorm					
Channel Type: Acce	eleration input,acce	leration outpu	ut 💌				
Transducer Type: T	v10782A or any 100	mv/g	•	Alarm L	atching		
Transducer Sensitivity:	100	mv/g	Alarm Option:	ual SPDT Re	elays 💌		
Alert Time Delay:	10 🔹 s		Alarm Set Point —				
Danger Time Delay:	10 ÷ s		Danger High:	50	g		
Teeth Per Cycle:	1		Alert High:	40	g		
Hysteresis Voltage:	1	v	Alert Low:	0	g		
Trigger Voltage(Gap):	-10 v A	djust	Danger Low:	0	g		
Zero Position(Gap):	-10 v A	djust	GAP/Bias High:	20	v		
Full Scale High:	75	g	GAP/Bias Low:	2	v		
Full Scale Low:	0	g	Transducer Dir	ection			
LowPass:	20000	Hz	Toward Probe	e C Away	From Probe		
Measurement Type:	PK -	1	Threshold Type	9			
Measurement Unit:	g 🔻	1	🖲 Auto	C Man	ual		
		- -					
Alarm Type:	Alert		Lasara Ostar Ad				
		_	Looseness Setup Ad	ditional			
Download (To DTM) And	d Save	rom DTM)	Save As		Cancel	Heln	
Commode (To DTIM) And	opioad(i				Curicer	Troib	

Click the button named Looseness Setup Additional, the Looseness dialog will popup:

LOOSENESS				×
Looseness Danger:	70 %	Threshold Level:	30	g
Looseness Alert:	50 %	Running Speed:	360	RPM
Output Alarm:	Looseness 💌			
4-20mA Output:	CH1(Source)-Loose	ness,CH2(Loop)-Ac	celeration	•
ОК			Cancel	

Description of Configuration Parameters

• Channel Type

The type of the input and output signals.

• Transducer Type

The type of the transducer the current DTM device works with.



• Transducer Sensitivity

The value depends on transducer type. It is typically expressed as millivolt per measure unit.

• Alert Time Delay, Danger Time Delay

It means how long the module will delay before changing into alarm status after having detected that real-time value exceeds the alarm set-point. Both Alert Time Delay and Danger Time Delay should be set with an integer from 1s to 60s. And you could also check "100ms" option to set Danger Time Delay to 100ms. For DTM10-501 and DTM10-502, the alert time delay and danger time delay are set to "0".

• Teeth Per Cycle

The teeth number on the gear i.e. the integer number of input pulses per shaft revolution. The Events per Revolution may be specified as an integer between 1 and 255. Default is 1. User could set it according to the actual value in the field.

• Hysteresis Voltage

It is the voltage level above or below the threshold value which is required to trigger the input signal from the transducer. The larger the hysteresis, the greater the immunity to noise on the input signal. When the input signal passes the threshold voltage plus 1/2 of the Hysteresis voltage, the signal goes high. When the input signal returns to the threshold voltage minus 1/2 of the Hysteresis voltage, the signal goes low. It only works with the DTM speed modules (DTM10-501 and DTM10-502). Default is 1V. User could modify it in the range of 0.5V~2.5V.

• Trigger Voltage (Gap), Adjust

The Trigger Value is the nominal voltage that the Hysteresis is centered about. It only works with the DTM speed modules (DTM10-501 and DTM10-502). When Manual Threshold Type is selected, user should manually set this value or directly click **Adjust** button to let the system get it automatically. Before this operation, make sure your computer and the DTM device are connected, and the configuration in module must match the configuration in DTM-CFG software. Moreover, the connected transducer must be placed to proper position; otherwise this obtained value may be wrong.

• Zero Position (Gap), Adjust

The transducer voltage corresponding to the nominal DC shaft position. It only works with DTM10-202 and DTM10-302 modules. The default value is -10V. User can manually change the value or directly click **Adjust** button to let the system get it automatically. Before this operation, make sure your computer and the DTM device are connected, and the configuration in DTM device must match the configuration in DTM-CFG software. Moreover, the connected transducer must be placed to proper position; otherwise this obtained value may be wrong.



• Full Scale High, Full Scale Low

The high limit and low limit of the full scale. The full scale is the entire span of the data to be displayed.

• Sample Rate

It is the factory setting. To change the value, factory password is required. The DTM device couldn't be compatible with different sample rate at the same time.

Measurement Unit

The units of the full scale range and data values.

• Measurement Type

Measurement type depends on the type of the channel. DTM devices support four measurement types: PK, PK-PK, RMS, average.

• Alarm Type

DTM devices support two types of alarm, Alert and Gap. Alert type means that the module outputs alarm when the real-time value exceeds alarm set-point. Gap type means that the module outputs alarm when the gap voltage is above the Gap high and below the Gap low. Every channel of the module is capable of producing Alarm indication. It doesn't work with "phase reference output" channel of the DTM10-501 and DTM10-502 modules.

• Alarm Latching

Alarm latching causes the DTM module to retain an Alarm status after the Alarm condition has gone away. The latching mode allows you to know if an alarm set-point has been exceeded since the last rack reset. Press the **reset** button on the module or short Remote RESET/BYPASS (Short the connector pin RESET and COM) to reset the latched alarm if the current measured value is less than the set-point value. The default status is latched and user can modify it. It doesn't work with "phase reference output" channel of the DTM10-501 and DTM10-502 modules.

• Alarm Option

It is the factory setting. To change the setting, factory password is required.

• Alarm Set Point

There are two alarm levels for the channel that outputs vibration variable such as shaft vibration, speed, acceleration, velocity and so on. And for the channel that outputs shaft position, there are four alarm levels. By default, danger set point is set to 75% of full scale and alert set point is set to 50% of full scale. When the channel outputs phase reference, the alarm set point doesn't work. Gap alarm has two levels: Gap high and Gap low.



• Transducer Direction, Toward Probe, Away From Probe:

Define the normal direction as movement "toward" the transducer or "away from" the transducer. If the normal movement of the machine rotor is toward the transducer then "Toward Probe" should be selected. Otherwise, select "Away from Probe". It works only when the channel outputs shaft position.

• Threshold Type, Auto, Manual

The voltage level of the input signal from the transducer where triggering occurs (if the Hysteresis is 0). It only works with the DTM speed modules (DTM10-501 and DTM10-502). If select Manual, you should set Trigger Voltage.



Zero Calibration

Following shows the steps to perform 4mA zero calibration.

- 1. Connect DTM device and upper-computer. Ensure the device and DTM-CFG software can normally communicate with each other.
- 2. Connect the amperemeter and DTM device.

To perform step 1 and step 2, please refer to System Wiring Diagram for Configuration of this manual.

3. Directly click **STEP3A Calibration** button on main window or select **4mA Calibration** command from **Operation** menu. Window below is launched.

ZERO (4mA) CAL	IBRATION
> Step1:	Start Calibration
Step2:	Read 4-20 mA current output,and enter into below field:
Step3:	Zero (4mA) Calibration

4. Click **Start Calibration** button on the window. To start zero calibration, you should activate configuration password.

ZERO (4mA) CALI	IBRATION	×
Step1:	Start Calibration	
≻ Step2:	Read 4-20 mA current output,and enter into below field: mA	
Step3:	Zero (4mA) Calibration	
	Exit <u>H</u> elp]

5. Read the current value from the amperemeter after it settled down, and then type it to the edit box.

ZERO (4mA) CAL	IBRATION	×
Step1:	Start Calibration	
Step2:	Read 4-20 mA current output,and enter into below field: 3.04 mA	
≫ Step3:	Zero (4mA) Calibration	

6. Click Zero (4mA) Calibration button to download the current value to DTM device.



ZERO (4mA) CAI	LIBRATION	×
Step1:	Start Calibration	
Step2:	Read 4-20 mA current output,and enter into below field: 3.04 mA	
Step3:	Zero (4mA) Calibration	

7. Click **Exit** button to exit the calibration status.



Overall and Status

Ensure the DTM-CFG software and DTM device can normally communicate with each other. Directly click **STEP3B Overall and status** button on main window or select **Overall and status** command from **Operation** menu. If the module is not DTM20-A4, window below is launched as follows.

Overall/Status	×
DT	м
200.00 um	ө ок
	Alert
-	Danger
	Bypass
0.00 um	Triple Multiply
Real-time Value : 0.00 um	Gap Not OK
GAP : 0.00V	
	Exit Help

If the module is n DTM20-A4, window below is launched as follows.

all/Status		
Acceleration		Looseness
75.00 g	😑 ок	100.00 %
_	Alert	-
-	Danger	
	Bypass	
0.00 g	Triple Multiply	0.00 %
Real-time Value : 0.00 g GAP : 0.00V	Gap Not OK	Real-time Value : 0.00 %
	Exit Help]

The window above shows the channel's real-time value, GAP value and state of the status bits.

Color Indication for bar graph:

- ✓ **Green:** The real-time value is in normal range.
- ✓ Yellow: The real-time value exceeds the alert set-point.
- ✓ *Red:* The real-time value exceeds the danger set-point.

Lights before Alert, Danger, Bypass, Triple Multiply and Gap Not OK indicate the status of the channel and



Gap voltage. When alert occurs, the light before it turns yellow; when danger and Gap Not OK occur, the lights before them turn red. And if the channel is in alarm bypass or triple multiply status, the lights before them turned red.

Light before OK indicates whether the selected channel works normally. Green means that it works normally, and gray means that it is in abnormal status.

Real Time Wave Form

The function is valid if the firmware version is greater than 51. Click the button named 'Real Time Waveform' of the configuration window, the real time wave form window will popup:

30 25 20								
20							Alert H	ligh:25
15								***
5					- Final Anna			
-5	n, www.h	עריאן איזיאן	W V 1998 WW	## <i>J ₩JJ2</i> 799#72799	aaa waxaa ka k	ww.	h wy h a su	auhanna an
-10 0	250	500	750	1000	1250	1500	1750	0 2000

Click the button named 'Continuous' to acquire infinite real time wave form.

Click the button named 'Stop' to stop real time wave form acquiring.

Dragging the sliders below to change the scope of the real time wave form.



Standard vs Advanced

Click **Standard vs Advanced** button on main window and figure below is launched. It displays the distinctions between DTM-CFG Standard edition and DTM-CFG Advanced edition.

Function	Standard	Advanced
Get Connected	~	×
Module Definition	~	4
System Setup	~	~
Zero Calibration(4mA)	~	4
Full Scale Calibration(20mA)	×	4
AD Calibration	×	4
Buffer Calibration	×	4
Magnification Calibration	×	4
Linearization Calibration	×	4
Overall And Status	~	4
Diagnosis	~	×
Upload	~	4
Download	~	~
Open File	×	4
Save File	~	4
Module ID Setup	×	4
Communication Setup	×	4
Modbus Range Setup	×	4
Module Control	×	4
Relay Control	×	4
Factory Information	×	4
Overall Record	×	4
Channel Status Record	×	4
Help	4	4
\checkmark :Has the function. \times :Has not the function.		Exit

System Units Setting

Set Units for DTM device. Upload and Download functions about different units are all supported.



Exit

Click Exit button on main window to exit the software.





Yes (Button): Continue to configure other DTM devices. No (Button): Directly exit the software.

Switch to Advanced Edition

If you want to use the Advanced edition to configure DTM device, please select **Advanced** command from **Operation** menu.

NOTE: User without taking a professional training is not recommended to use the Advanced edition of DTM-CFG software.



DTM-CFG Advanced Edition Operation

Start DTM-CFG Advanced

CAUTION: The operation by non-professional operator in this section may damage your DTM device.

On main window of the Standard edition, select **Advanced** command from **Operation** menu, and then the "CAUTION" window will be launched. See picture below:



Ensure you have carefully read the contents mentioned on this window. Then click **Yes** button on the window to enter into DTM-CFG Advanced edition.

🌠 DTB System Configuration	? <u>-</u>
File Communication Module-Configuration Calibration Overall/Status Security Help	
🖨 Open 🛛 🖶 Save 🚺 Upload(From DTM) 🛃 Download(To DTM) 🕫	Metric C English Unit
To-201	Standard vs Advanced
	Haln
	Tab



Buttons on Main Window

Open

😅 Open

Click this button to open a configuration file. The extended name of the file is *.cfg. This command has the same function with **Open** command from **File** menu.

Save

🔚 Save

Click this button to save the current system configuration information to the file. The extended name of the file is *.cfg. This command has the same function with **Save** command from **File** menu.

Upload (From DTM)

Upload(From DTM)

Click this button to upload the configuration information from DTM device to DTM-CFG. This command has the same function with the **Upload (From DTM)** command from **Communication** menu on main window.

Download (To DTM)

Download(To DTM)

Click this button to download the configuration information from DTM-CFG to DTM device. This command has the same function with the **Download (To DTM)** command from **Communication** menu on main window. To download the configuration information to DTM device, ensure the configuration password was activated; otherwise you will be asked to type the configuration password.

System Units Setting

Metric C English Unit

Set units for the system: Metric or English Unit.



DTM Modules Configuration

Module Type Selection

Before configure the parameters, you should set the type of DTM device. Left click DTM picture on the main window and select the right type of the connected DTM from the drop-down menu.



For instance, the type of your DTM is DTM10-201, then you should select "DTM10-201 Module" and finally click **Yes** button on the launched message box.

Special note:

Generally speaking, when DTM leaves factory, most parameters (especially for the type of DTM device) were configured according to the customer's requirements. Customer only needs to change some of parameters by the field's requirements. So, customers are not recommended to re-set the type of DTM device except in special condition. Following is the additional description for the re-setting of DTM device type. The device type conversion can be done only among the same type class. Table below shows the detailed classification of DTM.



DTM10 Series			DTM10-201		
		Requires an external driver DTM10	Requires an external driver	DTM10-202	
	DTM10 Series		DTM10-501		
			DTM10-301		
		Doesn't require an external driver	DTM10-302		
			DTM10-502		
	DTM20 Series DTM20-101 ICP Transdu		sducer		
DTW20 Series		DTM20-101 Seismic Velocit	ty Transducer		

Thus, the operation of changing a DTM10-301 device to a DTM10-201 device is forbidden, but a type conversion from DTM10-301 to DTM10-302 is allowed.

DTM Parameters Configuration

Two methods to open the DTM configuration window: *Method 1:* Right click the DTM picture on main window. *Method 2:* Select Module Definition command from Module-Configuration menu.

Pictures below show the default settings for different types of DTM device. Since we have detailedly explained the configuration parameters in the standard edition, here we don't repeat it.

• DTM10-C0/DTM10-302 Configuration

Configuration Parameters	
Channel Type: Proximity probe input, shaft po	sition output
Transducer Type: TM0180/5m	▼ Alarm Latching
Transducer Sensitivity: 8 mv/u	m Alarm Option: Dual SPDT Relays 💌
Alert Time Delay: 3 💌 s	Alarm Set Point
Danger Time Delay: 3 💌 s 🗖 100 ms	Danger High: 750 um
Teeth Per Cycle: 1	Alert High: 500 um
Hysteresis Voltage: 1	Alert Low: -500 um
Trigger Voltage(Gap): -10 v Adjust	Danger Low: -750 um
Zero Position(Gap): -10 v Adjust	GAP High: -19 v
Full Scale High: 1000 um	GAP Low: -1 v
Full Scale Low: -1000 um	Transducer Direction
Sample Rate: 4.0KHZ	Toward Probe C Away From Probe
Measurement Type: average 💌	Threshold Type
Measurement Unit: um 💌	C Auto C Manual
Alarm Type: Alert	Factory setting



• DTM10-C0/DTM10-301 Configuration

Configuration Parameters	3		
Channel Type: Prox	imity probe input,shaft vibratio	on output	
Transducer Type:	vl0180/5m	▼ Alarm	Latching
Transducer Sensitivity:	8 mv/um	Alarm Option: Dual SPDT F	{elays ▼
Alert Time Delay:	3 📩 s	Alarm Set Point	
Danger Time Delay:	3 🔹 s 🗖 100 ms	Danger High: 150	um
Teeth Per Cycle:	1	Alert High: 100	um
Hysteresis Voltage:	1 V	Alert Low:	um
Trigger Voltage(Gap):	-10 v Adjust	Danger Low:	um
Zero Position(Gap):	-10 v Adjust	GAP High: -19	v
Full Scale High:	200 um	GAP Low: -1	v
Full Scale Low:	0 um	Transducer Direction	
Sample Rate:	4.0KHZ 💌	Toward Probe C Awa	y From Probe
Measurement Type:	PK-PK	Threshold Type	
Measurement Unit:	um	C Auto C Ma	nual
Alarm Type:	Alert	Fa	ctory setting

• DTM10-C0/DTM10-502 Configuration (channel type is "Speed")

Channel Type: Speed				•	
Transducer Type: TMO	180/5m		•	I Alarm Latcl	ning
Transducer Sensitivity: 🛛 🛛	3	mv/um	Alarm Option:	Dual SPDT Relay	s 🔻
Alert Time Delay:	s		Alarm Set Poir	nt	
Danger Time Delay:) s 🗖 100		Danger High:	4500	RPM
Teeth Per Cycle: 1			Alert High:	3000	RPM
Hysteresis Voltage: 1		v	Alert Low:	0	RPM
Trigger Voltage(Gap):	10 v Ad	just	Danger Low:	0	RPM
Zero Position(Gap):	10 v Ad	just	GAP High:	-24	v
Full Scale High: 6	5000	RPM	GAP Low:	-1	v
Full Scale Low:)	RPM	Transducer Dir	ection	
Sample Rate: 4	4.0KHZ 🔽		Toward Pro	obe – C. Away Fro	m Probe
Measurement Type:	VA -		Threshold Type		
Measurement Unit:	RPM -		 Auto 	o C Manual	
Alarm Type:	Alert 🔻			[Eastern	

• DTM10-C0/DTM10-502 Configuration (channel type is "Phase Reference Output")



DTM10-502 S	Speed(Not r	require external dri∨er)	
Configuration Parameters	· ``	· · · · · · · · · · · · · · · · · · ·	
Channel Type: Phase reference out	out	_	
Transducer Type: TM0180/5m		Alarm	Latching
Transducer Sensitivity: 8	mv/um	Alarm Option: Dual SPDT F	Relays 🔻
Alert Time Delay: 🛛 s		Alarm Set Point	
Danger Time Delay: 🚺 s 🗖	100 ms	Danger High: 🛛	RPM
Teeth Per Cycle: 1	_	Alert High:	RPM
Hysteresis Voltage: 1	v	Alert Low:	RPM
Trigger Voltage(Gap): -10 v	Adjust	Danger Low: 0	RPM
Zero Position(Gap): -10.00 v	Adjust	GAP High: -24.00	v
Full Scale High: 0	RPM	GAP Low: -1.00	v
Full Scale Low: 0	RPM	Transducer Direction	
Sample Rate: 4.0KHZ	-	C Toward Probe C Awa	y From Probe
Measurement Type: NA	-	Threshold Type	
Measurement Unit: RPM	-	● Auto C Ma	inual
Alarm Type: Alert	Y	Fa	actory setting
Download (To DTM) And Save Upload(F	rom DTM) S	ave As Undo OK	Cancel <u>H</u> elp

• DTM10-C1/DTM10-202Configuration

Channel Type: Proximity probe input, shaft position output					
Transducer Type:	/10180/5m		•	Alarm Latc	hing
Transducer Sensitivity:	8	mv/um	Alarm Option:	Dual SPDT Relay	/s 💌
Alert Time Delay:	3 📩 s		Alarm Set Poir	t	
Danger Time Delay:	3 ÷ s □ 100) ms	Danger High:	750	um
Teeth Per Cycle:	1		Alert High:	500	um
Hysteresis Voltage:	1	٧	Alert Low:	-500	um
Trigger Voltage(Gap):	-10 v Ad	just	Danger Low:	-750	um
Zero Position(Gap):	-10 v Adj	just	GAP High:	-19	v
Full Scale High:	1000	um	GAP Low:	-1	v
Full Scale Low:	-1000	um	Transducer Dir	ection	
Sample Rate:	4.0KHZ -		Toward Pro	ibe 🗢 Away Fri	om Probe
Measurement Type:	average 💌		- Threshold Type	I	
Measurement Unit:	um 💌		🖲 Auto	o 🔹 C Manual	
Alarm Type:	Alert			Eactor	u cotting

• DTM10-C1/DTM10-201 Configuration



Configuration Parameters					
Channel Type: Proximity probe input, shaft vibration output					
Transducer Type: TM	0180/5m		•	I Alarm Latch	ning
Transducer Sensitivity:	8	mv/um	Alarm Option:	Dual SPDT Relay	s 💌
Alert Time Delay:	3 <u>*</u> s		Alarm Set Poir	nt	
Danger Time Delay:	3 🕂 s 🗆 100	lms	Danger High:	150	um
Teeth Per Cycle:	1		Alert High:	100	um
Hysteresis Voltage:	1	v	Alert Low:	0	um
Trigger Voltage(Gap):	-10 v Ad	just	Danger Low:	0	um
Zero Position(Gap):	-10 v Ad	iust	GAP High:	-19	v
Full Scale High:	200	um	GAP Low:	-1	v
Full Scale Low:	0	um	-Transducer Dir	ection	
Sample Rate:	4.0KHZ 💌		Toward Pro	obe – C. Away Fro	m Probe
Measurement Type:	PK-PK		Threshold Type		
Measurement Unit:	um 💌		🖲 Auto	o C Manual	
Alarm Type:	Alert			Factory	setting

• DTM10-C1/DTM10-501 Configuration (channel type is "Speed")

DTM10-501 Speed(Require external driver)			
Configuration Parameters			
Channel Type: Spood			
Shanner Type. Speed	Alarm Latching		
TM0180/5m	<u> </u>		
Transducer Sensitivity: 8 mw/um	Alarm Option: Dual SPDT Relays 💌		
Alert Time Delay: 📋 s	Alarm Set Point		
Danger Time Delay: 🛛 s 🗖 100 ms	Danger High: 4500 RPM		
Teeth Per Cycle: 1	Alert High: 3000 RPM		
Hysteresis Voltage: 1 V	Alert Low: C RPM		
Trigger Voltage(Gap): -10 v Adjust	Danger Low: 0 RPM		
Zero Position(Gap): -10 v Adjust	GAP High: -24 v		
Full Scale High: 6000 RPM	GAP Low: -1 v		
Full Scale Low: 0 RPM	Transducer Direction		
Sample Rate: 4.0KHZ	Toward Probe O Away From Probe		
Measurement Type: NA 💌	Threshold Type		
Measurement Unit: RPM 💌	Auto C Manual		
Alarm Type: Alert	Factory setting		
Download (To DTM) And Save Upload(From DTM)	Save As Undo OK Cancel <u>H</u> elp		

• DTM10-C1/DTM10-501 Default Setting (channel type is "Phase Reference Output")



			2		
DT	M10-501 Speed(Reg	uire external driver)			
Configuration Parameters					
Channel Type: Phase re	eference output				
Transducer Type: TM018	30/5m	Alarm I	Latching		
Transducer Sensitivity:	mv/um	Alarm Option: Dual SPDT R	'elays 🔻		
Alert Time Delay:	s	Alarm Set Point			
Danger Time Delay:	s 🗖 100 ms	Danger High:	RPM		
Teeth Per Cycle: 1		Alert High:	RPM		
Hysteresis Voltage: 1	v	Alert Low:	RPM		
Trigger Voltage(Gap): -10	Adjust	Danger Low:	RPM		
Zero Position(Gap): -10	0.00 v Adjust	GAP High: -24.00	v		
Full Scale High:	RPM	GAP Low: -1.00	v		
Full Scale Low:	RPM	Transducer Direction			
Sample Rate: 4.0	JKHZ 🔽	C Toward Probe C Away	y From Probe		
Measurement Type:	A 👻	Threshold Type			
Measurement Unit: RF	PM 🔽	 Auto C Mar 	nual		
Alarm Type: Al	ert 💌	Fa	ctory setting		
			, ,		
Download (To DTM) And Save	Upload(From DTM) Sa	ve As Undo OK	Cancel <u>H</u> elp		

CAUTION: Be more careful to configure DTM20 modules. The device may not work with wrong configuration.

Configuration Parameters Real Time Waveform	
Channel Type: Acceleration input,velocity output	•
Transducer Type: TM0782A or any 100mv/g	✓ Alarm Latching
Transducer Sensitivity: 100 mv/g Alarr	n Option: Dual SPDT Relays 💌
Alert Time Delay: 12 📩 s 🛛 Alarm	Set Point
Danger Time Delay: 12 📩 s ୮ 100 ms	Danger High: 37.5 g
Teeth Per Cycle:	Alert High: 25 g
Hysteresis Voltage: 1 V	Alert Low: 0 g
Trigger Voltage(Gap): -10 v Adjust	Danger Low: 0 g
Zero Position(Gap): -10 v Adjust GA	νP/Bias High: 15 γ
Full Scale High: 50 g G/	AP/Bias Low: 4 v
Full Scale Low: 0 g T	ransducer Direction
LowPass: 20000 Hz	Toward Probe 🖸 Away From Probe
Measurement Type: PK -	hreshold Type
Measurement Unit: mm/s	C Auto C Manual
Alarm Type: Alert	
	Factory setting

• DTM20/DTM20-101 ICP Transducer Configuration

• DTM20/DTM20-101 Seismic Velocity Transducer Default Setting



	× X
DTM 20-10	01 Seismic Velocity Transducer
Configuration Parameters Real Time Waveform	
Channel Type: Velocity input velocity output	
Transducer Type: Sciencia Valasitu transducer	☐ ☐ Alarm Latching
Seismic velocity transducer	
Transducer Sensitivity: 4 mw/mm/	/s Alarm Option: Dual SPDT Relays 💌
Alert Time Delay: 3 📫 s	Alarm Set Point
Danger Time Delay: 3 🕂 s Г 100 ms	Danger High: 37.5 mm/s
Teeth Per Cycle:	Alert High: 25 mm/s
Hysteresis Voltage: 1	Alert Low: 0 mm/s
Trigger Voltage(Gap): -10 v Adjust	Danger Low: 0 mm/s
Zero Position(Gap): -10 v Adjust	GAP/Bias High: 15 v
Full Scale High: 50 mm/s	GAP/Bias Low: -5 v
Full Scale Low: 0 mm/s	Transducer Direction
LowPass: 3000 Hz	C Toward Probe C Away From Probe
Measurement Type: PK	Threshold Type
Measurement Unit: mm/s	Auto C Manual
Alarm Type: Alert	
	Factory setting
[
Download (To DTM) And Save Upload(From DTM)) Save As Undo OK Cancel <u>H</u> elp

DTM20/DTM20-A4 Looseness Default Setting

	DT	M 20-A4(Looseness)
onfiguration Parameters	Real Time Waveform	
Channel Type: Acce	leration input,acceleration out 10782A or any 100mv/g	put V Alarm Latching
Transducer Sensitivity:	100 mw/g	Alarm Option: Dual SPDT Relays 💌
Alert Time Delay:	10 ÷ s	Alarm Set Point
Danger Time Delay:	10 🕂 s 🗖 100 ms	Danger High: 50 g
Teeth Per Cycle:	1	Alert High: 40 g
Hysteresis Voltage:	1 v	Alert Low: g
Trigger Voltage(Gap):	-10 v Adjust	Danger Low: 0 g
Zero Position(Gap):	-10 v Adjust	GAP/Bias High: 20 v
Full Scale High:	75 g	GAP/Bias Low: 2
Full Scale Low:	0 g	Transducer Direction
LowPass:	20000 Hz	Toward Probe C Away From Probe
Measurement Type:	PK 💌	Threshold Type
Measurement Unit:	g	C Auto C Manual
Alarm Type:	Alert	
		Looseness Setup Additional Factory setting
Download (To DTM) And	Save Unload(From DTM)	Save As Lindo OK Cancel Help

Click the button named Looseness Setup Additional, the Looseness dialog will popup:

PVT	DTM-CFG Configuration Software					
	LOOSENESS					×
	Looseness Danger:	70	%	Threshold Level:	30	g
	Looseness Alert:	50	%	Running Speed:	360	RPM
	Output Alarm:	Looseness	•			
	4-20mA Output:	CH1 (Source)	-Loos	eness,CH2(Loop)-Acc	celeration	-
	ок				Cancel	

After you finished the parameter settings, you should click **Download (To DTM) And Save** button to download the configuration information to the DTM device (configuration password is required). You are strongly recommended to save the configuration information to a file for further reference. To perform this, click **Save As** button.



Menus Navigation

File Menu

Open

Use this command to open a configuration file. The extended name of the file is *.cfg. Select the configuration file and click **Open** button.

Open					<u>?</u> ×
Look in: [My Documents	•	(= 🔁	ci l	
My Music My Picture	s 1.CFG				
File <u>n</u> ame:	DTM10-201				<u>O</u> pen
Files of <u>type</u> :	SET FILE(*.CFG)		•		Cancel
		-			

This command has the same function with **Open** button ^{CP Open} on main window.

Save

Use this command to save the current system configuration information to the file. The extended name of the

file is *.cfg. This command has the same function with the **Save** button on main window.

1. First time to save the file, "Save As" window will be launched. You should select the file path and type the file name in edit box, and finally click **Save** button.

Save As		<u>?</u> ×
Savejn: [My Documents 💌 🖛 🗈 💣 📰 •	
My Music		
DTM10-201	l.CFG	- 1
		- 1
		- 1
		_
File <u>n</u> ame:	DTM CFG Save	
Save as <u>t</u> ype:	SET FILE (*.CFG) Cano	el

After the file was saved, the title bar of main window will change. Picture below shows the title before the file is saved.

🎀 DTM System Configuration

If the file was saved as "DTM10-201.CFG", the title will be changed to picture below.

🎇 DTM CFG-[DTM10-201.CFG]

2. If the configuration file has existed, clicking this command will not launch any window. But the main window title may change when configuration parameters changed. If the configuration parameters didn't



change before you click **Save** command, the title bar will show DTM-CFG directly plus [DTM10-201.CFG]. See picture below:

%DTM-CFG[DTM10-201.CFG]

If the configuration parameters has changed before you click **Save** command, the title bar will show DTM CFG plus – and plus [DTM10-201.CFG]. See picture below:

🎇 DTM CFG-[DTM10-201.CFG]

Save As

Use this command to save the configuration information to another file.

Exit

Use this command to exit DTM-CFG software. Before you select this command, if the system configuration information changed, following window will be launched.

Data has	been modified	×
2	Do you want to save this configuration to a disk file before e	xiting ?
	<u>Yes</u> <u>N</u> o Cancel	

Yes (Button): Click this button to exit DTM-CFG software with the system configuration information being saved to the file.

No (Button): Click this button to directly exit DTM-CFG without saving any information.

Cancel (Button): Click this button to withdraw the operation.

Standard

Use this command to switch to DTM-CFG Standard edition. Click **Yes** button on window below and then enter into the Standard edition.





Communication Menu

Upload (From DTM)

Use this command to upload the configuration information from DTM device to DTM-CFG. This command has

the same function with the **Upload (From DTM)** button **Impload** (From DTM) on main window.

Download (To DTM)

Use this command to download the configuration information from DTM-CFG to DTM device. This command

has the same function with the **Download (To DTM)** button **Download** on main window. To download the configuration information to DTM device, configuration password should be activated.

Communication Setup

Select Communication Setup from Communication menu and you will see the window below.

ommunication Setup	X
DTM Communication Setup DTM Baud Rate Baud Rate: 115200	Upper-level Computer Communication Setup Current Port: COM1 Baud Rate: 9600 Upper-level Stop Bit C 1 Bit © 2 Bits Upper-level Parity Bit C Odd C Even © None Exit Help

The "Communication Setup" window has two functions: One is to connect the DTM device and DTM-CFG; another is to set the communication parameters of the DTM device.

• Connect DTM device and DTM-CFG

Ensure the following first:

- 1. Correctly wire the system.
- 2. DTM-CFG only connects to one DTM.
- 3. The DTM ID is correctly set (Default is 63).
- 4. The related USB-RS converter driver is installed.

After check the four considerations listed above, click **Auto Search** button and following window is launched.



Communication	×
Communication Setup	
C Manual	Auto C Manual
	BaudRate: 115200
Port: COM1 🔽	Parity Bit
	C Odd C Even C None
	Stop Bit
	C 1Bit C 2Bits
Auto Search	
ОК	Cancel

User could select "Auto" option to let the software automatically scan the communication parameters or select "Manual" option to set the parameters by manual. Obviously automatic parameters scanning will take more time. If you have known some parameters, "Manual" option is recommended. After set the parameters, click **Auto Search** button and then software will connect the DTM device.

• Set the communication parameters of DTM device.

Before set the communication parameters, ensure DTM device and DTM-CFG can well communicate with each other. Select the communication parameters (baud rate, stop bit and parity bit) on the left side of "Communication Setup" window. And then click **Download** button (configuration password is required). If the download operation succeeds, the communication parameters on the right side of "Communication Setup" window will be refreshed.

Communication Setup	×
DTM Communication Setup DTM Baud Rate Baud Rate: 115200 DTM Stop Bit C 1 Bit C 2 Bits DTM Parity Bit Odd C Even C None Download Auto Search	Upper-level Computer Communication Setup Current Port: COM1 Baud Rate: 9600 Upper-level Stop Bit C 1 Bit © 2 Bits Upper-level Parity Bit Odd © Even © None

NOTE: For DTM meter used for condition monitoring system, we strongly recommend that user set the Baud Rate to 38400Bps or 115200Bps!



Module-Configuration Menu

Modbus Range Setup

Click this command to launch "Modbus Range Setup" window.

odbus Range Setup	×
Proportional full-scale range: 16384	
Download(To DTM) Upload(From DTM) Exit Help	

Proportional full-scale range: It is also called Modbus full scale range. Hardware converts the analog signal into a digital format. The Modbus full scale range is related to the full scale range. For example, if the Modbus full scale range is 16384 and full scale range is 25 mm/s, and then the current vibration measured value is 12.5 mm/s while the Modbus value is 8192. The Modbus full scale range could be set with an integer from 128 to 16384, and the default is 16384.

Type the value in the edit box and then click **Download (To DTM)** button to download it to DTM device. You can also click **Upload (From DTM)** button to upload the value from DTM device.

Module ID Setup

Click this command to launch "DTM ID Setup" window.

D	I∎ ID Setup	×
	DTM ID : 33 Download(To DTM) OK Cancel <u>H</u> elp]
		1

DTM ID: It is also called DTM slave address. The slave address allows multiple DTM devices to share the same computer. These DTM devices would be connected to the same COM port but would be distinguished by their individual slave address. Slave Address is always set on the related device configuration software. The ID range could be set with an integer from 1 to 255, and the default is 63.

NOTE: To change slave address of a DTM device, you must disconnect other DTM devices from the same COM port.

Module Definition

Clicking this command will launch the configuration window of the current DTM device. As an alternative operation, you can directly right click the DTM picture on the main window.



Relay Control

Click this command to launch "DTM Relay Control" window.

DTM Relay Control				×
- Normally energized				
	🗖 Relay1	🗖 Relay2		
Bypass				
	🗖 Relay1	🗖 Relay2		
Download(To DTM)	Upload(From DTM)	OK Ca	incel <u>H</u> elp)

Normally energized: The default is de-energized.

Bypass: The bypass function could inhibit the alarm in DTM. The default is no bypass.

Module Control

The function is used to set the module alarm multiply property. Click this command to launch "Module Control" window.

Μ	odule Control	×
	🔿 None 🔿 Double Multiply 💿 Triple Multiply 🔲 Man Option	
	Download(To DTM) Upload(From DTM) OK Cancel Help	_

To apply this function, you should first short Triple/Multi and COM, and then set None, Double Multiply or Trip le Multiply in DTM-CFG (default is Triple Multiply). After that, system alarm level will increase a factor of 1, 2 or 3.

Man Option: This function is used to adjust the current output of the module for special purpose. If checked, the software will automatically double the full scale range you set on the module definition window. For example, the full scale range is set to 200 um, and the measured value is 100 um. If "Man Option" is not

checked, the 4~20mA current output of this module is $\frac{100}{200} \times (20 - 4) + 4 = 12mA$; if it is checked, the current

output is $\frac{100}{200 \times 2} \times (20 - 4) + 4 = 8$ mA. Note that this function won't change the real measured value and full

scale range displayed on "Overall/Status" window. It only takes effect on the current output of the module.

NOTES:

- 1. The alarm multiply function is only available for DTM10-201, DTM10-301, and DTM20-101.
- 2. Man Option function is effective when the firmware version of the module matches following:
 - For DTM10-201 and DTM10-301: Firmware version of the module is not less than 53; or the firmware version is greater than or equal to 30 and less than 50.



• For DTM20-101 ICP and DTM20-101 Seismic: Firmware version of the module is not less than 51; or the firmware version is greater than or equal to 27 and less than 50.

Trend Sampling Interval Setup

Click this command to launch "Trend Sampling Interval Setup" window.



Trend Sampling Interval: Set a time interval of storing data for the DTM which is used for condition monitoring system such as PCM626 System. For example, if you set the interval as two hours, DTM will store sample information every two hours. It could store maximum 1024 samples. The information includes collecting time, measured value and channel status. After the DTM transfers these historical trend data to PCM626 System, the stored data will be cleaned up.

The default value is set to "10 hours" when device leaves factory. You are allowed to set it to an integer within range from 1 to 240.

NOTE: Only DTM that is used for condition monitoring system supports this function.



Calibration Menu

4-20mA Calibration For User

The 4-20mA Calibration process is below:

- 1. Connect DTM device and upper-computer. Ensure the device and DTM-CFG software can normally communicate with each other.
- 2. Connect the amperemeter and DTM device.

To perform step1 and step2, please refer to <u>System Wiring Diagram for Configuration</u> of this manual. Step3-step4 covers the process to complete 4-20mA Zero Calibration.

3. Select **4-20mA Calibration For User** command from **Calibration** menu to open the window. See picture below. Then click **Start calibration** button in "Zero" field.

-20mA Calibration	×
Zero: Start calibration 0 mA Calibration]
Full scale: Start calibration 0 mA Calibration]
Exit <u>H</u> elp	

4. Read the current value from the amperemeter after it settled down, and then type it to the edit box. Later click **Calibration** button.

4-20mA Calibi	ation	×
Zero:	Start calibration 3.05	mA Calibration
Full scale:	Start calibraion	mA Calibration
	Exit	Help

Step5-step6 covers the process to complete 4-20mA Full scale Calibration.

5. Click **Start calibration** button in "Full scale" field. Then read the current value from the amperemeter after it settled down and type it into the related edit box.

4-20mA Calibr	ation			×
Zero:	Start calibration	3.05	mA	Calibration
Full scale:	Start calibraion	24.15	mA	Calibration
		Exit		Help

- 6. Later click **Calibration** button.
- 7. Click **Exit** button to complete the calibration.



Linearization Calibration For User

Linearization Calibration is only available for DTM10-301 and DTM10-302. Ensure the following:

- 1. DTM device and DTM-CFG can normally communicate with each other.
- 2. **Configuration parameter settings:** While the transducer sensitivity is 8mv/um, the full scale range should be set from -1000um to 1000um; while the transducer sensitivity is 4mv/um, the full scale range should be set from -2000um to 2000um.

The Linearization Calibration process is below:

- Connect the transducer and the DTM device. Please refer to <u>System Wiring Diagram for</u> <u>Configuration</u> of this manual.
- 2. Place the transducer on Static Calibrator.
- 3. Select Linearization Calibration For User command from Calibration menu to open the window.

Linearization Calit	pration	×
For DTM10-30	1 and 10-302 only:	
Step1:	Zero Calibration	
Step2:	Mid-Calibration	
Step3:	Full Scale Calibration	
Verenze	Exit	

- 4. Adjust the Static Calibrator and set the value to 0.25mm. Then click **Zero Calibration** button.
- Adjust the Static Calibrator again and change the value. If the transducer sensitivity is 8mv/um, set the value to 1.25mm; if the transducer sensitivity is 4mv/um, set the value to 2.25mm. After that, click Mid-Calibration button.
- 6. Re-adjust the Static Calibrator. If the transducer sensitivity is 8mv/um, set the value to 2.25mm; if the transducer sensitivity is 4mv/um, set the value to 4.25mm. After that, click **Full Scale Calibration** button.
- 7. Click Exit button to complete the calibration.

Factory Information

Select **Factory Information** command from **Calibration** menu and "DTM Factory Information" window is launched. In normal condition, customer is only allowed to view the factory information (Hardware circuit type, Firmware version, Module serial number, and Quality Assurance). To change the factory information, click **Activate** button and then factory password is required.



DTE Factory Informat	ion	×
		Activate
Hardware circuit type:	DTM20-101-ICP type	Y
Firmware:	27	
Module serial number:	0	
Quality Assurance:	1	Modbus setting
ОК	Car	ncel



Overall/Status Menu

Real-time Overall And Status

Click this command to launch "Overall/Status" window. The window shows real-time Overall, GAP, and state of the status bits. This is an assistance tool for field engineer to see the working status of the monitor. The window is intended for monitor diagnostics only. If the module is not DTM20-A4, the window below is launched.

Overall/Status	×
DTM	1
200.00 um	😑 ок
	Alert
-	Danger
	Bypass
0.00 um	Triple Multiply
Real-time Value : 0.00 um	Gap Not OK
GAP : 0.00V	
	Exit Help

If the module is n DTM20-A4, the window below is launched as follows.

Overall/Status			×
Acceleration		Looseness	
75.00 g	 OK Alert Danger Bypass Triple Multiply 	0.00 %	
Real-time Value : 0.00 g GAP : 0.00V	Gap Not OK	Real-time Value : 0.00 %	
	Exit <u>H</u> elp		

The window above shows the channel's real-time value, GAP value and state of the status bits.

Color Indication for bar graph:

✓ **Green:** The real-time value is in normal range.



✓ **Yellow:** The real-time value exceeds the alert set-point.

✓ **Red:** The real-time value exceeds the danger set-point.

Lights before Alert, Danger, Bypass, Triple Multiply and Gap Not OK indicate the status of the channel and Gap voltage. When alert occurs, the light before it turns yellow; when danger and Gap Not OK occur, the lights before them turn red. And if the channel is in alarm bypass or triple multiply status, the lights before them turned red.

Light before OK indicates whether the selected channel works normally. Green means that it works normally, and gray means that it is in abnormal status.

Overall Record

Select **Overall Record** command from **Overall/Status** menu, then click **Upload** button. A record of overall and gap with time stamp will be stored for further diagnostics.

— Upload Time ——		Dete	ction value	
/2/23_19:10:29	Channel No.	Detection option	Real-time detection value	
V2/23_19:10:31 V2/23_19:10:32	1	Real-time value Gap voltage	0.47 12.3	
12/25_15/10.54				
		_		
		-		
Upload Delete				
				Exit Hel

Detection value: Select a time stamp on the "Upload Time" list, the overall and Gap voltage that was uploaded at the time stamp is displayed.

Delete (Button): Select a time stamp on the "Upload Time" list and then click **Delete** button. The record uploaded at the time stamp will be removed.

Channel Status Record

Select **Channel Status Record** command from **Overall/Status** menu, then click **Upload** button. A record of channel status with time stamp will be stored for further diagnostics.



ie		Status	
Channel No.	Event type	State	
1	Not OK	FALSE	
1	Alert	TRUE	
1	Danger	FALSE	
1	Bypass	FALSE	
1	Trip Multiply	FALSE	
1	Gap Not OK	FALSE	
			_
			_
			-
			-
-			

Channel Status: Select a time stamp on the "Upload Time" list, the state of each status bit that was uploaded at the time stamp is displayed.

Delete (Button): Select a time stamp on the "Upload Time" list and then click **Delete** button. The record uploaded at the time stamp will be removed.

Real Time Wave Form

The function is valid if the firmware version is greater than 51. Click the button named 'Real Time Waveform' of the configuration window, the real time wave form window will popup:





Click the button named 'Continuous' to acquire infinite real time wave form.

Click the button named 'Stop' to stop real time wave form acquiring.

Dragging the sliders below to change the scope of the real time wave form.



Security Menu

Activate Configuration Setting

Click this command to launch "Configuration Password" window. Type the configuration password in edit box and click **OK** button. Default Configuration Password is "1234", and user can change this default by selecting **Modify Configuration Password** from **Security** menu.

Co	onfigurati	on Password		×
	? >	Password:	****	
		OK	Cancel	

NOTE:

Configuration password has the higher user access than control password. In a DTM-CFG's running time, if you activates configuration password, you needn't activate control password.

Activate Control Setting

Click this command to launch "Control Password" window. Type the control password in edit box and click **OK** button. The default control password is a blank "", and user can change this default by selecting **Modify Control Password** from **Security** menu.

Control	Password		×
?	Password:	Cancel	

Modify Configuration Password

Use this command to modify system configuration password. Type the old configuration password, new configuration password in the related edit boxes. You have to type your new configuration password twice. Default Configuration Password is "1234".

Μ	odify Configuration Password		×
	Old password	****	
	New password	****	
	Confirm new password	*******	
	OK	Cancel	



Modify Control Password

Use the command to modify system control password. Type the old control password, new control password in the related edit boxes. You have to type your new control password twice. The default control password is a blank "".

M	odify Cor	ntrol Password		×
	@	Old password		
	₿°	New password	****	
	Co	nfirm new password	****	
		OK	Cancel	

Password Effective Time Period

Use this command to launch "Password Effective Time Period" window. You can set the effective time of passwords.

Calculated from the time, at which the last successful communication between DTM device and DTM-CFG was performed (the downloading operation was successfully performed), once the time interval exceeds the effective time period, the password is invalid and you have to re-activate the password.

Pa	assword Effective Time Period	×
	(160)	
	Effictive time: 60 minute(s)	
	Download Upload Exit	

The effective time should be set with an integer from 1 to 60. The default is 10 minute. If you want to download the time to DTM device, the configuration password should be activated.



System Maintenance

System Calibration

Zero calibration

Following shows the steps to perform 4mA zero calibration.

- 1. Connect DTM device and upper-computer. Ensure the device and DTM-CFG software can normally communicate with each other.
- 2. Connect the amperemeter and DTM device.

To perform step 1 and step 2, please refer to System Wiring Diagram for Configuration of this manual.

3. Run DTM-CFG software. On main window of standard edition, directly click **STEP3A Calibration** button on main window or select **4mA Calibration** command from **Operation** menu. Window below is launched.

ZERO (4mA) CAL	IBRATION	x
≻ Step1:	Start Calibration	
Step2:	Read 4-20 mA current output,and enter into below field:	
Step3:	Zero (4mA) Calibration	
	Exit <u>H</u> elp	

4. Click **Start Calibration** button on the window. To start zero calibration, you should activate configuration password.

ZERO (4mA) CALI	IBRATION	x
Step1:	Start Calibration	
≫ Step2:	Read 4-20 mA current output,and enter into below field:	
Step3:	Zero (4mA) Calibration	
	Exit <u>H</u> elp	

5. Read the current value from the amperemeter after it settled down, and then type it to the edit box.



ZERO (4mA) CAL	IBRATION	×
Step1:	Start Calibration	
Step2:	Read 4-20 mA current output,and enter into below field: 3.04 mA	
≫ Step3:	Zero (4mA) Calibration]

6. Click Zero (4mA) Calibration button to download the current value to DTM device.

ZERO (4mA) CA	LIBRATION	×
Step1:	Start Calibration	
Step2:	Read 4-20 mA current output,and enter into below field: 3.04 mA	
Step3:	Zero (4mA) Calibration]

7. Click **Exit** button to exit the calibration status.



4-20mA Calibration For User

The 4-20mA Calibration process is below:

- 1. Connect DTM device and upper-computer. Ensure the device and DTM-CFG software can normally communicate with each other.
- 2. Connect the amperemeter and DTM device.

To perform step1 and step2, please refer to <u>System Wiring Diagram for Configuration</u> of this manual. Step3-step4 covers the process to complete 4-20mA Zero Calibration.

 Run DTM-CFG software and enter into Advanced edition. On main window of DTM-CFG Advanced edition, select 4-20mA Calibration For User command from Calibration menu to launch the window. See picture below. Then click Start calibration button in "Zero" field.

4-20mA Calib	ration				×
Zero:	Start calibration	0	mA	Calibration	
Full scale:	Start calibraion	0	mA	Calibration]
		Exit		<u>H</u> elp	

4. Read the current value from the amperemeter after it settled down, and then type it to the edit box. Later click **Calibration** button.

4-20mA Calibi	ation	×
Zero:	Start calibration 3.05	mA Calibration
Full scale:	Start calibraion	mA Calibration
	Exit	<u>H</u> elp

Step5-step6 covers the process to complete 4-20mA Full scale Calibration.

5. Click **Start calibration** button in "Full scale" field. Then read the current value from the amperemeter after it settled down and type it into the related edit box.

4-20mA Calibration					
Zero:	Start calibration	3.05	mA	Calibration	
Full scale:	Start calibraion	24.15	mA [Calibration	
		Exit		Help	

- 6. Later click **Calibration** button.
- 7. Click **Exit** button to complete the calibration.



Linearization Calibration For User

Linearization Calibration is only available for DTM10-301 and DTM10-302. Ensure the following:

- 1. DTM device and DTM-CFG can normally communicate with each other;
- Configuration parameters setting: While the transducer sensitivity is 8mv/um, the full scale range should be set from -1000um to 1000um; while the transducer sensitivity is 4mv/um, the full scale range should be set from -2000um to 2000um.

The Linearization Calibration process is below:

- Connect the transducer and the DTM device. Please refer to <u>System Wiring Diagram for</u> <u>Configuration</u> of this manual.
- 2. Place the transducer on Static Calibrator;
- Run DTM-CFG software and enter into Advanced edition. On main window of DTM-CFG Advanced edition, select Linearization Calibration For User command from Calibration menu to launch the window.

Linearization Calib	pration	×
For DTM10-30	1 and 10-302 only:	
Step1:	Zero Calibration	
Step2:	Mid-Calibration	
Step3:	Full Scale Calibration	
Yuuuu	Exit	

- 4. Adjust the Static Calibrator and set the value to 0.25mm. Then click **Zero Calibration** button.
- Adjust the Static Calibrator again and change the value. If the transducer sensitivity is 8mv/um, set the value to 1.25mm; if the transducer sensitivity is 4mv/um, set the value to 2.25mm. After that, click Mid-Calibration button.
- 6. Re-adjust the Static Calibrator. If the transducer sensitivity is 8mv/um, set the value to 2.25mm; if the transducer sensitivity is 4mv/um, set the value to 4.25mm. After that, click **Full Scale Calibration** button.
- 7. Click **Exit** button to complete the calibration.



Accessories

USB-RS485: USB to RS485 converter with cable USB-RS232: USB to RS232 converter with cable DTM96: Isolated communication module TM0540: Proximity probe field calibration kit TM0541: Proximity probe shaft calibration kit