STI Vibration Monitoring Inc.

OPERATION MANUAL

CMCP420VT Series
Loop Powered Transmitters

CMCP420VT-01
CMCP420VT-02
CMCP420VT-T1
CMCP420VT-T2

REV. J 8-15-2013

IMPORTANT!

After installation of this unit, no connections are to be made or broken while any connection on the unit is powered up.

Après l'installation de cette unité, pas de connexions doivent être faites ou cassé pendant toute connexion de l'appareil est sous tension.

STI Vibration Monitoring, Inc.
1010 East Main Street
League City, Texas 77573 USA
Tel.: 281.334.0766
www.stiweb.com

Model Description:
The **CMCP420VT Series Transmitters** are solid state loop powered Velocity and Velocity/Temperature Sensors. Each parameter provides a 4-20mA output that is proportional to overall vibration and/or temperature in terms of velocity and degrees Celsius or Fahrenheit. The CMCP420VT Series continuously monitors machinery health and transmits directly into a PLC or DCS for trending, alarm and machine shutdown. The dynamic output terminals on the CMCP420VT provides the user with a direct connection to the internal accelerometer for connecting data collectors. The CMCP420VT-T is not equipped with a dynamic output.

Ranges:
Vibration and Dynamic Output (VT Series)
CMCP420VT-01 0-1.0 In/Sec RMS (0-25.4mm/Sec)
CMCP420VT-02 0-2.0 In/Sec RMS (0-50.8mm/Sec)
Vibration and Temperature Output (VT-T Series)
CMCP420VT-T1 0-1.0 In/Sec RMS (0-25.4mm) and 0-100°C (32-212°)
CMCP420VT-T2 0-2.0 In/Sec RMS (0-50.8mm) and 0-100°C (32-212°)

Power Requirements
+22 to +36 VDC Per 4-20mA Loop

R-Load
RL max = 600 Ohms

The Recommended RL for most installations is: 250 Ohms or 100 Ohms, @ Vs = 24 Vdc

Loop Connections:

Vibration	V+ V-	CMCP420VT and CMCP420VT-T Series, 4-20mA Loop Output
Temperature	T+ T-	CMCP420VT-T Series Only, 4-20mA Loop Output
Dynamic	D+ D-	CMCP420VT Series Only, 100mV/g Output

Case:
316 Stainless Steel

Mounting Options:
Supplied with ¼"-28 x ½" mounting stud

Dimensions:
Case: 2 5/8" H x 1 1/16" W
3/4" NPT Top Fitting for Conduit

Weight:
8 oz.

Environmental:
Operating Temperature: -20°C to +80°C
Sealed: Epoxy Encapsulated

Certifications:
UL and CSA Approved Class I Division II, Groups B, C and D
CE Approved
RoHS Compliant

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The Recommended RL for most installations is: 250 Ohms or 100 Ohms, @ Vs = 24 Vdc

Loop Connections:

Vibration	V+ V-	CMCP420VT and CMCP420VT-T Series, 4-20mA Loop Output
Temperature	T+ T-	CMCP420VT-T Series Only, 4-20mA Loop Output
Dynamic	D+ D-	CMCP420VT Series Only, 100mV/g Output

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Dimensions:
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Weight:
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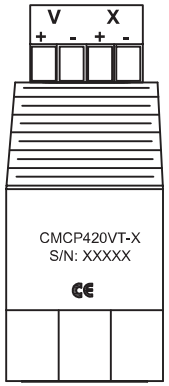
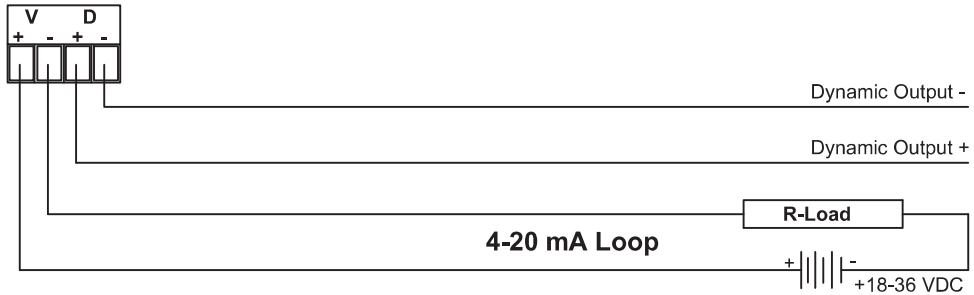
Parameters:

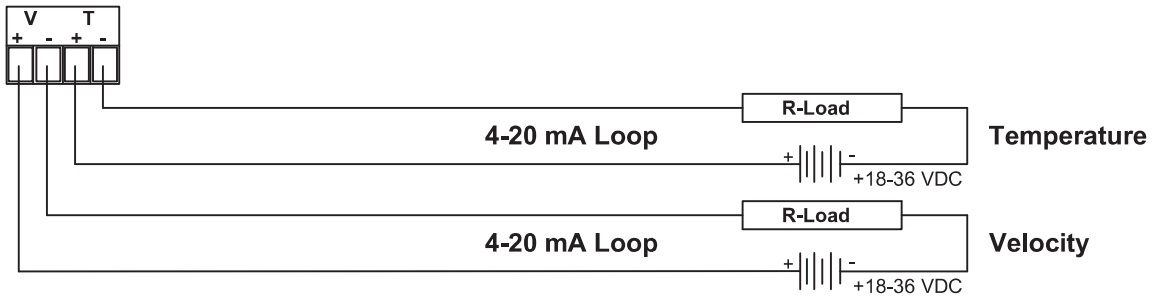
V	Velocity	4-20mA	CMCP420VT and CMCP420VT-T
T	Temperature	4-20mA	CMCP420VT-T Only
D	Dynamic	100mV/g	CMCP420VT Only



CMCP420VT



CMCP420VT-TX



Notes:
1. Power Requirements
   +18 to 36 Vdc Per Loop
2. Maximum Load
   600 Ohms max. @ Vs = 22 to 36 Vdc
   300 Ohms max. @ Vs = 18 Vdc
3. Grounding
   Case Isolated

REV.	DATE	DRAWN	DESCRIPTION

CUSTOMER	
LOCATION	
ORDER NO.	
SR. NO	

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES.

TOLERANCES:
FRACTIONS ± 1/64
DECIMALS .XX ± 0.01, .XXX ± 0.005, .XXXX ± 0.0005
ANGLES ± 1.0

DRAWN	MDH	DATE 3/20/2012
CHECK	MDH	3/20/2012
ENG.	MDH	3/20/2012
MFG.		
APPR.		

STI Vibration Monitoring
League City, Texas

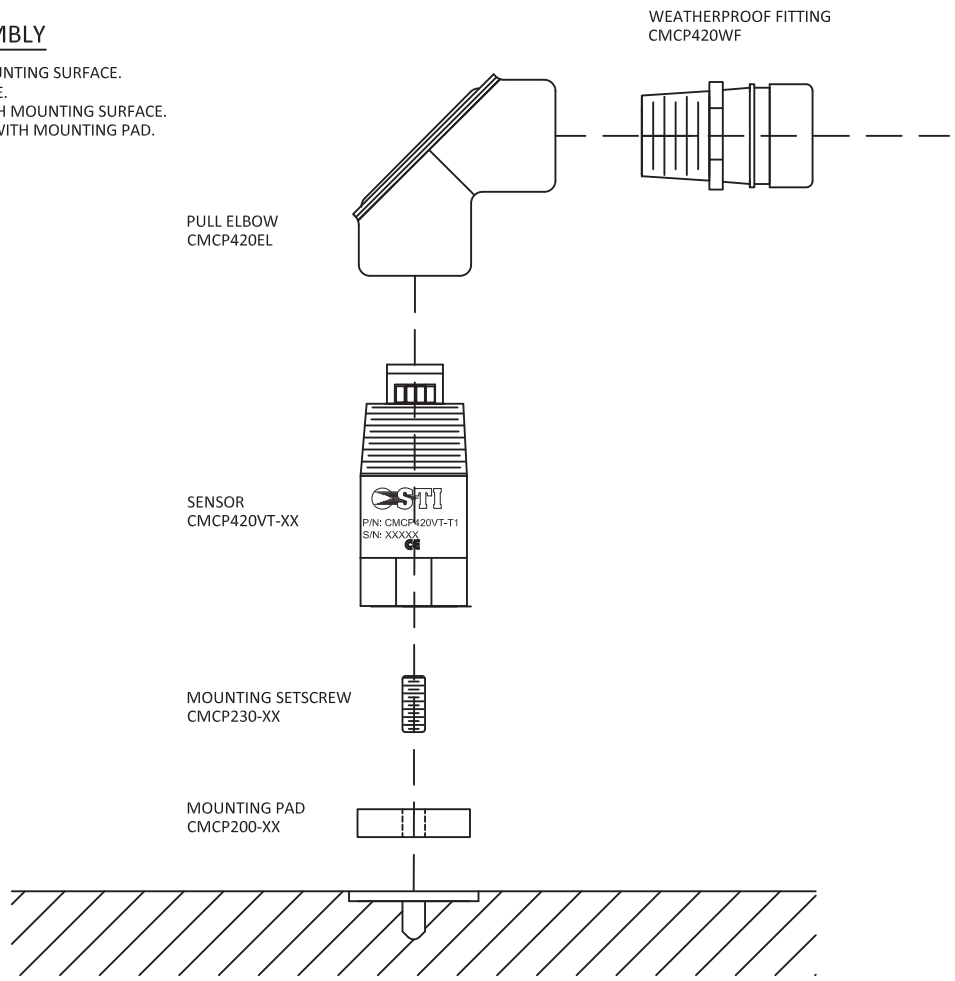
CMCP420VT Series Connections

SIZE A | DWG. NO. VTConnections | REV. A

SCALE: NONE | SHEET 1 OF 1

CMCP420VT SERIES INSTALLATION AND ASSEMBLY

1. REMOVE ANY DEBRIS FROM THREADED HOLE DRILLED INTO MOUNTING SURFACE.
2. INSTALL SENSOR SETSCREW (CMCP230-XX) INTO THREADED HOLE.
3. THREAD MOUNTING PAD ONTO SETSCREW UNTIL CONTACT WITH MOUNTING SURFACE.
4. THREAD CMCP420VT ONTO SETSCREW UNTIL IT IS IN CONTACT WITH MOUNTING PAD.
   MAX TORQUE 30 INCH-POUNDS
5. INSTALL CMCP420EL ONTO SENSOR.
   USE WRENCH TO HOLD CMCP420VT WHILE TIGHTENING ELBOW.
6. IF USED, INSTALL THE CMCP420WF FITTING ON THE ELBOW.
   FLEXIBLE CONDUIT CAN BE USED IN PLACE OF THE CMCP420EL
7. REMOVE ELBOW COVER AND MAKE TERMINAL CONNECTIONS.



Michael D. Howard
CERTIFIED
VIBRATION ANALYST
CATEGORY II
VIBRATION INSTITUTE
FOUNDED IN 1972
0902-4773A

Notes:
1. OPTIONAL INSTALLATION TOOL KIT - CMCP720-01
2.
3.
4.
5.

REV.	DATE	DRAWN	DESCRIPTION
A	11/19/09	MDH	ORIGINAL DRAWING

CUSTOMER	
LOCATION	
ORDER NO.	
SR. NO	

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES.

TOLERANCES:
DECIMALS
FRACTIONS ± 1/64 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005
ANGLES ± 1.0

DRAWN	MDH	11/18/09
CHECK	MDH	11/18/09
ENG.	MDH	11/18/09
MFG.		
APPR.		

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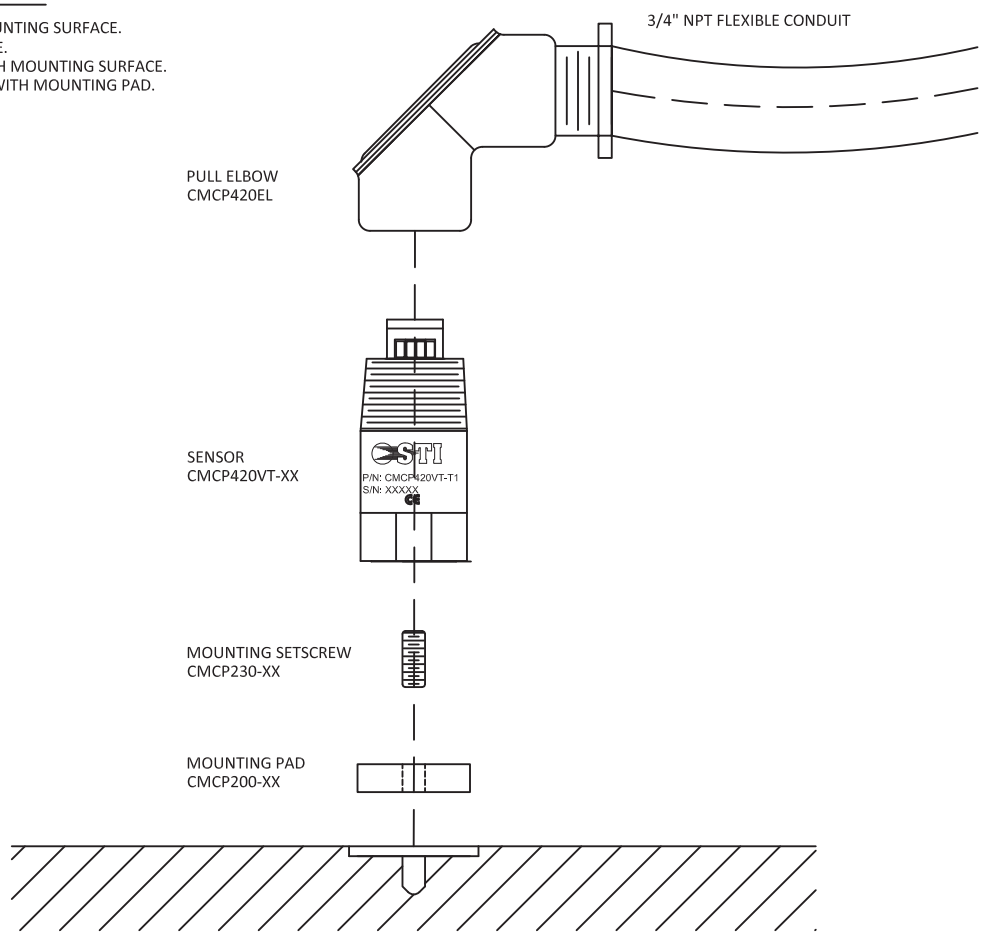
CMCP420VT SERIES ASSEMBLY

SIZE	DWG. NO.	REV.
A	VTINSTALL001	A

SCALE: NONE | SHEET 1 OF 1

CMCP420VT SERIES INSTALLATION AND ASSEMBLY

1. REMOVE ANY DEBRIS FROM THREADED HOLE DRILLED INTO MOUNTING SURFACE.
2. INSTALL SENSOR SETSCREW (CMCP230-XX) INTO THREADED HOLE.
3. THREAD MOUNTING PAD ONTO SETSCREW UNTIL CONTACT WITH MOUNTING SURFACE.
4. THREAD CMCP420VT ONTO SETSCREW UNTIL IT IS IN CONTACT WITH MOUNTING PAD.
   MAX TORQUE 30 INCH-POUNDS
5. INSTALL CMCP420EL ONTO SENSOR.
   USE WRENCH TO HOLD CMCP420VT WHILE TIGHTENING ELBOW.
6. CONNECT RIGID OR FLEXIBLE CONDUIT TO CMCP420EL
7. REMOVE ELBOW COVER AND MAKE TERMINAL CONNECTIONS.



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Notes:
1. OPTIONAL INSTALLATION TOOL KIT - CMCP720-01
2.
3.
4.
5.

REV.	DATE	DRAWN	DESCRIPTION
A	11/19/09	MDH	ORIGINAL DRAWING

CUSTOMER	
LOCATION	
ORDER NO.	
SR. NO	

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES.

TOLERANCES:
DECIMALS
FRACTIONS ± 1/64 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005
ANGLES ± 1.0

DRAWN	MDH	11/18/09
CHECK	MDH	11/18/09
ENG.	MDH	11/18/09
MFG.		
APPR.		

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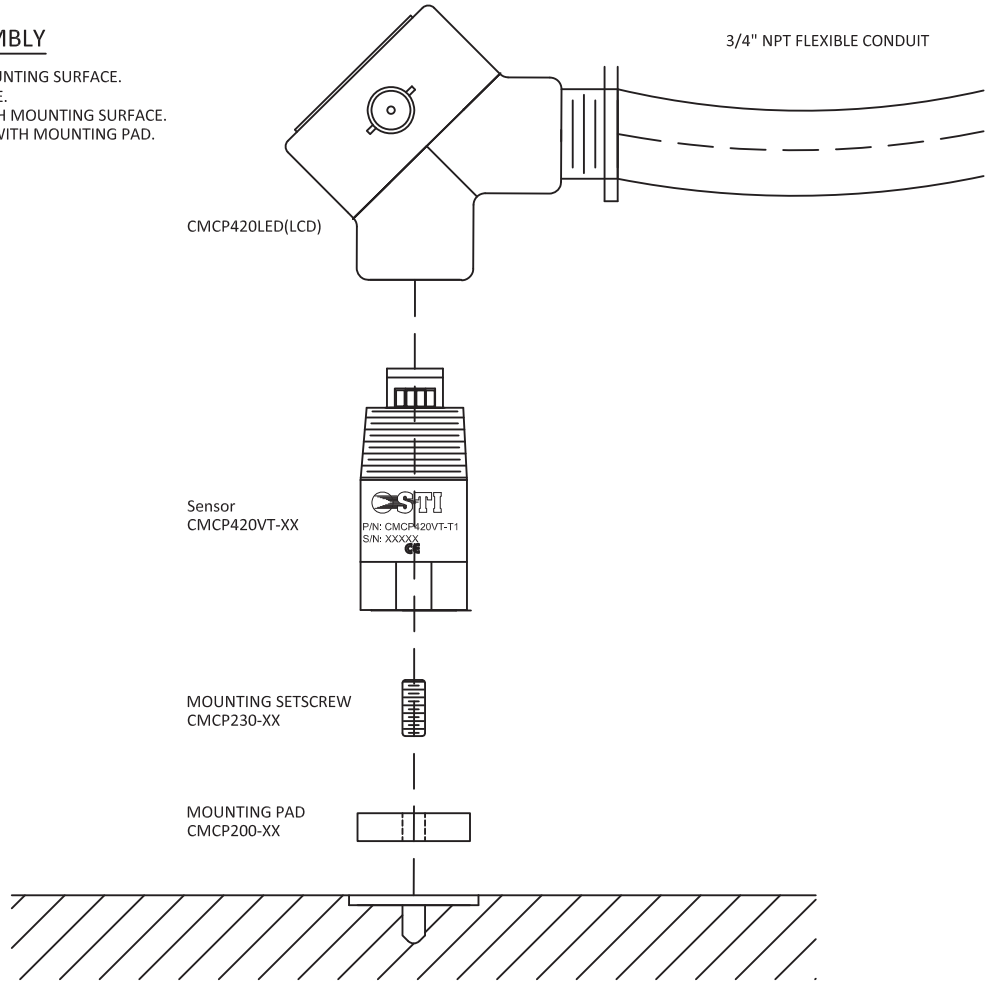
CMCP420VT SERIES ASSEMBLY

SIZE	DWG. NO.	REV.
A	VTINSTALL003	A

SCALE: NONE | SHEET 1 OF 1

CMCP420VT SERIES INSTALLATION AND ASSEMBLY

1. REMOVE ANY DEBRIS FROM THREADED HOLE DRILLED INTO MOUNTING SURFACE.
2. INSTALL SENSOR SETSCREW (CMCP230-XX) INTO THREADED HOLE.
3. THREAD MOUNTING PAD ONTO SETSCREW UNTIL CONTACT WITH MOUNTING SURFACE.
4. THREAD CMCP420VT ONTO SETSCREW UNTIL IT IS IN CONTACT WITH MOUNTING PAD.
   MAX TORQUE 30 INCH-POUNDS
5. INSTALL CMCP420LED ONTO SENSOR (SEE WIRING DIAGRAM)
   USE WRENCH TO HOLD CMCP420VT WHILE TIGHTENING ELBOW.
6. CONNECT RIGID OR FLEXIBLE CONDUIT TO CMCP420LED(LCD)



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0902-4773A

Notes:
1. OPTIONAL INSTALLATION TOOL KIT - CMCP720-01
2.
3.
4.
5.

REV.	DATE	DRAWN	DESCRIPTION
A	11/19/09	MDH	ORIGINAL DRAWING

CUSTOMER	
LOCATION	
ORDER NO.	
SR. NO	

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES.

TOLERANCES:
DECIMALS
FRACTIONS ± 1/64 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005
ANGLES ± 1.0

DRAWN	MDH	11/18/09
CHECK	MDH	11/18/09
ENG.	MDH	11/18/09
MFG.		
APPR.		

Sales Technology Inc.
League City, Texas

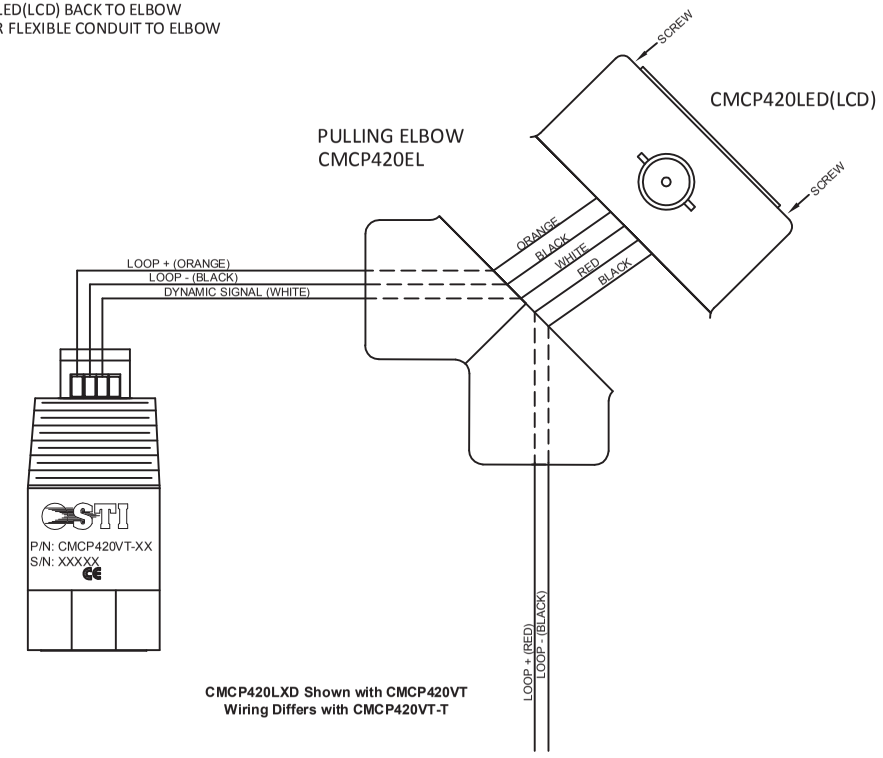
CMCP420LXD SERIES ASSEMBLY

SIZE	DWG. NO.	REV.
A	VTINSTALL003	A

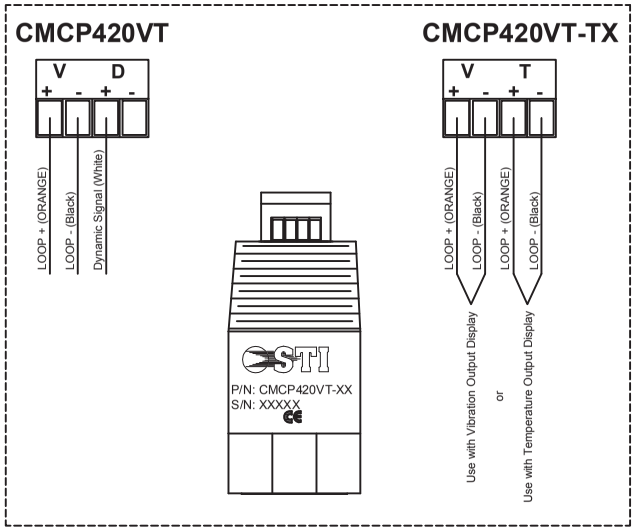
SCALE: NONE | SHEET 1 OF 1

CMCP420VTLED(LCD) INSTALLATION AND ASSEMBLY

1. REMOVE TWO (2) SCREWS FROM CMCP420LED(LCD) THAT CONNECT ELBOW
2. INSERT WIRES FROM CMCP420LCD(LED) THROUGH ELBOW
3. CONNECT WIRES TO CMCP420VT or CMCP420VT-T
4. SLIDE ELBOW DOWN WIRES AND TIGHTEN TO CMCP420LED(LCD)
   USE WRENCH TO HOLD CMCP420VT WHILE TIGHTENING ELBOW
5. CONNECT PLC/DCS WIRES TO CMCP420LED
6. ATTACH CMCP420LED(LCD) BACK TO ELBOW
4. CONNECT RIGID OR FLEXIBLE CONDUIT TO ELBOW



CMCP420LXD Shown with CMCP420VT
Wiring Differs with CMCP420VT-T



Note:
1. Dynamic Output BNC not used with CMCP420VT-TX Vibration and Temperature Sensors.

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9902-4713A

Notes:
1. USE 20AWG TWISTED SHIELDED CABLE
2.
3.
4.
5.

REV.	DATE	DRAWN	DESCRIPTION
A	11/19/09	MDH	ORIGINAL DRAWING
B	04/11/2012	MDH	Revised Wiring for CMCP420VT-T

CUSTOMER	
LOCATION	
ORDER NO.	
SR. NO	

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES.

TOLERANCES:
DECIMALS
FRACTIONS ± 1/64 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005
ANGLES ± 1.0

DRAWN	MDH	1/25/10
CHECK	MDH	1/25/10
ENG.	MDH	1/25/10
MFG.		
APPR.		

Sales Technology Inc.
League City, Texas

CMCP420LXD SERIES ASSEMBLY

SIZE	DWG. NO.	REV.
A	VTLXDINSTALL001	B

SCALE: NONE | SHEET 1 OF 1