MODELLO 5485C
Trasduttore di Velocità Per Alta Temperatura

VERSIONE CON CONNETTORE A 2 PIN
(necessita di accoppiamento con cavo Modello 4850-XXXX)

VERSIONE A CAVO ARMATO INTEGRALE

1180

8824 Fallbrook Dr.
Houston, TX 77064, USA
Tel: 1-281-940-1802
Assistenza Tecnica oltre l'orario di lavoro: 1-713-702-8805
Fax: 1-713-559-9421
E-mail: info@metrixvibration.com
www.metrixvibration.com

METRIX
Experience Value

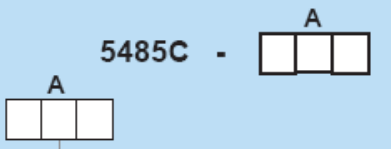
Caratteristiche:

Autogenerante, non richiede alimentazione
Custodia in acciaio inossidabile
Senza frizione - risoluzione infinita

Applicazioni:

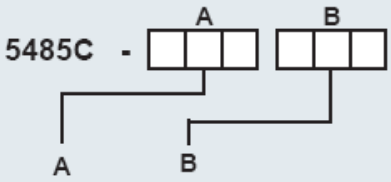
Grandi turbine a gas industriali
Monitoraggio di ventilator da altoforno
Installazione in zone pericolose:
UL a sicurezza intrinseca per Classe 1, Gr.(A-D), Div.1; Antifiamma per Classe 1, Gr.(A-D), CSA Antideflagrante per: Classe 1, Gr.(A-D), Div. 1; IEC a sicurezza intrinseca per: EEx ia IIC T6 Tamb: -54°C to 375°C; IEC Antifiamma pe: EEX nA IIC T6 -54°C

How To Select...Connector Versions*



OUTPUT CODE	OUTPUT ± 5%	COIL OHMS	SERVICE TEMP.
0 0 2	105 mV/ips	73	+ 375°C to -54°C
0 0 4	145 mV/ips	102	
0 0 6	200 mV/ips	135	
0 0 8	150 mV/ips	105	

How To Select...Fixed Cable Versions



OUTPUT CODE	LENGTH* (IN FEET)	OUTPUT ± 5%	COIL OHMS	SERVICE TEMP.
0 0 1	X X X example: 010 = 10 ft. (3m) * 60 FT. (18.3 m) MAX.	105 mV/ips	73	+ 375°C to -54°C
0 0 3		145 mV/ips	102	
0 0 5		200 mV/ips	135	
0 0 7		150 mV/ips	105	

***REQUIRES MODEL 4850-XXX HIGH TEMP ARMORED CABLE ASSEMBLY (375 °C MAX.). SPECIFY -XXX LENGTH IN FEET. EXAMPLE: 4850-010 = 10 FT (3 M) CABLE.**

***LENGTHS ABOVE 20 FT. MUST BE IN EVEN-NUMBER INCREMENTS. EXAMPLE: 22, 24, 26, ETC.**

Questi trasduttori formiscono misure di vibrazione accurate, ripetibill, su un grande spettro di ampiezze e frequenze. Sono progettati e costruiti per operare con continuità ad elevate temperature. Ciò li rende adatti all'impiego su grandi turbine a gas, ventilatorl da altoforno o altre installazioni in zone pericolose.

Questo simbolo indica che l'utilizzatore deve fare riferimento a questo manuale per l'utilizzo e l'installazione.

1.0 Installazione del Trasduttore

L'asse sensibile del tranduttore può essere orientato in qualsiasi direzione, Per garantire una risposta pulita alle vibrationi ad alta frequenza, il trasduttore deve essere montati in modo ben saldo ad una superficie lavorata piana utilizzando quattro viti #6 (o 3mm) a brugola. Nel caso fosse necessario utilizzare una staffa, questa deve essere sufficientemente rigida da eliminare risonabze meccanica anomale nella banda passante del trasduttore.

2.0 Cablaggio del Trasduttore

Per le installazioni normali, fuori dale aree pericolose, cablare il tranduttore come indicato a Pag.4 o sul disegno 7623, Foglio 2.

Per le installazioni in zona periicolosa, il cablaggio dipende dalla classificazione dell'area.

a. In aree classificate Cl. I, Gr A, B, C & D o IEC Zona 0, Gr. IIC, il trasduttore può essere cablato ad un ricevitore posto in zona sicura attraverso una barriera di sicurezza a diodo zener come indicato a Pag.5 o sul disegno 7623, Foglio 3. In alternative, in aree Cl. I, Div 1, Gr. C e D, il trasduttore può essere installato in una custodia antideflagrante modello 7263 e cablato al ricevitore in area sicura direttamente attraverso conduit rigido.

I valori Ci, Li & Ri del trasduttore sono riportati nella tabella seguente:

PARAMETRI DEL SENSORE - CENELEC E IECEx

FATTORE DI SCALA DEL TRASDUTTORE	MODELLO	Leq	Ri
105 mV/ips	5485C–001–XXX	.39 mH	46 ohm
105 mV/ips	5485C–002	.39 mH	46 ohm
145 mV/ips	5485C–003–XXX	.77 mH	66 ohm
145 mV/ips	5485C–004	.77 mH	66 ohm
200 mV/ips	5485C–005–XXX	1.50 mH	87 ohm
200 mV/ips	5485C–006	1.50 mH	87 ohm
150 mV/ips	5485C–007–XXX	.82 mH	68 ohm
150 mV/ips	5485C–008	.82 mH	68 ohm

PER I SENSORI NON STANDARD FARE RIFERIMENTO AL FATTORE DI SCALA PER DETERMINARE LEQ ED RI

ESEMPIO: Leq = .39 mH Ri = 46 OHMS

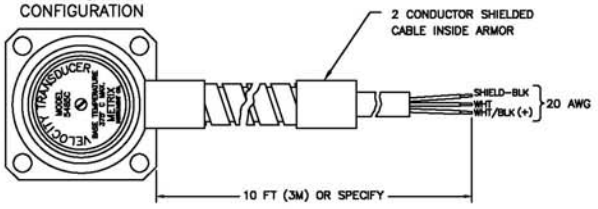
Nota: Per I modelli a cavo integrale, Il valore massimo di incremento di Ci & Li è rispettivamente di 2nF e 60uH.

b. In aree classificate Cl. I, Div 2, Gr. A, B, C & D o IEC Zona 2, Gr. II trasduttore può essere cablato come indicato al punto (a), oppure senza barriere di sicurezza se cablato come indicato a Pag. 6 o disegno 8096.

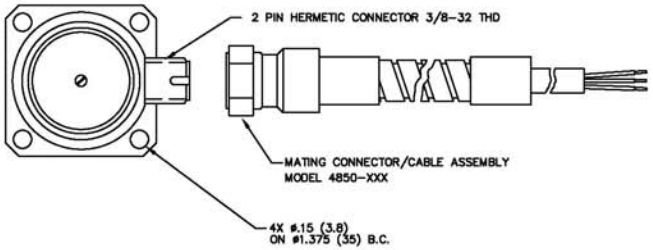
Condizioni Speciali per l'utilizzo sicuro secondo Baseefa:

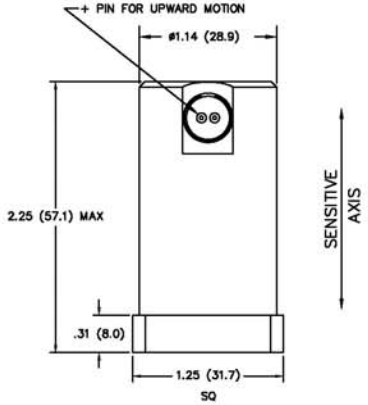
Per garantire la certificazione e la sicurezza alla temperatura, l'alimentazione deve avere le caratteristiche riportate di seguito:
Uo ≤ 28V, Io ≤ 120mA, e Po ≤ 0.625W

FIXED CABLE CONFIGURATION



CONNECTOR CONFIGURATION





SPECIFICATIONS

TYPE: SPRING SUSPENDED DUAL COIL BOBBIN IN PERMANENT MAGNETIC FIELD. NO SLIDING PARTS. ZERO FRICTION.

AXIS ORIENTATION: ANY

SENSITIVITY: SEE TABLE A (+/- 5% AT 150 Hz)

CROSS AXIS SENSITIVITY: LESS THAN 10%

EXTERNAL FIELD SENSITIVITY: < .005 IPS/GAUSS AT 60Hz

COIL RESISTANCE: (25°C) = SEE TABLE A

TEMPERATURE LIMITS:
CONTINUOUS: -54°C TO 375°C
INTERMITTENT: -54°C TO 400°C

FREQUENCY RANGE: 15 Hz TO 2000 Hz

DISPLACEMENT LIMIT: 0.07 (1.8) PK - PK

SENSITIVITY SHIFT VS POSITION: 5% MAX.

SENSITIVITY VS TEMPERATURE: -.02%/°C, MAX.

ACCELERATION LIMITS: 0 TO 50 G's

DAMPING (ELECTRO-MAGNETIC):
AT 20°C: 0.8
AT 200°C: 0.55
AT 375°C: 0.4

CASE TO COIL ISOLATION:
AT 20°C: 100 MEGOHMS, MIN.
AT 375°C: 10 MEGOHMS MIN.

CASE MATERIAL: STAINLESS STEEL, HERMETIC SEAL

WEIGHT: 7.5 OZ. (.21 KG)

HAZARD RATING: SEE SHEET 3

SEE SHEETS 2 AND 3 FOR WIRING.

TABLE A

MODEL	SENSITIVITY	COIL RESISTANCE	TERMINATION
5485C-001-XXX *	105MV/IPS	73 OHMS	FIXED CABLE
5485C-002	105MV/IPS	73 OHMS	CONNECTOR
5485C-003-XXX *	145MV/IPS	102 OHMS	FIXED CABLE
5485C-004	145MV/IPS	102 OHMS	CONNECTOR
5485C-005-XXX *	200MV/IPS	135 OHMS	FIXED CABLE
5485C-006	200MV/IPS	135 OHMS	CONNECTOR
5485C-007-XXX *	150MV/IPS	105 OHMS	FIXED CABLE
5485C-008	150MV/IPS	105 OHMS	CONNECTOR

* -XXX INDICATES CABLE LENGTH IN FEET
(EX: -010 = 10 FEET)

AGENCY APPROVED PRODUCT

DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

MATERIAL:

FINISH:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. ALL CORNERS BROKEN TO .010 MIN RADIUS AND TOLERANCES ARE:

FRACTIONS: ±1/64 DECIMALS: .XX ±.01 .XXX ±.005

ANGLES: ±1°

SURFACE FINISH 64

APPROVALS	DATE
DRAWN BY:	
J.T.	01-05-89
CHECKED BY:	
JAM	01-11-89
APPROVED BY:	
R.L. MORRISON	11-10-89

NEXT ASSY: 5485C
USED ON: APPLICATION

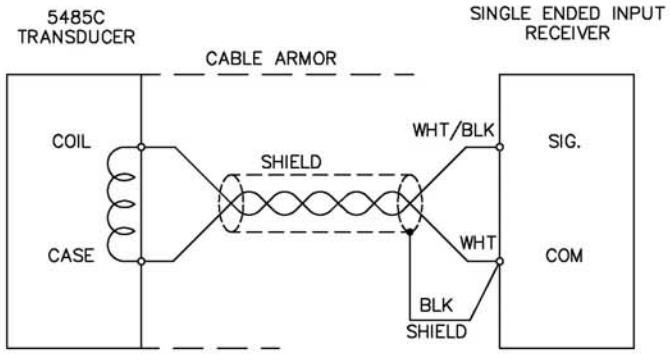
DO NOT SCALE DRAWING

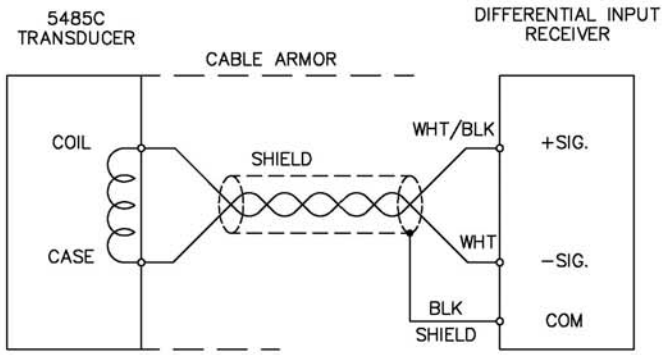
METRIX
HOUSTON, TEXAS U.S.A.

SPECIFICATION, MODEL 5485C, S/N ≥ 8000 HIGH TEMPERATURE VELOCITY TRANSDUCER

SIZE C | DRAWING NO. 7623 | REV T

SCALE: N/A | SHEET: 1 of 3





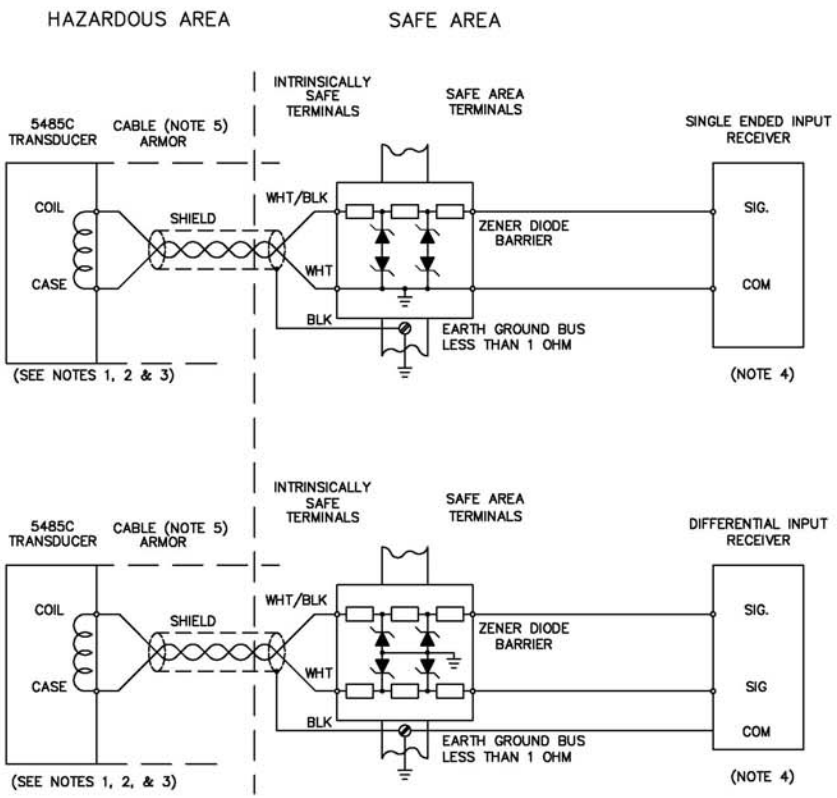
AGENCY APPROVED PRODUCT

DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

METRIX
HOUSTON, TEXAS U.S.A.

SPECIFICATION, MODEL 5485C, S/N ≥ 8000, HIGH TEMPERATURE VELOCITY TRANSDUCER WIRING (ORDINARY LOCATIONS)

SIZE	DRAWING NO.	REV
C	7623	T
SCALE	SHEET: 2 of 3	



AGENCY APPROVED PRODUCT

DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

NOTES:

1. UL LISTED AND CSA CERTIFIED AS INTRINSICALLY SAFE (CLASS I, GROUPS A, B, C, & D) WHEN USED WITH ZENER DIODE BARRIER HAVING A MAXIMUM OPEN CIRCUIT VOLTAGE OF 28 Vdc OR A MAXIMUM SHORT CIRCUIT CURRENT OF 0.25 A ACROSS THE INTRINSICALLY SAFE TERMINALS.

   ENTITY PARAMETERS OF TRANSDUCER:
   MAX. VOLTAGE (Vmax) = 28 Vdc
   MAX. CURRENT (Imax) = 0.25 A
   UNPROTECTED INTERNAL CAPACITANCE (Ci) = 0 uF
   UNPROTECTED INTERNAL INDUCTANCE (Li) = 0.88 mH MAX.
   MAX. POWER (Pimax) = 0.625 W (UL ONLY)

   SUCH THAT THE FOLLOWING CONDITIONS ARE SATISFIED:

   $V_{oc} \leq V_{max}$ $L_a \geq L_i + L_{cable}$ $P_{max} \geq P_o$

   $I_{sc} \leq I_{max}$ $C_a \geq C_i + C_{cable}$

   IF Po OF THE ASSOCIATED APPARATUS IS NOT KNOWN, IT MAY BE CALCULATED USING THE FORMULA $P_o = (V_{oc} * I_{sc})/4 = (U_o * I_o)/4$.

2. CSA CERTIFIED INTRINSICALLY SAFE SYSTEM WHEN USED WITH CSA CERTIFIED BARRIER RATED 14 VOLTS MAX., 50 OHMS MIN.; OR 22 VOLTS MAX., 300 OHMS MIN.

3. CENELEC (LCIE) CERTIFIED EEx ia IIC T6

TRANSDUCER SENSITIVITY	ENTITY PARAMETERS OF TRANSDUCER: Vmax	Leq	RI
105 mV/ips	28 Vdc	.39 mH	46 ohms
145 mV/ips	28 Vdc	.77 mH	66 ohms
150 mV/ips	28 Vdc	.82 mH	68 ohms
200 mV/ips	28 Vdc	1.50 mH	87 ohms

4. THE RECEIVER MUST NOT BE SUPPLIED FROM, NOR CONTAIN A SOURCE OF POTENTIAL WITH RESPECT TO GROUND UNDER NORMAL OR FAULT CONDITIONS EXCEEDING 250 VRMS.

5. CABLE LENGTH BETWEEN TRANSDUCER AND ZENER DIODE BARRIER SHALL NOT EXCEED 1000 FT. (300 m).

6. ASSOCIATED AND INTRINSICALLY SAFE APPARATUS MUST BE INSTALLED IN ACCORDANCE WITH ITS MANUFACTURER'S CONTROL DRAWING AND ARTICLE 504 OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) FOR INSTALLATION IN THE UNITED STATES, OR SECTION 18 OF THE CANADIAN ELECTRICAL CODE FOR INSTALLATIONS IN CANADA.

7. WHEN REQUIRED BY THE MANUFACTURER'S CONTROL DRAWING, THE ASSOCIATED APPARATUS MUST BE CONNECTED TO A SUITABLE GROUND ELECTRODE PER THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), THE CANADIAN ELECTRICAL CODE, OR OTHER LOCAL INSTALLATION CODES, AS APPLICABLE. THE RESISTANCE OF THE GROUND PATH MUST BE LESS THAN 1 OHM.

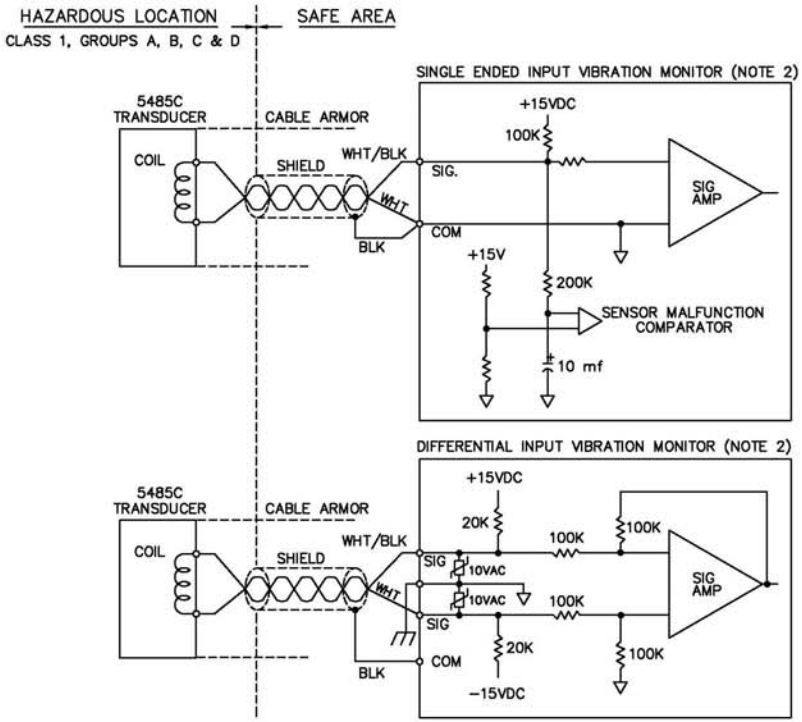
8. WHERE MULTIPLE CIRCUITS EXTEND FROM THE SAME PIECE OF INTRINSICALLY SAFE EQUIPMENT TO ASSOCIATED APPARATUS, THEY MUST BE INSTALLED IN SEPARATE CABLES OR IN ONE CABLE HAVING SUITABLE INSULATION. REFER TO ARTICLE 504.30(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND INSTRUMENT SOCIETY OF AMERICA RECOMMENDED PRACTICE ISA RP12.6 FOR INSTALLING INTRINSICALLY SAFE EQUIPMENT.

9. ASSOCIATED APPARATUS MUST NOT BE USED IN COMBINATION UNLESS PERMITTED BY THE ASSOCIATED APPARATUS CERTIFICATION

METRIX
HOUSTON, TEXAS U.S.A.

SPECIFICATION, MODEL 5485C, S/N ≥ 8000, HIGH TEMPERATURE VELOCITY TRANSDUCER WIRING (HAZARDOUS LOCATIONS)

SIZE C | DRAWING NO. 7623 | REV T | SHEET: 3 of 3



NOTES:

1. WARNING – THE VIBRATION MONITOR MUST PROVIDE A NON–INCENDIVE FIELD CIRCUIT TO TRANSDUCER, SO THAT IF THE WIRING BETWEEN THE TRANSDUCER AND MONITOR IS OPENED, SHORTED OR GROUNDED, THE CIRCUIT WILL REMAIN NON–INCENDIVE. MUST BE WIRED IN ACCORDANCE WITH THE NEC.

2. THE VIBRATION MONITOR SHALL PROVIDE A CIRCUIT HAVING MAXIMUM VOLTAGE AND MINIMUM RESISTANCE VALUES SHOWN IN THE SCHEMATIC DIAGRAMS.

3. TRANSDUCER CIRCUIT PARAMETERS:

V max	=	15 Vdc
I max	=	5 mA
Li	=	3.85 mH
Ci	=	0 uF

4. CABLE LENGTH SHALL NOT EXCEED 1000' (300m).

5. ALTERNATELY, IN LIEU OF THE ACTUAL CIRCUIT PARAMETERS SHOWN HERE, IT IS ALSO ACCEPTABLE TO CONNECT THE TRANSDUCER TO A VIBRATION MONITOR WHICH HAS A "nL" (LIMITED ENERGY) APPROVAL TO EN 50021. NOT APPLICABLE TO U.L.

AGENCY APPROVED PRODUCT

DO NOT DEVIATE FROM DOCUMENTED CONSTRUCTION OR LISTED PARTS

MATERIAL:

FINISH:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. ALL CORNERS BROKEN TO .010 MIN RADIUS AND TOLERANCES ARE:

FRACTIONS: ±1/64 DECIMALS: .XX ±.01 .XXX ±.005

ANGLES: ±1°

SURFACE FINISH 64

NEXT ASSY	USED ON
	5485C
APPLICATION	

DO NOT SCALE DRAWING

APPROVALS	DATE
DRAWN BY:	
L. GREENWAY	01-15-90
CHECKED BY:	
JAM	02-13-90
APPROVED BY:	
R.L. MORRISON	02-13-90

METRIX
HOUSTON, TEXAS U.S.A.

SPECIFICATION, MODEL 5485C, S/N ≥ 8000 HIGH TEMPERATURE VELOCITY TRANSDUCER WIRING (CLASS 1, DIV. 2)

SIZE	DRAWING NO.	REV.
C	8096	H

SCALE: N.S. SHEET: 1 of 1

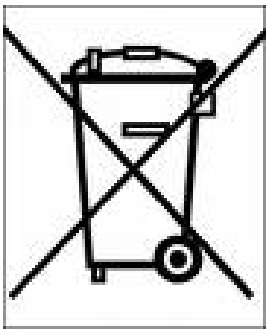
La temeratura minima di utilizzo per entrambi I modelli è -54°C.

La classificazione della temperatura in funzione della temperatura ambiente è:

Max. Ambient Temp.	Temp. Classification
45°C	T6
60°C	T5
95°C	T4
160°C	T3
260°C	T2
410°C	T1

Nota: Per I sensori che richiedono l'utilizzo del cavo 4850 - bloccare il connettore con una chiave tarata a 12-14 pollici libbra. Inserire il filo di bloccaggio nel connettore del cavo e torcerlo in modo da avere 7-10 dorsioni per pollice, tirando forte verso il connettore e corpo del sensore oppure fino a il fissare il filo di bloccaggio sopra il sensore. Avvolgetelo una volta attorno al corpo del sensore e torcetelo un minimo di 3-5 volte. Tagliare quanto rimane del filo.

INFORMAZIONI RIGUARDANTI LO SMALTIMENTO



Questo apparato elettronico viene costruito con i più elevati standard di qualità per garantire un funzionamento sicuro ed affidabile quando installato come previsto. Per la sua natura, questo appato potrebbe contenere modiche quantità si materiali identificati come pericolosi per l'ambiente o per la salute se smaltito in modo non corretto. Per questo motivo, il material elettrico ed elettronico non dovrebbe mai essere smaltito con I rifiuti solidi urbani. Il contrassegno con il "Cassonetto Barrato" affisso sul prodotto serve a ricordare che lo smaltimento del sensore deve essere effettuato rispettando le legislazioni locali riguradanti ririfiuti elettrici ed elettronici. Qualora abbiate bisogno di chiarimeti circa il processo di smaltimento, vogliate contattare il Servizio Clienti Metrix.

METRIX
Experience Value

Machinery Vibration & Protection

Declaration of Conformity

Manufacturer: Metrix Instrument Co.

Address: 8824 Fallbrook Dr., Houston, Texas 77064

Equipment Type: Model 5485C Velocity Transducer

Directive 94/9/EC ATEX

Provisions of the Directive fulfilled by the Equipment:

II 1 G
Ex ia IIC T* Ga

Notified Body for EC-Type Examination:

Baseefa 1180 Buxton UK

EC-type Examination Certificate:

Baseefa 10ATEX0056X

Notified Body for production:

Baseefa 1180 Buxton UK

Harmonised Standards Used:

EN60079-0: 2009
EN60079-11: 2007

Other Standards and Specifications used:

None.

On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

R Ganesh 4/13/2011

Ganesh Ladi
Quality Manager

8824 Fallbrook Dr. • Houston, TX 77064 USA • Tel: 281-940-1802 • Fax: 713-559-9421
www.metrixvibration.com • info@metrixvibration.com