

- Accéléromètre 3 axes pour surveillance vibratoire
- Etendue de mesure ± 50 g
- Bande passante DC~10 kHz
- bruit $35 \mu\text{g}/\sqrt{\text{Hz}}$
- Sensibilité 0,095 mg/LSB, CAN : 20 bits
- fréquence d'échantillonnage 80 kHz
- Interface Ethernet adaptative 10/100M
- transfert direct vers serveur
- Alimentation DC 12V
- Indice de protection IP67
- Température de fonctionnement $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$



Caractéristiques

Le capteur de vibration **HFA360** est un accéléromètre triaxial numérique haute fréquence, conçu pour la mesure précise et en temps réel des vibrations sur les machines tournantes et équipements industriels. Sa bande passante jusqu'à 10 kHz, sa conversion 20 bits et sa sensibilité de 0,095 mg/LSB permettent de détecter avec précision les faibles vibrations comme les phénomènes vibratoires rapides.

Grâce à son interface Ethernet 10/100 Mbit/s, le **HFA360** transmet directement les données vibratoires vers un serveur ou une plateforme de supervision, sans carte d'acquisition intermédiaire. Alimenté en 12 V CC, il est particulièrement adapté à la surveillance conditionnelle, au diagnostic vibratoire et à la maintenance prédictive.

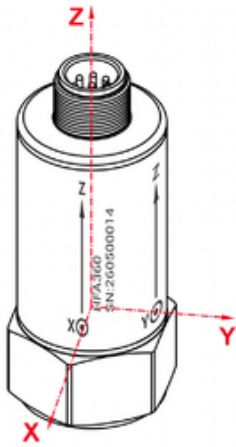
Applications

- Surveillance de pompes, compresseurs
- Agricole
- monitoring d'éoliennes
- Machines tournantes
- Engins de chantiers
- machines outils

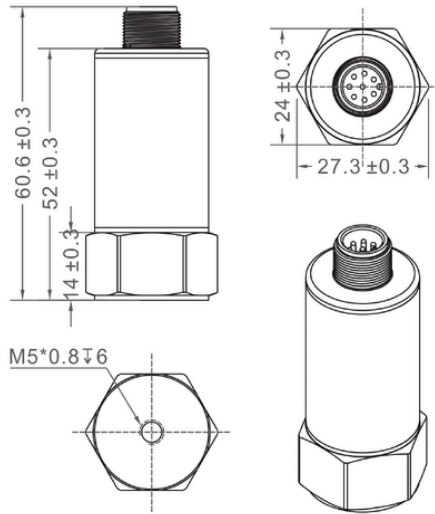
Spécifications

Mécanique		Electrique et communication	
Nombre d'axes	3	Tension d'alimentation	12 VDC
Direction	X, Y, Z	Consommation	-
étendue de mesure	± 50 g	Interface de sortie	Ethernet
Installation	vissée (recommandée) ou magnétique	Baudrate	100Mb/s
Protection à la surcharge	150 %	Connectique	M12 + câble blindé
Matériau	Inox	Longueur	5 m
Dimensions	24x27x60.6 mm	Protocole	TCP
Précision		Environnemental	
Classe de précision	< 1%	Température de fonctionnement	-40 à 85°C
Sensibilité transverse	-	Étanchéité	IP67
Sensibilité	0.095 mg/LSB		
Dispersion du zéro	-		
Non-linéarité	-		
Bande passante	0-10kHz		
Densité de bruit	-		

Mesure 3 axes



Dimensions



Housing Dimensions: L24×W27.3×H60.6mm

Accessoires

Serial No.	Name	Model	Unit	Quantity	Remark	Wire Length: Weight
1	Ethernet high-frequency vibration sensor	HFA360	Unit	1	Standard configuration	≤105g
2	Magnetic base + stainless steel M5 screw	D25/D32	Piece	1	Optional configuration	≤27g/≤42g
3	Network cable power combiner	Crystal head + power connector to RJ45 female socket	Piece	1	Standard configuration	16 cm / ≤ 40 g
4	8-pin M12 aviation connector	5 meters	Piece	1	Standard configuration: 5 meters (Cable length can be customized)	5m/≤300g
5	RJ45 to RJ45 cable	12V1A	Piece	1	Standard configuration	1.5m/≤85g
7	Power adapter	M5*6 to M6*6 / M5*6 to M8*8	Piece	1	Standard configuration	2g/3g

Connectique



◆ Factory default connection parameters

Device address: "1";

IP address: 192.168.1.164;

Gateway: 192.168.1.1;

Server: 192.168.1.169, port number: 22009.

◆ Communication protocol format

1. Specialized terms and abbreviations

Term	R	W	R/W	N/A	Char	Int32	Float
Description	Read-only	Write-only	Read-write	Not applicable	8-bit character	32-bit signed number	32-bit single-precision floating-point number

2. Communication Protocol

The triaxial vibration smart sensor communicates with the server (including the host computer) using the TCP protocol. The sensor acts as a TCP client, and the server acts as a TCP server. The sensor's TCP communication-related parameters can be modified via configuration software; however, the sensor needs to be restarted after parameter modifications.

3. Upload data packets

Send the currently acquired triaxial acceleration data (float type) to the TCP server. Once the server is ready, the sensor will continuously and actively send this message to the server after establishing a connection.

The upload data packet is defined as follows (UpDataPacket):

```
typedef struct UpDataPacket
```

```
{
```

```
char      IPackType[4];      //Packet type, ASCII characters "P" "U" "D" "T"
```

```
int32     Ideviceld         ; //Sensor ID
```

```
float     Fs;               //Vibration signal sampling frequency
```

```
float     fTemp;            //Sensor temperature (reserved, not started)
```

```
int32     pNum;             //Packet count, increments by 1 for each packet sent, counts again after restart
```

```
int32     ReservedInt32;    //Reserved 4 bytes
```

```
float     vData[116][3];    //3-axis vibration acceleration (g), in order of x/y/z, 116 groups in total
```

```
char      IPackEnd[4];          //Packet end, ASCII characters "P" "E" "N" "D"

}UPDATAPACKET;
```

PUDT
Sensor ID
Fs
fTemp
pNum
Reserved
X acceleration1
Y acceleration1
Z acceleration1
...
X acceleration116
Y acceleration116
Z acceleration116
PEND

The collected vibration data is sent to the server sequentially. Each data packet contains 116 sets of vibration data, each set including vibration acceleration values (expressed in g) along the x, y, and z axes. The server continuously splices these packets in sequence to generate continuous real-time acceleration signals for x, y, and z.

For example (a data packet message is as follows):

```
{

50 55 44 54      ----Packet type, ASCII characters "P" "U" "D" "T"
02 00 00 00      ----Sensor ID number      0002
00 40 9C 47      ----Vibration signal sampling frequency      80000
00 00 00 00      ----Sensor temperature acquisition  not currently supported
47 D2 00 00      ----Packet count  53831
85 1A 00 00      ----Reserved 4 bytes
95 81 B4 3C FC D0 64 3C 32 AF 8F BC .....85 11 30 3C 55 02 EB 3B 4C B7
98 3B           -----3-axis vibration acceleration (g), in order of x/y/z, a total of 116 groups 50
45 4E 44 ----End of packet, ASCII characters "P" "E" "N" "D" }
```