



| | | | | | | | | | |
|--|---|-----------|------------|---------|------|----------|-------|---|------|
|  NISOC | <p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض</p> <p>خرید پکیج کولرهای هوایی ایستگاه تقویت فشار گاز بینک (قرارداد BK-HD-GCS-CO-0015_02)</p> | | | | | | |  | |
| شماره پیمان: 053 – 073 – 9184 | Vibration Switch Data Sheets and Catalogue | | | | | | | شماره صفحه : 1 از 13 | |
| | پروژه | بسته کاری | صادر کننده | تسهیلات | رشته | نوع مدرک | سریال | | نسخه |
| | BK | GCS | AA | 120 | IN | DS | 0002 | | V00 |

طرح نگهداشت و افزایش تولید 27 مخزن




Vibration Switch Data Sheets and Catalogue

نگهداشت و افزایش تولید میدان نفتی بینک

| | | | | | | |
|------|-----------|-------------------------|--------------|-------------|--------------|-----------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| V00 | APR. 2024 | IFA | AAC | M.FAKHARIAN | S.FRAMARZPOR | |
| Rev. | Date | Purpose of Issue/Status | Prepared by: | Checked by: | Approved by: | CLIENT Approval |

Status:



IFA: Issued For Approval
IFI: Issued For Information
AFC: Approved For Construction

| | | | | | | | | | |
|--|---|-----------|------------|---------|------|----------|-------|---|------|
|  NISOC | <p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض</p> <p>خرید پکیج کولرهای هوایی ایستگاه تقویت فشار گاز بینک (قرارداد BK-HD-GCS-CO-0015_02)</p> | | | | | | |  شرکت توسعه پترو ایران  | |
| شماره پیمان: 053 – 073 – 9184 | Vibration Switch Data Sheets and Catalogue | | | | | | | شماره صفحه : 2 از 13 | |
| | پروژه | بسته کاری | صادر کننده | تسهیلات | رشته | نوع مدرک | سریال | | نسخه |
| | BK | GCS | AA | 120 | IN | DS | 0002 | | V00 |

REVISION RECORD SHEET



| PAGE | V00 | V01 | V02 | V03 | V04 |
|------|-----|-----|-----|-----|-----|
| 1 | X | | | | |
| 2 | X | | | | |
| 3 | X | | | | |
| 4 | X | | | | |
| 5 | X | | | | |
| 6 | X | | | | |
| 7 | X | | | | |
| 8 | X | | | | |
| 9 | X | | | | |
| 10 | X | | | | |
| 11 | X | | | | |
| 12 | X | | | | |
| 13 | X | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |
| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
| 33 | | | | | |
| 34 | | | | | |
| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| 43 | | | | | |
| 44 | | | | | |
| 45 | | | | | |
| 46 | | | | | |
| 47 | | | | | |
| 48 | | | | | |
| 49 | | | | | |
| 50 | | | | | |
| 51 | | | | | |
| 52 | | | | | |
| 53 | | | | | |
| 54 | | | | | |
| 55 | | | | | |
| 56 | | | | | |
| 57 | | | | | |
| 58 | | | | | |
| 59 | | | | | |
| 60 | | | | | |
| 61 | | | | | |
| 62 | | | | | |
| 63 | | | | | |
| 64 | | | | | |
| 65 | | | | | |

| PAGE | V00 | V01 | V02 | V03 | V04 |
|------|-----|-----|-----|-----|-----|
| 66 | | | | | |
| 67 | | | | | |
| 68 | | | | | |
| 69 | | | | | |
| 70 | | | | | |
| 71 | | | | | |
| 72 | | | | | |
| 73 | | | | | |
| 74 | | | | | |
| 75 | | | | | |
| 76 | | | | | |
| 77 | | | | | |
| 78 | | | | | |
| 79 | | | | | |
| 80 | | | | | |
| 81 | | | | | |
| 82 | | | | | |
| 83 | | | | | |
| 84 | | | | | |
| 85 | | | | | |
| 86 | | | | | |
| 87 | | | | | |
| 88 | | | | | |
| 89 | | | | | |
| 90 | | | | | |
| 91 | | | | | |
| 92 | | | | | |
| 93 | | | | | |
| 94 | | | | | |
| 95 | | | | | |
| 96 | | | | | |
| 97 | | | | | |
| 98 | | | | | |
| 99 | | | | | |
| 100 | | | | | |
| 101 | | | | | |
| 102 | | | | | |
| 103 | | | | | |
| 104 | | | | | |
| 105 | | | | | |
| 106 | | | | | |
| 107 | | | | | |
| 108 | | | | | |
| 109 | | | | | |
| 110 | | | | | |
| 111 | | | | | |
| 112 | | | | | |
| 113 | | | | | |
| 114 | | | | | |
| 115 | | | | | |
| 116 | | | | | |
| 117 | | | | | |
| 118 | | | | | |
| 119 | | | | | |
| 120 | | | | | |
| 121 | | | | | |
| 122 | | | | | |
| 123 | | | | | |
| 124 | | | | | |
| 125 | | | | | |
| 126 | | | | | |
| 127 | | | | | |
| 128 | | | | | |
| 129 | | | | | |
| 130 | | | | | |

| | | | | | | | | | | |
|---|---|-----------|------------|---------|------|----------|-------|------|---|--|
|  | <p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض</p> <p>خرید پکیج کولرهای هوایی ایستگاه تقویت فشار گاز بینک (قرارداد BK-HD-GCS-CO-0015_02)</p> | | | | | | | |  | |
| <p>شماره پیمان:</p> <p>053 – 073 – 9184</p> | Vibration Switch Data Sheets and Catalogue | | | | | | | | <p>شماره صفحه : 3 از 13</p> | |
| | پروژه | بسته کاری | صادر کننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | | |
| | BK | GCS | AA | 120 | IN | DS | 0002 | V00 | | |

CONTENTS

| | | |
|-----|--|------------------------------|
| 1.0 | INTRODUCTION | 4 |
| 2.0 | VIBRATION SWITCH DATA SHEETS AND CATALOGUE | ERROR! BOOKMARK NOT DEFINED. |

| | | | | | | | | | |
|--|---|-----------|------------|---------|------|----------|-------|---|------|
|  NISOC | <p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض</p> <p>خرید پکیج کولرهای هوایی ایستگاه تقویت فشار گاز بینک (قرارداد BK-HD-GCS-CO-0015_02)</p> | | | | | | |  | |
| شماره پیمان: 053 – 073 – 9184 | Vibration Switch Data Sheets and Catalogue | | | | | | | شماره صفحه : 4 از 13 | |
| | پروژه | بسته کاری | صادر کننده | تسهیلات | رشته | نوع مدرک | سریال | | نسخه |
| | BK | GCS | AA | 120 | IN | DS | 0002 | V00 | |

1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

GENERAL DEFINITION

The following terms shall be used in this document.

| | |
|------------------------------|--|
| CLIENT: | National Iranian South Oilfields Company (NISOC) |
| PROJECT: | Binak Oilfield Development – Manufacturing (w/Engineering & Material Supply) of Air Coolers |
| EPD/EPC CONTRACTOR (GC): | Petro Iran Development Company (PEDCO) |
| OWNER: | OWNER is collectively refer to National Iranian South Oil Company (NISOC) and Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR: | Joint Venture of : Hirgan Energy – Design & Inspection(D&I) Companies |
| VENDOR: | Aban Air Cooler (AAC) |
| EXECUTOR: | Executor is the party which carries out all or part of construction and/or commissioning for the project. |
| THIRD PARTY INSPECTOR (TPI): | Third Party Inspector |
| SHALL: | Is used where a provision is mandatory. |
| SHOULD: | Is used where a provision is advisory only. |
| WILL: | Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR. |
| MAY: | Is used where a provision is completely discretionary. |



PT500 Electro-Mechanical Vibration Switch



PVTVM, Inc.

Email: sales@pvtvm.com, Web: www.pvtvm.com

PVTVM-PT500-CATALOG-E-A-3



PT500 Electro-Mechanical Vibration Switch Introduction

The PT500 is an economical solution to provide basic vibration protection for your rotating or reciprocating machines. The PT500 uses an inertia sensitive mechanism which actuates internal micro-switch contacts when the vibration level exceeds the adjustable set point. The PT 500 start-up delay feature prevents the switch from activating during the higher vibration levels present during the start-up of the machine so that the set point may be adjusted closer to the vibration levels present during normal operation or running speed of the machine.

The PT500 is your “one stop shopping” for all electro-mechanical vibration switch applications. The unique design has all industry required environmental and hazardous area approvals. The E-coat option is suitable for offshore and very corrosive environmental applications. Universal mounting plate will mount in existing mounting holes when replacing older mechanical vibration switches.

Applications include:

- ✓ **Fans**
- ✓ **Cooling Motor/Fans**
- ✓ **Fin Fans**
- ✓ **Heat Exchangers**
- ✓ **Engines**
- ✓ **Reciprocating Compressors**
- ✓ **Centrifuges**
- ✓ **Rock or Coal Crushers**

PT500 Features

- ✓ **Wide operating temperature range of -52°C – 100°C (-62°F – 212°F)**
- ✓ **All industry environmental ratings**
- ✓ **Optional NEMA(E-coat),IP65 environmental rating**
- ✓ **Hazardous area agency approvals CSA, ATEX, CE**



- ✓ **Universal mounting**
- ✓ **Local and remote reset**
- ✓ **Start up delay**
- ✓ **SPDT, (2) SPDT and gold plated contact options**

Specification

Function: Armature mechanism trips on high vibration and operates snap action switch.

Vibration Range: See How to Select “C”

Frequency Range: 0 to 3600 rpm

Set Point Adjust: 0 to 100% of range. Internal set point adjustment.

Local Reset: For field local reset of the switch

Remote reset with Start-up Delay: Applying reset coil voltage at start up holds mechanism from tripping delay about 3 seconds, after which the switch is automatically activated.

Reset Coil Power Supply:

95 - 250VAC@100mA, 50 - 60Hz or

20 - 30VDC @ 200mA

Temperature Limit: -52 °C to +100 °C

Enclosure: Casted Aluminum

Coating: Standard plastic coating on outside of surface, or E-coating for optional on both inside and outside of surfaces and mounting plate (AL alloy).

Mounting stud and local reset are SS304.

Environmental Rating: IP65



Switch Contact(s) Rating:

15A, 125VAC, 250VAC, 480VAC; 1/8 HP 125VAC
1/4 HP 250VAC; 1/2A, 125VDC; 1/4A, 250VDC;
1.5A, 8VDC, 14VDC, 30VDC;
Gold plated contact: 0.1A 125VAC; 0.1A 30VDC

Storage:

The PT500 switches must be stored in a dry area when not installed. Don't move the conduit plug away which can protect the hole thread from damages during the storage and shipping/handling.

Hazard Rating: See order information

IECEX: Ex db IIC T4/T6 Gb
Ex db IIB+H2 T4/T6 Gb
IECEX DEK 16.0002X

IEC 60079-0: 2011
IEC 60079-1: 2014

ATEX: II 2G Ex db IIC T4/T6 Gb
II 2G Ex db IIB+H2 T4/T6 Gb
T4@Ta= -52°C to +100°C
T6@Ta= -52°C to +70°C
DEKRA 16ATEX0003X

EN 60079-0: 2012
EN 60079-1: 2014

TR CU : 1Ex db IIC T4, T6X Gb
1Ex db IIB+H2T4, T6 X Gb
№ TC RU C-US.AA87.B.01024
NANIO CCVE

GOST 31610.0-2014 (IEC 60079-0: 2011) Explosive atmospheres. Part 0. Equipment. General requirements and GOST IEC 60079-1-2013 Explosive media. Part 1. Equipment with type of protection "flameproof enclosure" d".

Physical

Temperature

Operation: -52°C - + 100°C (-62°F - +212°F)
Storage: -52°C - + 120°C (-62°F - +248°F)

Dimension

See attached drawing

Weight

| | |
|--------------------|-----------------|
| PT500 | 1285g (2.8 lbs) |
| PT500-13 | 205g (0.45 lbs) |
| PT500-14 | 279g (0.6 lbs) |
| PT500-15(PT500-17) | 440g (0.97 lbs) |
| PT500-20 | 112g (0.25 lbs) |

Order Information

PT500-ABC-DE*

A: Hazardous Area Approvals

A = 0: CE Mark

A = 1: Multiple Approvals (D=0, 1)

CSA: Class I, Div 1, Groups B, C & D T4, T6

CERTIFICATE: 2079756

ATEX: II 2G Ex db IIB+H2 T4/T6 Gb

T4@Ta= -52°C to +100°C

T6@Ta= -52°C to +70°C

DEKRA 16ATEX0003X

IECEX: Ex db IIB+H2 T4/T6 Gb

IECEX DEK 16.0002X

PCEC: Ex d II B+ H2T4/T6 Gb

CE Mark

A = 5: Multiple Approvals (D=5)

CSA: Class I, Div 1, Groups A, B, C & D, T4, T6

CERTIFICATE: 2079756

ATEX: II 2G Ex db IIC T4/T6 Gb

T4@Ta= -52°C to +100°C

T6@Ta= -52°C to +70°C

DEKRA 16ATEX0003X

IECEX: Ex db IIC T4/T6 Gb

IECEX DEK 16.0002X

PCEC: Ex d II C T4/T6 Gb

CE Mark

A = 6: Multiple approvals (D=0, 1):

TR CU: 1Ex db IIB+H2T4, T6 X Gb

CE Mark

A = 7: Multiple approvals (D=5):

TR CU: 1Ex db IIC T4, T6 X Gb

CE Mark

B: Relay Contact

B = 1: SPDT

B = 2: (2) SPDT

B = 3: SPDT (gold plated contact)

B = 4: (2) SPDT (gold plated contact)

C: Full Scale

C = 1: 5g

C = 2: 2g

C = 3: 10g

D: Reset Power with Start-up Inhibit; Local Reset

D = 0: Local Reset only

D = 1: Remote Reset and Inhibit; Local Reset

D = 5: Remote Reset and Inhibit; No Local Reset

E: Conduit Entries/Mounting Plate or Mounting Stud

E = 1: 3/4" NPT, Mounting Plate PT500-13



PT500 Electro-Mechanical Vibration Switches

E = 2: 3/4" NPT, Mounting Plate PT500-14

E = 4: M20×1.5, Mounting Plate PT500-14

E = 5: M20×1.5, Mounting Plate PT500-13

E = 6: 3/4" NPT, Mounting Stud 3/4" NPT

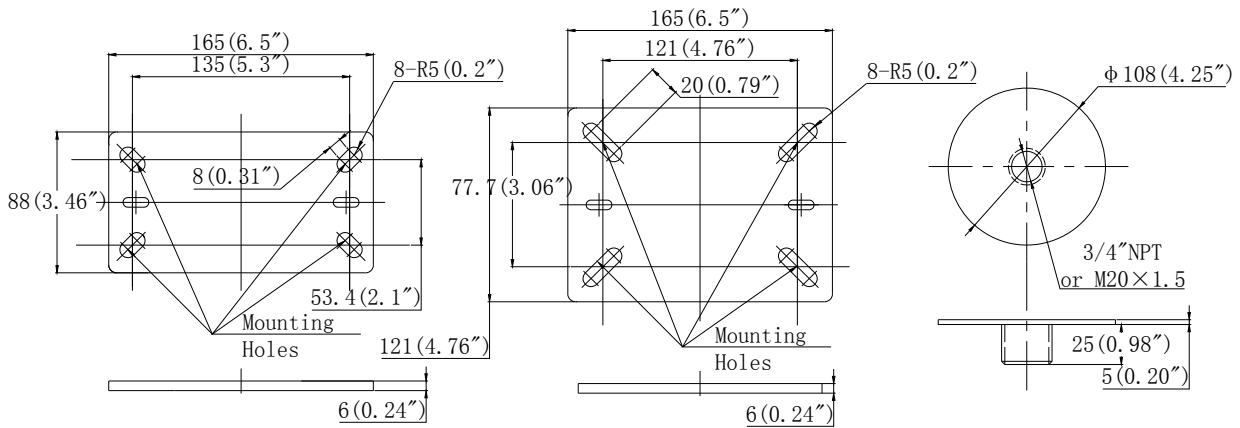
E = 7: M20×1.5, Mounting Stud M20×1.5

Note:

* If E-coating is required, add the suffix "E" at the end of part number. For example: PT500-122-15E.

Accessories

Mounting Plate and mounting studs:



PT500-13

PT500-14

All dimensions in mm (inches)

PT500-15 (3/4" NPT)

PT500-17 (M20 x 1.5)



3/4" NPT seal
PT500-18



3/4" NPT cable feedthrough
PT500-19



Blank cover
PT500-3



Remote reset circuit
PT500-20



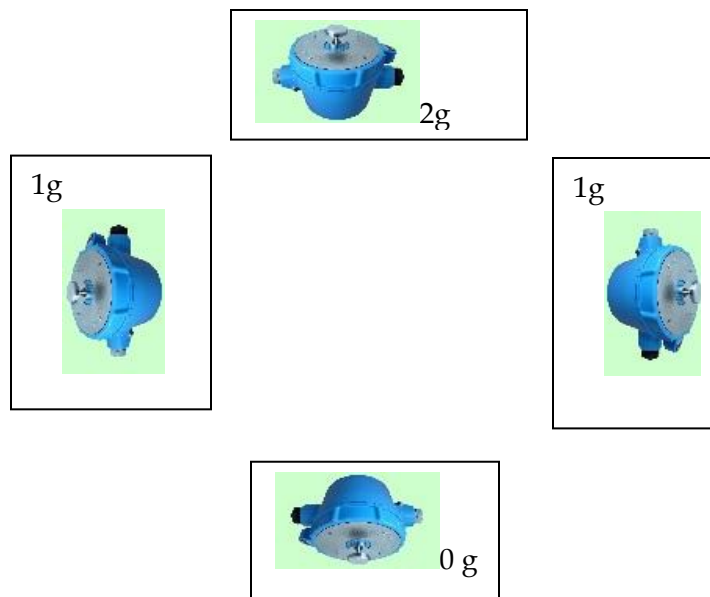
PT500 installation and adjustment with different positions

The PT500 Provibtech mechanical switch manufacturing with a default 2 g full scale vibration. To set the vibration point when the internal micro switch contacts actuates at vibration exceed set point it depend on how the PT500 installed. It is recommended to install the switch horizontally (face up) which is our standard but it is possible to install it vertically or horizontal (face down) but the adjust point will be different in each point for same vibration level. In another words, it will need to be calibrated in each position to get a trip at for example 2g.

Basically, with horizontal position (face up), as explained before it manufactured with 2g full scale as default. To change the vibration full scale range then there is a set point adjustment shown in attached document. If you turn the adjustment clockwise for 1/8 turn then you will get 3g and if you turn it anticlockwise then you will get 1g.

How to do adjustment please check attached document and while this is a mechanical switch then there is +/- percentage small error.

In case it installed in a different position then the full scale set point will be different. Basically how to compare it please see below:





So, from above it can be seen 2 g with face up will be considered as 1 g with vertical installation and 0 g with face down and that will be your starting point and from that point you can adjust the switch according to any position and full scale desired.

If the unit already installed then you have to turn the set point anticlockwise till there is contact all the time (latching). From that point start to do the number of turns according to your full scale.