

Model: CAT2

*Versatile DC or AC Transmitter
(Can Be Interfaced With Any Hoffer Flow Sensor)*

USER'S MANUAL



**HP-311
June 2018**

HOFFER
Flow Controls
Perfecting Measurement™

107 Kitty Hawk Lane • P.O. Box 2145 • Elizabeth City, NC 27909
1-800-628-4584 • (252) 331-1997 • Fax (252) 331-2886
www.hofferflow.com email: info@hofferflow.com

NOTICE

HOFFER FLOW CONTROLS, INC. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

This manual has been provided as an aid in installing, connecting, calibrating, operating, and servicing this unit. Every precaution for accuracy has been taken in the preparation of this manual; however, HOFFER FLOW CONTROLS, INC. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that may result from the use of the products in accordance with information contained in the manual.

HOFFER FLOW CONTROLS' policy is to provide a user manual for each item supplied. Therefore, all applicable user manuals should be examined before attempting to install or otherwise connect a number of related subsystems.

During installation, care must be taken to select the correct interconnecting wiring drawing. The choice of an incorrect connection drawing may result in damage to the system and/or one of the components.

Please review the complete model number of each item to be connected and locate the appropriate manual(s) and/or drawing(s). Identify all model numbers exactly before making any connections. A number of options and accessories may be added to the main instrument, which are not shown on the basic user wiring. Consult the appropriate option or accessory user manual before connecting it to the system. In many cases, a system wiring drawing is available and may be requested from HOFFER FLOW CONTROLS.

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HOFFER FLOW CONTROLS' policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering. The information contained in this document is subject to change without notice.

Return Requests / Inquiries

Direct all warranty and repair requests/inquiries to the Hoffer Flow Controls Customer Service Department, telephone number (252) 331-1997 or 1-800-628-4584. **BEFORE RETURNING ANY PRODUCT(S) TO HOFFER FLOW CONTROLS, PURCHASER MUST OBTAIN A RETURNED MATERIAL AUTHORIZATION (RMA) NUMBER FROM HOFFER FLOW CONTROLS' CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).** The assigned RMA number should then be marked on the outside of the return package and on any correspondence.

FOR **WARRANTY** RETURNS, please have the following information available **BEFORE** contacting HOFFER FLOW CONTROLS:

1. P.O. number under which the product was **PURCHASED**,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS OR CALIBRATIONS, consult HOFFER FLOW CONTROLS for current repair/ calibration charges. Have the following information available **BEFORE** contacting HOFFER FLOW CONTROLS:

1. P.O. number to cover the **COST** of the repair/calibration,
2. Model and serial number of the product and
3. Repair instructions and/or specific problems relative to the product.

Limited Warranty

HOFFER FLOW CONTROLS, INC. ("HFC") warrants HFC's products ("goods") described in the specifications incorporated in this manual to be free from defects in material and workmanship under normal use and service, but only if such goods have been properly selected for the service intended, properly installed and properly operated and maintained. This warranty shall extend for a period of one (1) year from the date of delivery to the original purchaser (or eighteen (18) months if the delivery to the original purchaser occurred outside the continental United States). This warranty is extended only to the original purchaser ("Purchaser"). *Purchaser's sole and exclusive remedy is the repair and/or replacement of nonconforming goods as provided in the following paragraphs.*

In the event Purchaser believes the goods are defective, the goods must be returned to HFC, transportation prepaid by Purchaser, within twelve (12) months after delivery of goods (or eighteen (18) months for goods delivered outside the continental United States) for inspection by HFC. If HFC's inspection determines that the workmanship or materials are defective, the goods will be either repaired or replaced, at HFC's sole determination, free of additional charge, and the goods will be returned, transportation paid by HFC, using the lowest cost transportation available.

Prior to returning the goods to HFC, Purchaser must obtain a Returned Material Authorization (RMA) Number from HFC's Customer Service Department within 30 days after discovery of a purported breach of warranty, but no later than the warranty period; otherwise, such claims shall be deemed waived. See the Return Requests/Inquiries Section of this manual.

If HFC's inspection reveals the goods are free of defects in material and workmanship or such inspection reveals the goods were improperly used, improperly installed, and/or improperly selected for service intended, HFC will notify the purchaser in writing and will deliver the goods back to Purchaser upon (i) receipt of Purchaser's written instructions and (ii) the cost of transportation. If Purchaser does not respond within thirty (30) days after notice from HFC, the goods will be disposed of in HFC's discretion.

HFC does not warrant these goods to meet the requirements of any safety code of any state, municipality, or other jurisdiction, and Purchaser assumes all risk and liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines or apparatus.

This warranty shall not apply to any HFC goods or parts thereof, which have been repaired outside HFC's factory or altered in any way, or have been subject to misuse, negligence, or accident, or have not been operated in accordance with HFC's printed instructions or have been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such goods.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HFC SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE RESULTING, DIRECTLY OR INDIRECTLY, FROM THE USE OR LOSS OF USE OF THE GOODS. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THIS EXCLUSION FROM LIABILITY EMBRACES THE PURCHASER'S EXPENSES FOR DOWNTIME OR FOR MAKING UP DOWNTIME, DAMAGES FOR WHICH THE PURCHASER MAY BE LIABLE TO OTHER PERSONS, DAMAGES TO PROPERTY, AND INJURY TO OR DEATH OF ANY PERSONS. HFC NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF HFC'S GOODS, AND THERE ARE NO ORAL AGREEMENTS OR WARRANTIES COLLATERAL TO OR AFFECTING THE AGREEMENT. *PURCHASER'S SOLE AND EXCLUSIVE REMEDY IS THE REPAIR AND/OR REPLACEMENT OF NONCONFORMING GOODS AS PROVIDED IN THE PRECEDING PARAGRAPHS. HFC SHALL NOT BE LIABLE FOR ANY OTHER DAMAGES WHATSOEVER INCLUDING INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.*

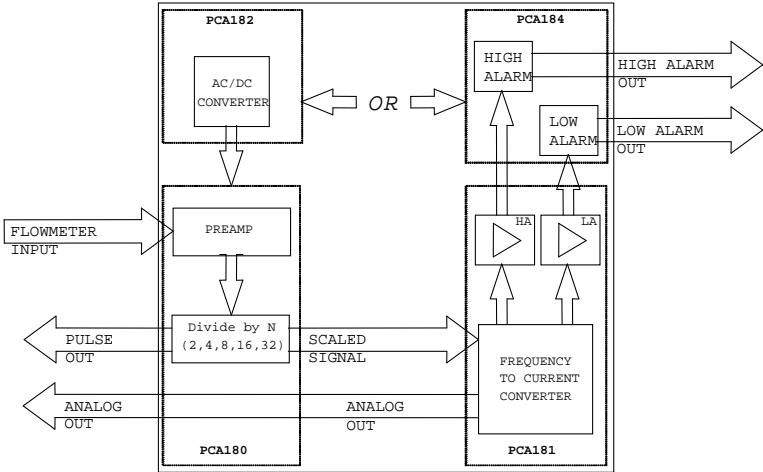
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1. INTRODUCTION

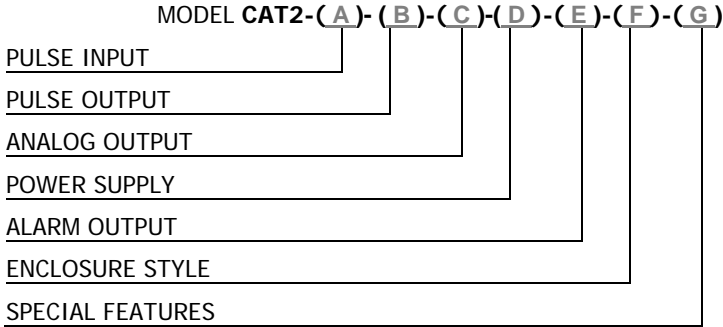
The CAT2 is a versatile DC or AC powered transmitter, which provides pulse output, analog output and High/Low flow alarm options. Up to 3 circuit boards may be installed to provide a variety of input/output options.

CAT2 Block Diagram



Many enclosure options are available including the standard extruded aluminum enclosure, an optional bracket for DIN rail mounting or direct flowmeter mounting using an optional NEMA 4X or EX enclosure.

1.1 Model Number Designation



PULSE INPUT

MODEL CAT2-(A)-()-()-()-()-()-()

OPTION (A)

- (1) MAG COIL, PULSE, DRY CONTACT
- (2) MC3P
- (3) ISOLATED PULSE, RPM, RPR COILS

PULSE OUTPUT

MODEL CAT2-()-(B)-()-()-()-()-()

OPTION (B)

- (1) 0-5V TTL / CMOS
- (2) OPEN COLLECTOR
- (3) OPEN COLLECTOR WITH PULL UP TO V+
- (4) AC SQUARE WAVE
- (5) 0-10V SQUARE WAVE

ANALOG OUTPUT

MODEL CAT2-()-()-(C)-()-()-()-()

OPTION (C)

- (1) 4-20 MA
- (3) 0-5 VDC
- (4) 0-10 VDC
- (5) 1-5 VDC

POWER SUPPLYMODEL CAT2-()-()-()-(D)-()-()-()OPTION (D)

(DC) 13-30 VDC

(AC) 100-240 VAC

**NOTE: WHEN (AC) IS SELECTED, THE ALARM OPTION IS NOT AVAILABLE.
USE REMOTE ACC39B POWER SUPPLY.**

ALARM OUTPUTMODEL CAT2-()-()-()-()-(E)-()-()OPTION (E)

- (1) HIGH / LOW OPEN COLLECTOR
- (2) HIGH / LOW TTL / CMOS
- (3) HIGH / LOW RELAY TWO SPDT, CONTACT RATED @ 2A 30V
- (4) HIGH OPEN COLLECTOR
- (5) HIGH TTL / CMOS
- (6) HIGH RELAY ONE SPDT, CONTACT RATED @ 2A 30V
- (7) LOW OPEN COLLECTOR
- (8) LOW TTL / CMOS
- (9) LOW RELAY ONE SPDT, CONTACT RATED @ 2A 30V

**NOTE: WHEN ALARM OPTION IS SELECTED, (AC) POWER IS NOT AVAILABLE.
USE REMOTE ACC39B POWER SUPPLY.**

ENCLOSURE STYLEMODEL CAT2-()-()-()-()-()-(F)-()OPTIONS (F)

- (1) GENERAL PURPOSE.
2.6"L X 2.6"H X 2.6"W MINIMUM MOUNTING SPACE.
- (D) 2" LONG DIN RAIL MOUNT SINGLE UNIT.
UP TO 20 CAT2 UNITS CAN BE MOUNTED
ON A SINGLE RAIL. ADD 2" PER UNIT.
- (E3) EXPLOSION-PROOF (ALL CONDUIT PORTS ARE ¾" FNPT)
- (E3M) EXPLOSION-PROOF (CONDUIT PORTS D2 & D3 = M20 THR'D;
- (E4)* EXPLOSION-PROOF - FOR USE WITH AC POWERED CAT ONLY
(NOT Ex d SYSTEM CERTIFIED)
***FOR Ex d CERTIFIED SYSTEM USE E6 OR E6M ENCLOSURE**
- (E6) EXPLOSION-PROOF STAINLESS STEEL
(ALL CONDUIT PORTS ARE ¾"FNPT)
- (E6M) EXPLOSION-PROOF STAINLESS STEEL (M20 NOT AVAILABLE FOR CANADA)

NOTE: FOR UL LISTED EXPLOSION-PROOF APPLICATIONS CONTACT FACTORY.

SPECIAL FEATURES

MODEL CAT2-()-()-()-()-()-()-(G)

OPTIONS (G)

(CE) MARK REQUIRED FOR EUROPE

(SP) ANY SPECIAL FEATURES THAT ARE NOT COVERED IN THE MODEL NUMBER, USE A WRITTEN DESCRIPTION OF THE –SP.

(CFX) 6.75" LONG RISER AND UNION FOR EXPLOSION-PROOF **SYSTEM CERTIFIED ENCLOSURES** MOUNTED ON TURBINE. USED WITH “X” RISER TURBINE OPTION AND (EX) SPECIAL FEATURES OPTION UNDER FLOWMETERS.

NOTE: IF PROCESS TEMP IS < -40°C AND > 79°C, EX-PROOF ENCLOSURE MUST BE MOUNTED REMOTELY.

(C) REMOTED MOUNTED FOR EXPLOSION-PROOF **SYSTEM CERTIFIED ENCLOSURE**

NOTE: “X” RISER, CERTIFIED UNION, REDUCER AND ENCLOSURE (TO BE SPECIFIED) MOUNTED ON FLOWMETER.

(X) NO SPECIAL FEATURES

STYLE E3, E3M, E6 AND E6M SYSTEM CERTIFIED RATINGS

- CSA/FM: CLASS I, DIV. 1, GR. BCD; CLASS II, DIV. 1, GR. EFG;
CLASS III, TYPE 4X,
CLASS 1 ZONE 1 AEx db IIB + H2 T6/T5 Gb,
Ex d IIB+H2 T6/T5; Gb; Ex tb T80°C/T86°C IIIC Db; IP66
CLASS I, ZONE 21 AEx tb T80°C/T86°C IIIC Db; IP 66

- ATEX/IECEx: II 2 G Ex db IIB + H2, T6/T5 Gb
II 2 D Ex tb IIIC T80°C/T86°C Db; IP66
T6: -40°C ≤ Ta ≤ 79°C; T5: -40°C ≤ Ta ≤ 85°C

- NOTES:**
- 1. IF ENCLOSURE IS MOUNTED ON TURBINE FLOWMETER, RISER MUST BE SPECIFIED ON METER.**
 - 2. PULSE SCALING IS SUPPLIED AS A STANDARD. THE PULSE OUTPUT IS SCALED SO THAT THE MAX FLOW IS BETWEEN 75-150 HZ WHEN THE ANALOG OPTION IS SELECTED.**

2. SPECIFICATIONS

General Specifications

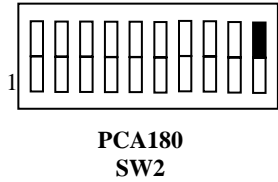
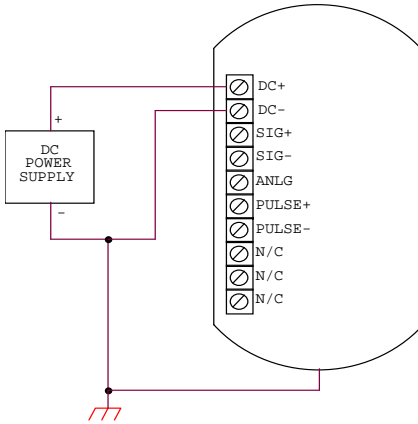
Input Signal Type:	Magnetic pick up, MCP pick up, Contact Closure, Pulse
Input frequency range:	0.2 Hz to 4 KHz
Signal level:	10 mV rms to 30 Vdc
Power supply:	13-30 Vdc (Reverse polarity protected) 100-240 Vac (Fuse rating 0.5A, 250 Vac)
Analog Output:	4-20mA, 1-5V, 0-5V, 0-10V
Load resistance:	Max 550 Ohms at 24 Vdc
Accuracy:	+/- 0.1% of full scale @ 20° C
Temperature drift:	200ppm/deg C
Pulse output	0-5, 0-10V, Open Collector, AC square Internal pull-up resistor 2.7k Ohms Recommended load min. 50k Ohms
Pulse scaling	Divide by 2, 4, 8, 16, 32
Hi/Lo Alarm	Relay (2A, 30, Vdc), 0-5V, Open Collector (0.5A, 30V)
Operating temperature:	T5 and STD: $-40^{\circ} \leq T_a \leq 85^{\circ} \text{ C}$ T6: $-40^{\circ} \leq T_a \leq 79^{\circ} \text{ C}$
Humidity:	0-90% Non-condensing
Enclosure:	Extruded aluminum DIN rail mount Explosion Proof
Regulatory:	CE compliant

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3. INSTALLATION

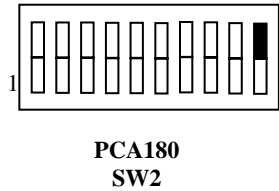
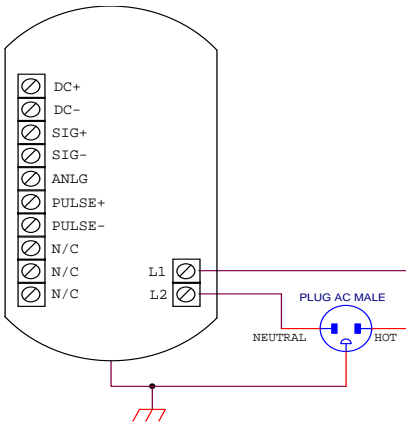
3.1 Power Supply

DC Power (13-30 VDC)



AC Power (100-240 VAC)

AC power for CAT2 requires an optional circuit board, PCA182. The Alarm option (PCA184) is not available when the AC Power option is equipped.

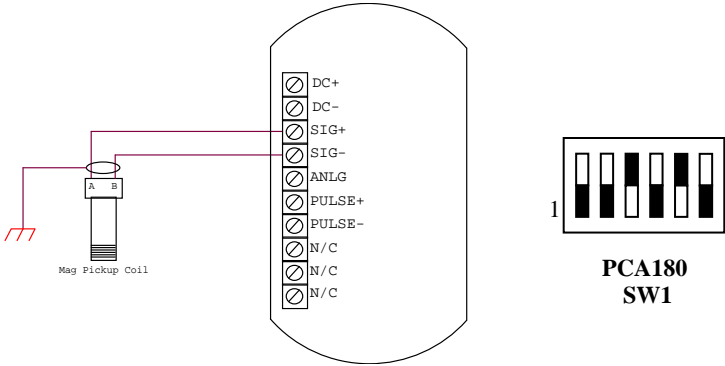


Specification 8

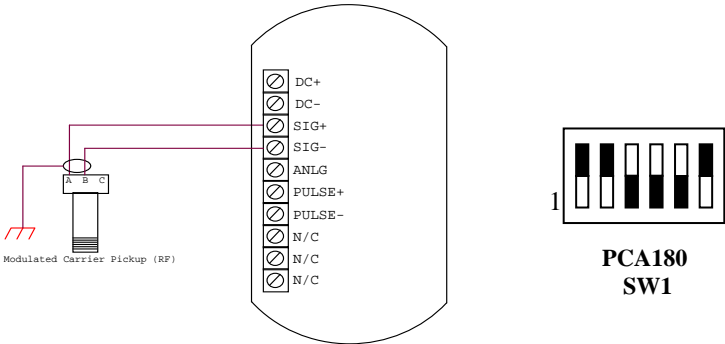
3.2 Flowmeter Input

The Preamp circuitry for conditioning the flow signal is located on PCA180. The following drawings illustrate typical connections and switch settings on PCA180 for various input signals.

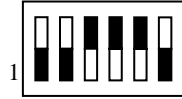
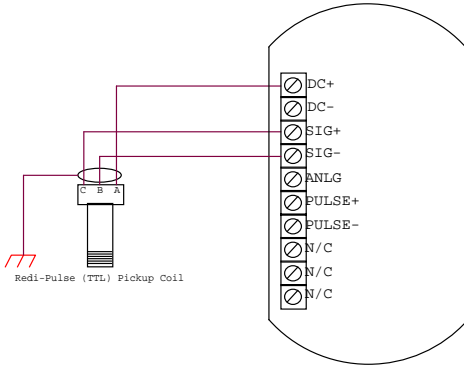
Magnetic Pickup Coil



MCP/RF Coil

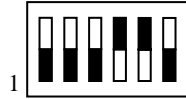
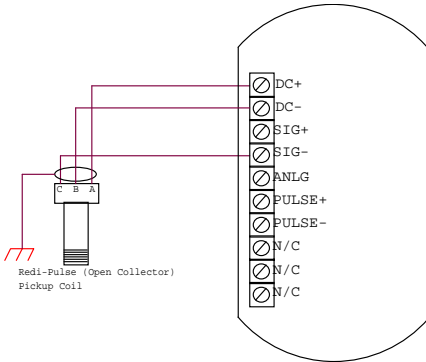


Redi-Pulse (TTL Pulse)



**PCA180
SW1**

Redi-Pulse (Open Collector)



**PCA180
SW1**

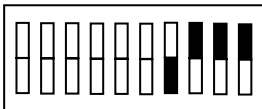
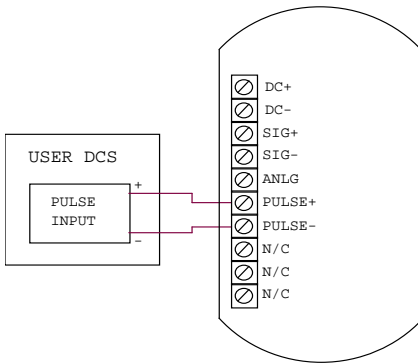
3.3 Pulse Output

The pulse output circuitry for CAT2 is located on PCA180. The pulse output is scalable by a factor of 1, 2, 4, 8, 16 and 32 of the input frequency by selecting the proper switch on SW2. Scaling of the pulse output may be limited if an analog output is used in conjunction with the pulse output. The following drawings illustrate typical connections and switch settings for various pulse output options.

Pulse Scaling

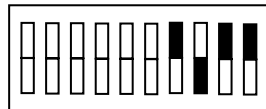
Scaling Factor (Divide by N of Input)	Switch Setting (SW2, PCA180)
1	SW2-1 ON
2	SW2-2 ON
4	SW2-3 ON
8	SW2-4 ON
16	SW2-5 ON
32	SW2-6 ON

TTL(0-5V), 0-10V, High Level (DC In), AC Square



**PCA180
SW2**

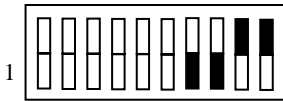
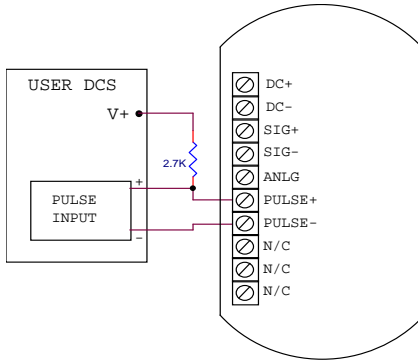
TTL(0-5V), 0-10V, AC Square



**PCA180
SW2**

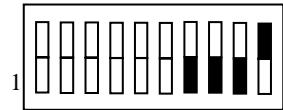
High Level Pulse, AC Square

Open Collector, Isolated Pulse



**PCA180
SW2**

Open Collector



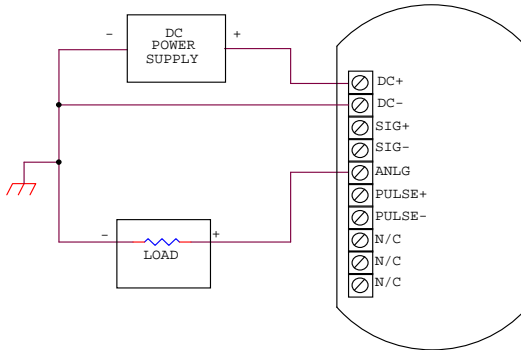
**PCA180
SW2**

Isolated Pulse

3.4 Analog Output

CAT2 provides an Analog Output option that will output an analog current or voltage that is proportional to the flow rate. The Analog Output for CAT2 requires an optional circuit board, PCA181.

Analog Output



The input frequency is scaled using SW2 on PCA180 so that the preamp output frequency at max flow is between 75 and 150 Hz. For example, if the max flow input signal is 1,000 Hz, SW2-4 should be in the ON position to divide the preamp signal by 8 so that the max frequency out of the preamp is 125 Hz. Refer to the table in the previous section for the appropriate switch settings. If the Pulse Output option is used in conjunction with the Analog Output, the Pulse Output frequency will be limited by this scaling factor.

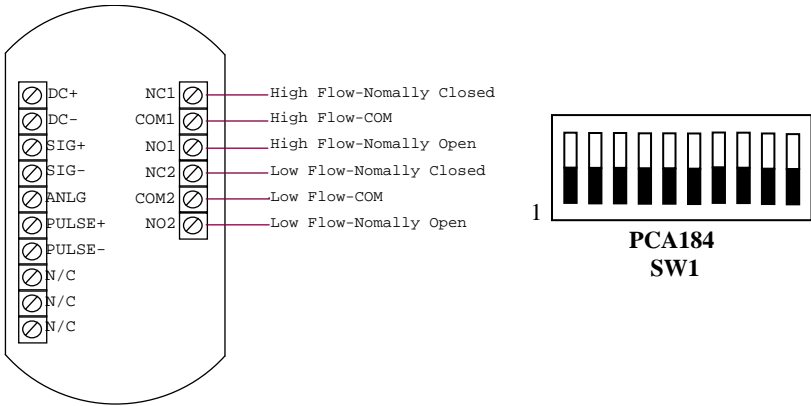
There are 3 potentiometers on PCA181 for ZERO and SPAN adjustment. The ZERO pot adjusts the no flow output, while COURSE SPAN and FINE SPAN adjusts the max flow output. All pots are labeled accordingly on the circuit board and may be accessed by removing the top plate from CAT2. The 0-20mA, 0-5V and 0-10V options require no ZERO adjustment. Contact the factory for detailed calibration instructions before making any adjustments.

Analog Output Response Time: The analog output response time to reach steady state due to a change in the flow rate is approximately two (2) seconds.

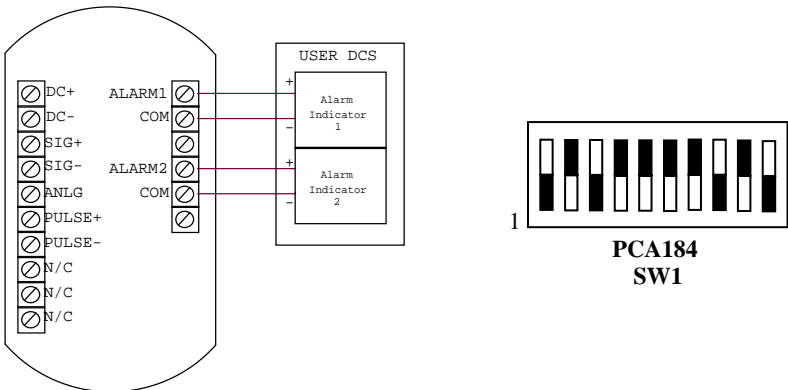
3.5 Alarm Outputs

CAT2 provides an optional High/Low Flow Alarm feature. The Alarms require an optional circuit board, PCA184. The Alarm option is not available when the AC Power option is equipped. The following drawings illustrate typical connections and switch settings for various alarm output options.

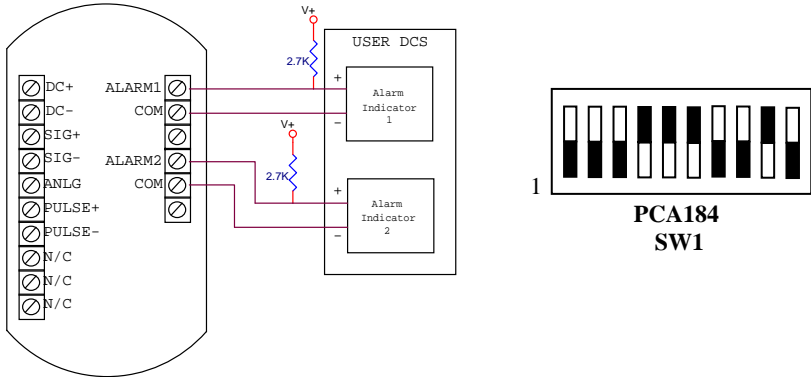
Hi/Lo Alarm Relay



Hi/Lo Alarm TTL(0-5V)



Hi/Lo Alarm Open Collector



3.6 Wiring Note

When installing CAT2, it is a good practice to use shielded cables for all input and output signals. The shield should be connected to the earth ground lug on the CAT2. The shield on the opposite end of the cable should be left open. Connections are made to the CAT2 terminal blocks using wire gauges 16 to 28 AWG and 12 to 26 AWG (AC Power), tightening Torque 0.22 to 0.25Nm.

This wiring practice is mandatory in order to comply with the requirements for Electromagnetic Compatibility, as per EMC-Directive 2014/30/EU of the Council of European Community.

APPENDIX A – Declaration of Conformity**EU Declaration of Conformity – CAT Series Transmitters**

Manufacturer: Hoffer Flow Controls Inc, 107 Kitty Hawk Ln, Elizabeth City, NC 27909

Equipment: Flame Proof Transmitters

Designation/Model: CAT1-X-X-X-X, CAT2-X-X-X-X-X-X and CAT3-X-X-X-X-X-X

NOTE: "X" in Model number may be any combination of numbers and characters representing specific options.

Marking: With Aluminum Explosion Proof Enclosure

Class I, Division 1, Groups BCD; Class II, Division 1, Groups E,F,G; Class III; Type 4X;

Ex d IIB+H₂ T6/T5; Gb; Ex tb T80°C/T86°C IIIC Db; IP66;

Class I, Zone 1, AEx db IIB+H₂ T6/T5; Gb; Class I, Zone 21, AEx tb T80°C/T86°C IIIC Db; IP66:

II 2 G Ex db IIB+H₂ T6/T5 Gb

II 2 D Ex tb IIIC T80°C/T86°C Db IP66

T6 = -40°C to +79°C; T5 = -40°C to +85°C

Seal within 50mm of enclosure.

Marking: With Stainless Steel Enclosure

Class I, Division 1, Groups BCD; Class II, Division 1, Groups E,F,G; Class III; Type 4X;

Ex d IIB+H₂ T6/T5; Gb; Ex tb T80°C/T86°C IIIC Db; IP66;

Class I, Zone 1, AEx db IIB+H₂ T6/T5; Gb; Class I, Zone 21, AEx tb T80°C/T86°C IIIC Db; IP66:

II 2 G Ex db IIB+H₂ T5/T6 Gb

II 2 D Ex tb IIIC T86°C Db IP66

T6 = -40°C to +79°C; T5 = -40°C to +85°C

Seal within 18" of enclosure.



We hereby declare that the product, which is subject of this declaration, is in conformity with the following standards:

ATEX	ATEX Directive 2014/34/EU: Equipment and protective systems intended for use in potentially explosive atmospheres. Applicable Standards - EN 60079-0:2012/A11:2013; EN 60079-1:2014 and EN 60079-31:2014	EC-Type Examination Certificate: Sira 16 ATEX 1086 X
CSA	Applicable CSA Requirements: CSA C22.2 No. 0-10, CSA C22.2 no. 142-M1987, CSA C22.2 No. 25-1966 (R2014), CSA C22.2 No. 30-M1986 (R2012), UL 508, CAN-CSA 60079-0:11, 60079-1:11 60079-39:12, FM 3600, FM 3615, FM 3616, UL 60079-0:2013, 60079-1: 2015 and 60079-31:2015	CSA-Type Examination Certificate:
IECEx	IEC Certification for Explosive Atmospheres. Applicable Standards IEC 60079-0:2011 IEC 60079-1:2014 and IEC 60079-31:2013	IECEx CSA 16.0016X

EC-Type Examination Certificate and IECEx Certificate issued by:

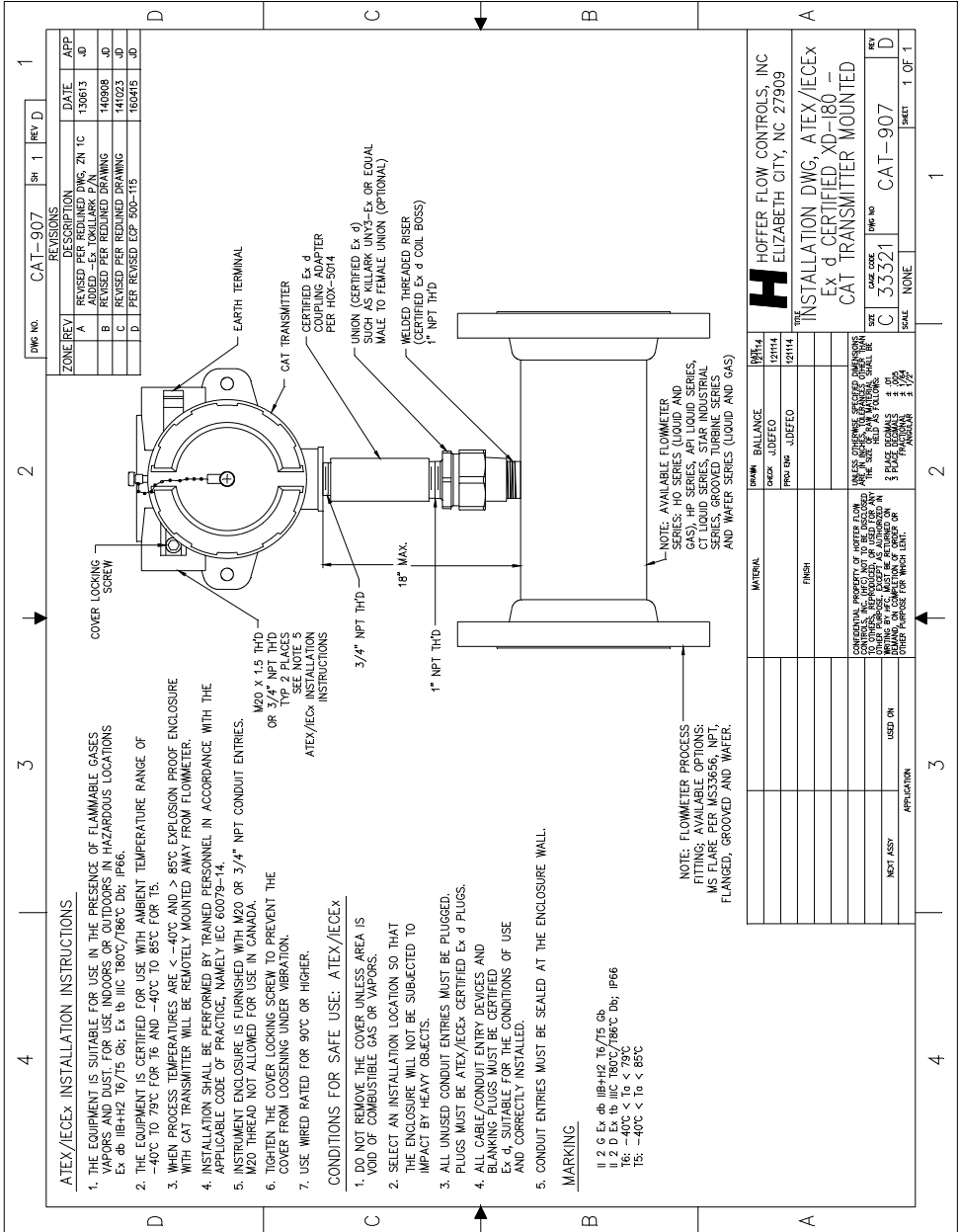
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein
D-51105 Köln
Country : Germany

Notified Body Number: 0035

CSA-Type Examination Certification issued by:

CSA Group Testing & Certification Inc.
Edmonton, AB, Canada T6N 1E6

**APPENDIX B – Installation and Conditions for Safe
Use Drawings for Certified Systems**



ZONE	REV	DESCRIPTION	DATE	APP
A	REVISED PER REDUCED DWG. ZN 1C		130613	JD
B	REVISED PER REDUCED DRAWING		140808	JD
C	REVISED PER REDUCED DRAWING		141023	JD
D	PER REVISED EGP 500-115		160415	JD

DWG NO.	CAT-907	SH	1	REV	D
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DATE	130613	APP	JD
REVISED PER REDUCED DWG. ZN 1C			
REVISED PER REDUCED DRAWING			
REVISED PER REDUCED DRAWING			
PER REVISED EGP 500-115			

DRWN	BALANCE	12/114
CHECK	JUDEFO	12/114
PRO-DWG	JUDEFO	

MATERIAL	FINISH	CONSTRUCTION
		CONSTRUCTION SHALL BE AS PER ALLOWED BY THE MANUFACTURER'S DRAWINGS. THE SIZE SHALL BE AS ALLOWED BY THE MANUFACTURER'S DRAWINGS. 3 PLACE DECIMALS MINIMUM. 1/16 INCH INCREMENTS. OTHER PURPOSES FOR WHICH INT.

NOT INST.	USED ON	APPLICATION

ATEX/IECEx INSTALLATION INSTRUCTIONS

1. THE EQUIPMENT IS SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE GASES, VAPORS AND DUST, FOR USE INDOORS OR OUTDOORS IN HAZARDOUS LOCATIONS. Ex db IIB+H2 T6/T5 Gb. Ex tb IIC T80C/T86C Db; IP66.
2. THE EQUIPMENT IS CERTIFIED FOR USE WITH AMBIENT TEMPERATURE RANGE OF -40°C TO 75°C FOR T6 AND -40°C TO 85°C FOR T5.
3. WHEN PROCESS TEMPERATURES ARE < -40°C AND > 85°C EXPLOSION PROOF ENCLOSURE WITH CAT TRANSMITTER WILL BE REMOTELY MOUNTED AWAY FROM FLOWMETER.
4. INSTALLATION SHALL BE PERFORMED BY TRAINED PERSONNEL IN ACCORDANCE WITH THE APPLICABLE CODE OF PRACTICE, NAMELY IEC 60079-14.
5. INSTRUMENT ENCLOSURE IS FURNISHED WITH M20 OR 3/4" NPT CONDUIT ENTRIES.
6. TIGHTEN THE COVER LOCKING SCREW TO PREVENT THE COVER FROM LOOSENING UNDER VIBRATION.
7. USE WIRE RATED FOR 90°C OR HIGHER.

CONDITIONS FOR SAFE USE: ATEX/IECEx

1. DO NOT REMOVE THE COVER UNLESS AREA IS VOID OF COMBUSTIBLE GAS OR VAPORS.
2. SELECT AN INSTALLATION LOCATION SO THAT THE ENCLOSURE WILL NOT BE SUBJECTED TO IMPACT BY HEAVY OBJECTS.
3. ALL UNUSED CONDUIT ENTRIES MUST BE PLUGGED. PLUGS MUST BE ATEX/IECEx CERTIFIED Ex d PLUGS.
4. ALL CABLE/CONDUIT ENTRY DEVICES AND BLANKING PLUGS MUST BE CERTIFIED Ex d, SUITABLE FOR THE CONDITIONS OF USE AND CORRECTLY INSTALLED.
5. CONDUIT ENTRIES MUST BE SEALED AT THE ENCLOSURE WALL.

MARKING

- 1: 6 Ex db IIB+H2 T6/T5 Gb
- 2: 6 Ex db IIC T80C/T86C Db; IP66
- 16: -40°C < T6 < 75°C
- 15: -40°C < T5 < 85°C

NOTE: FLOWMETER PROCESS FITTING; AVAILABLE OPTIONS: MS FLARE PER MSS3056, NPT, FLANGED, GROOVED AND WATER.

NOTE: AVAILABLE FLOWMETER SERIES: HP LIQUID SERIES, STAR INDUSTRIAL CT LIQUID SERIES, GROOVED TURBINE SERIES, AND WATER SERIES (LIQUID AND GAS).

DRWN	BALANCE	12/114
CHECK	JUDEFO	12/114
PRO-DWG	JUDEFO	

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NOT INST.	USED ON	APPLICATION

DATE	130613	APP	JD
REVISED PER REDUCED DWG. ZN 1C			
REVISED PER REDUCED DRAWING			
REVISED PER REDUCED DRAWING			
PER REVISED EGP 500-115			

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CHECK	JUDEFO	12/114
PRO-DWG	JUDEFO	

HOFFER FLOW CONTROLS, INC
ELIZABETH CITY, NC 27809

INSTALLATION DWG, ATEX/IECEx
Ex d CERTIFIED X0-180 -
CAT TRANSMITTER MOUNTED

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REVISED PER REDUCED DWG. ZN 1C			
REVISED PER REDUCED DRAWING			
REVISED PER REDUCED DRAWING			
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