

SERIE ALCC-x - RELAY OUTPUT TYPE TILT SWITCH

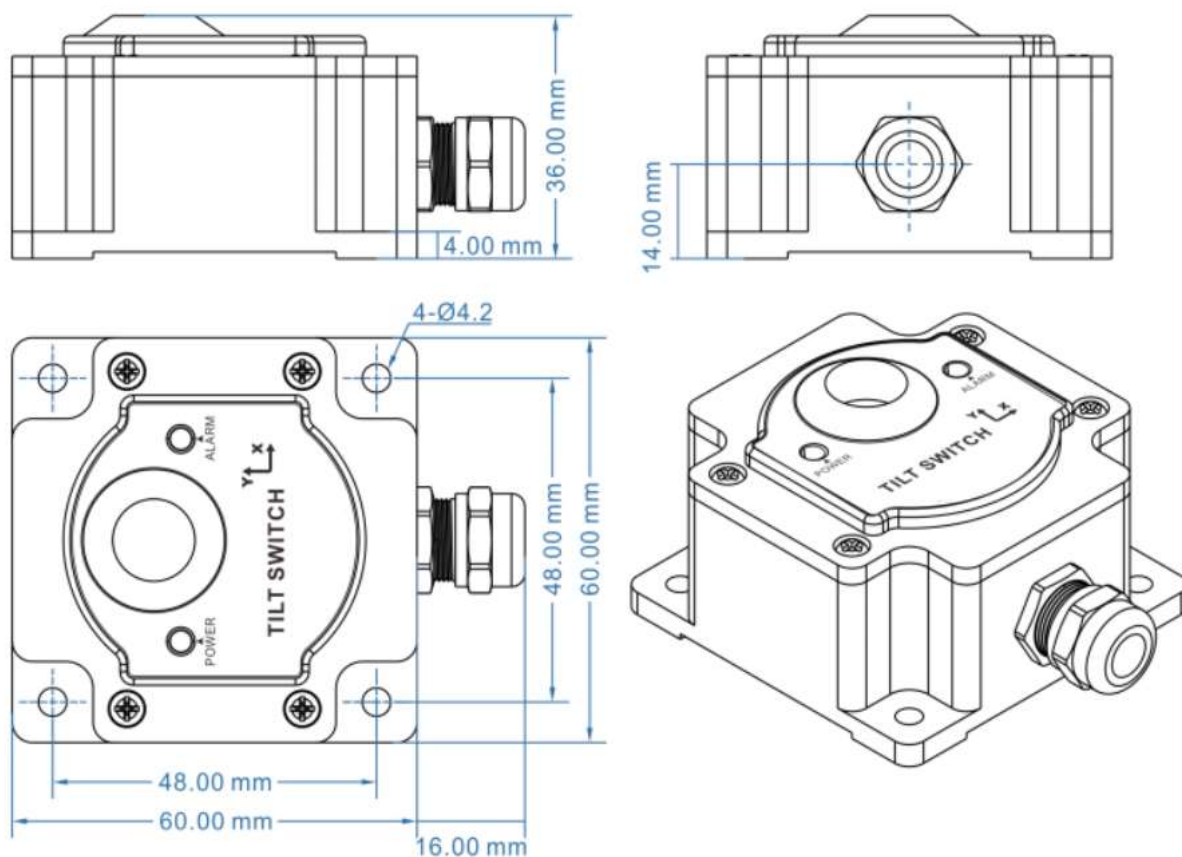
The ALCC series is a low-cost tilt switch developed by DPF Sensors for safety control and level alarm on platforms in one or two axes. The alarm threshold value is programmable via RS232. When the inclination exceeds the set alarm value, the relay output (1Amp.) will be activated. It is designed so that temperature and linearity are compensated.

It has protection against short circuits, high voltage, surges, etc. And all its components meet the requirements of industrial applications.



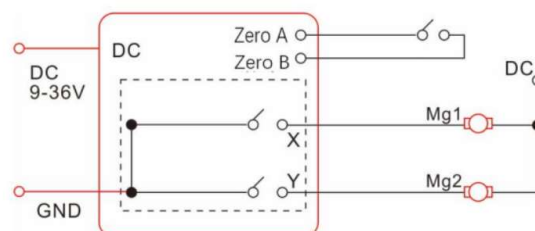
	CONDITIONS		PARAMETER				UNIT
Measure range			±15				°
Measure axis			X/X Y				Axis
Resolution			0.05				°
Measure accuracy			0.1				°
Long-term stability			0.05				°
Zero temp. coeffecient	-40 ~ 85℃		±0.006				°/℃
Temp. Sensitivity coefficient	-40 ~ 85℃		≤100				ppm/℃
Power on time	0.1						S
Response time	0.2						s
Electromagnetic compatibility	According to EN61000 and GBT17626						
MTBF	≥98000hours/times						
Insulation Resistance	≥100MΩ						
Impact resistance	100g@11ms、 3 axial direction (half sinusoid)						
Anti-shock	10grms、 10 ~ 1000Hz						
Protection grade	Direct lead IP67; Aviation plug IP65						
Cables	1m, durable, grease proof, wide temperature, shield cable, 4*0.4 mm ²						
Weight	140g(without cable)						
Power supply	Standard	9	12	24	36		V
Alarm output current					1000		mA
Working current	No-load		40				mA

mechanical characteristics (only CanBus)

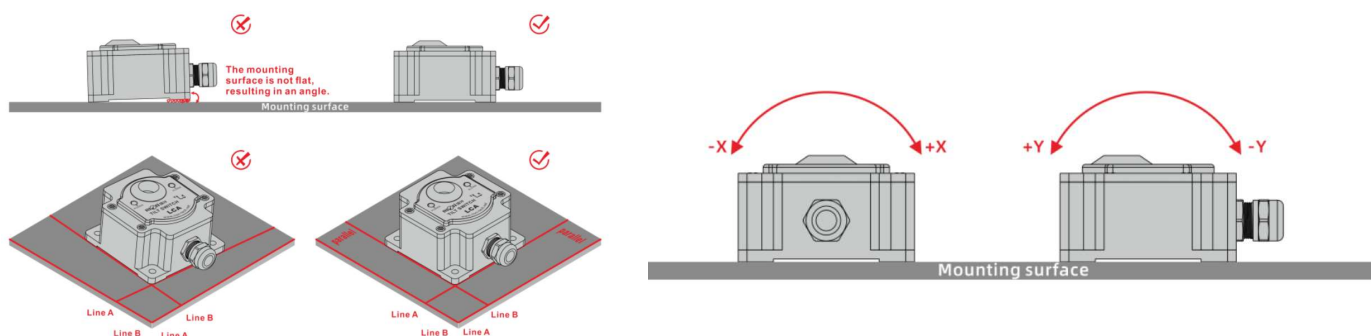


ELECTRICAL CONNECTION

Color definition	1 axis with 1 way output	1 axis with 2 ways output	2 axis with 1 way output	2 axis with 2 ways output
RED	Power positive	Power positive	Power positive	Power positive
BLACK	GND	GND	GND	GND
GREEN	Cleared	RXD	Cleared	RXD
BROWN	Common Terminal	+X Common Terminal	Common Terminal	X Common Terminal
ORANGE	RXD	-X Alarm output	RXD	Y Alarm output
WHITE	TXD	-X common Terminal	TXD	Y Common Terminal
YELLOW	X Axis normal open	+ X Alarm output	X Y Axis normal open	X Alarm output
BLUE	X axis normal close	TXD	X Y Axis normal close	TXD



INSTALLATION METHOD



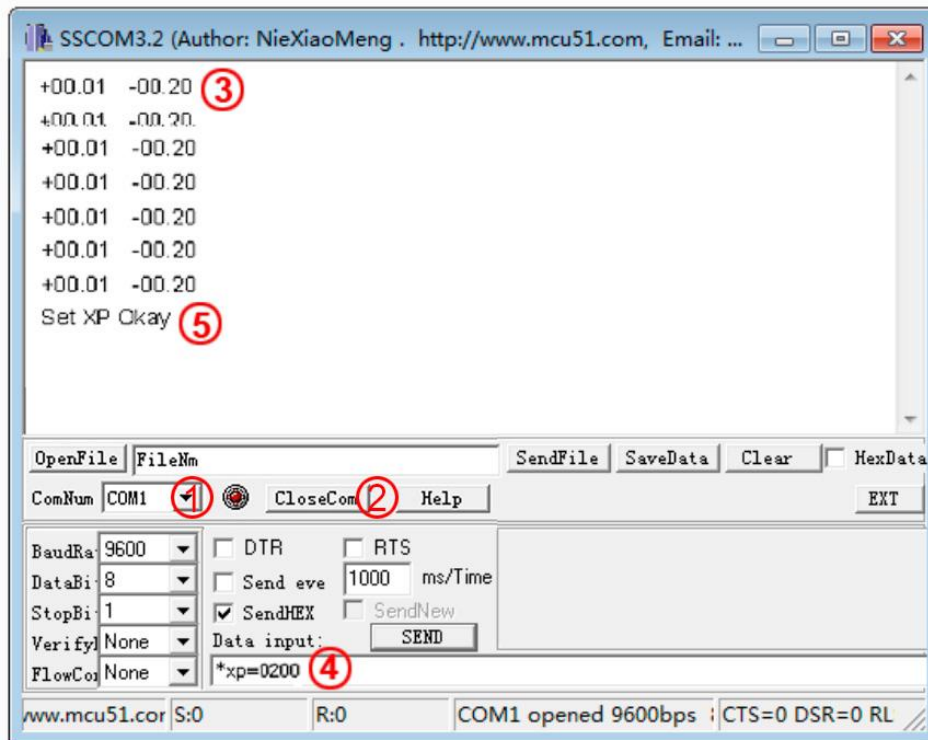
Ordering information:

ALCC	X	X	X	XX
	1: SINGLE- AXIS	A: 1 Way Output	F: Relay NO	Set the output angle threshold
	2: DUAL- AXIS	B: 2 Way Output	N: Relay NC	

► DPF SENSORS PRODUCT DEBUGGING SOFTWARE

If you want to change the alarm thresholds, can communicate with computer and use the serial debugging assistant software to change .

Your can download the common public serial port debugging assistant software on line,DPFproducts supporting debugging software can connect the inclinometer by itself on computer and display the angle ,also can download the public serial port debugging software on line!



Debug process:

- 1) Open software;
- 2) Select the corresponding COM port, refer to 2".
- 3) Other settings are default setting , no need to set. "
- 4) Click to open the serial port button, refer to 2 "
- 5) This data will display in the return data area, refer to 3"
- 6) If you want to set the alarm threshold, please input setting alarm threshold command in input area, refer to 4" . (For command please refer to the specification of communication protocol .)
- 7) When the return data area display " command +Okay" proved successful setting. Refer to 5"

Common problem analysis of connection failure:

- A) Check power: check positive & negative, whether it is DC?
- B) Exchange RXD and TXD two data lines re-debugging;
- C) COM occupancy, close other COM port testing device;
- D) The black line no connection with the fifth pin of COM port.
- E) If use RS232 converter, please check if the converter can work properly, whether the driver is installed;
- F) Please use multimeter to measure the sensor current, if lower than 20mA or bigger than 60mA can judge the sensor was damaged.

► RION PRODUCT COMMUNICATION PROTOCOL

1. DATA FRAME FORMAT: (8 bits data, 1 bit stop, No check, Default baud rate 9600) **Angle output format (ASCII code)**

A set of output data from a total of 18 bytes:

Byte1: X	Byte10: Y
Byte2: +/-	Byte11: +/-
Byte3: X	The tens column of axis angle value
Byte4: X	The single digit of axis angle value
Byte5: decimal point“.”	Byte14: decimal point“.”
Byte6: X	The decile of axis angle value
Byte7: X	The percentiles of axis angle value
Byte8: blank space (0x20)	Byte17: Enter (0x0D)
Byte9: blank space (0x20)	Byte18: Line feed (0x0A)

Format as following:

ITEAM	SIGNED	DATA	SPACE	SPACE	ITEAM	SIGNED	DATA	ENTER	NEWLINE
X	+/-	**.**	Blank space	Blank space	Y	+/-	**.**	Enter	Line feed

E.g: the current X axis angle is +01.50deg, Y axis - 01.00 deg, then display X +01.50; Y -01.00

Note: If the user set the relative zero when power on last time, then power on this time, the system will output: “relative angle measure!”

2. The relative setting command (the following command case-sensitive)

Command	Description
&Z	The current position is relative ZERO, related data will be stored in EEPROM, and carry out relative angle output , after accepting command then output :“set relative zero” .
&R	The absolute angle output , after accepting command then output: “absolute zero”.
*xp=????	Setting positive half axis of X axis to be alarm point,“????” is angle value, optional value from “0001—1000”. The default is 0150 。 After accepting command then output: “SetxP OK!”
*xn=????	*xn=????—— Setting negative half axis of X axis to be alarm point,“????” is angle value, optional value from “0001—1000”. The default is 0150 。 After accepting command then output: “SetxN OK!”
*yp=????	*yp=????——Setting positive half axis of Y axis to be alarm point,“????” is angle value, optional value from “0001—1000”. The default is 0150 。 After accepting command then output: “SetyP OK!”
*yn=????	*yn=????——Setting negative half axis of Y axis to be alarm point, “????” is angle value, optional value from “0001—1000”. The default is 0150 。 After accepting command then output: “SetyN OK!”

Short-circuit the green line and brown line for 2 seconds then open , to set the current angle to be relative ZERO, this function same as “&Z” command , the difference is after using this method to set the ZERO point successfully, there will be approximately 1 second alarm signal output, while “& Z” command without this indication.(Don't use the function please keep the green line disposed of properly , to avoid short-circuit with other lines .)