

Pilot Cable Monitor v4 PCM177

DESCRIPTION

The PCM177 pilot cable monitor provides earth continuity protection in accordance with AS/NZS 2081 ensuring the earth connection through a trailing/reeling cable. An additional core is included with the power and earth cores which supply the remote machine. The pilot cable is connected to terminal 10 on the PCM177. A diode is installed at the furthest point of the pilot cable with its cathode connected to earth at the remote earth connection point. The PCM177 detects open and short circuits between the pilot and earth conductors of the trailing cables. The unit has filtering to remove unwanted inductively or capacitive coupled ac signals. LED's indicate power to the unit and the status of the pilot cable ('HEALTHY' LED). There are two changeover contacts rated at 8A/250V which are fail-safe. Output contacts de-energise (un-HEALTHY) on conditions of:

- Loss of power
- Open circuit of pilot cable
- Loop resistance exceeds set value.
- Leakage resistance between pilot core and earth is less than 600Ω

There are two basic operating models;

1. **Local or automatic reset** models go into a HEALTHY condition when no fail conditions exist. A stop button can be wired in series with the pilot cable to de-energise relay if necessary. In local mode, the PCM177 will automatically reset after the fault has been cleared.
2. **Remote start or latching models** have a remote 100Ω series resistor connected across a remotely mounted normally open start button. When start is pressed the PCM177 checks loop resistance before switching to a HEALTHY condition. The PCM177 will go into an un-HEALTHY state if the start button is held or stuck for longer than 15 seconds. In latching mode, a manual reset (press start button) is needed after the fault has been cleared.

General Specifications

Supply voltage variation:	75% to 120% of the nominated supply voltage.
Supply drop out immunity:	Normal operation at 50% of supply for 60 seconds.
Pilot to earth resistance:	15, 25, 35, 45Ω
Remote start version:	16, 30, 45, 60Ω (plus 100Ω across start button)
Fail Operating Time:	< 500ms from HEALTHY to an un-HEALTHY state.
Noise Immunity:	Continuous noise values of greater than 6Vac will affect the trip value. (10Vac will increase trip resistance by 20%).
Size:	52 W x 70 H x 110 D (mm).
Housing material:	ABS.
Mounting:	DIN-Rail, gear plate.
Termination:	Screw terminals on front, terminal covers standard.
Weight:	0.300 kg.
Protection class:	IP40.
Operating temperature:	0 - 60°C.
Storage temperature:	-20...+70°C.
Repeatability:	0.1% of range.
Change-over relay contacts:	8A/250Vac resistive, 3.5A/250Vac inductive.
Contact isolation:	2kV.
Power requirements:	3W.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)

Type No PCM177 - X X X X 0

Power Supply:

- 1 = 240Vac 50/60Hz (240Vdc).
- 2 = 110Vac 50/60Hz (110Vdc).
- 3 = 24Vac 50/60Hz (24Vdc).
- 4 = 48Vac 50/60Hz (48Vdc).

*) 9 = 10-40Vac 50/60Hz.

Operating Mode:

Automatic reset	Start Button Required
1 = Local 15Ω pilot	A = Remote 16Ω pilot (+100Ω)
2 = Local 25Ω pilot	B = Remote 30Ω pilot (+100Ω)
3 = Local 35Ω pilot	C = Remote 45Ω pilot (+100Ω)
4 = Local 45Ω pilot	D = Remote 60Ω pilot (+100Ω)
	E = Remote 140Ω pilot (+240Ω)

Conformal Coating

- 0 = Standard finish
- *) 1 = Conformal coating applied.

Cable Elevation Voltage

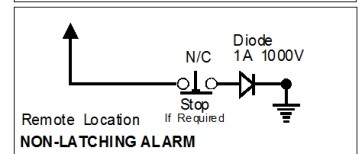
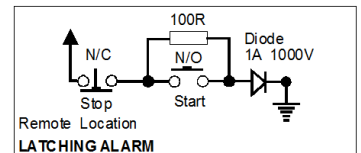
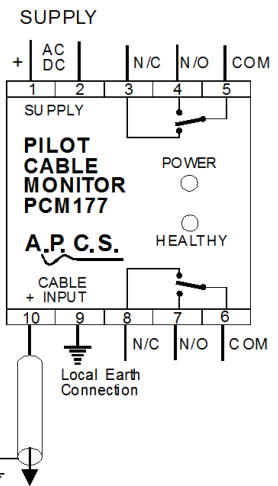
- #) 0 = < 8Vac continuous, 12Vac for 1 second.
- 4 = < 25Vac continuous, 120Vac for 1 second.

The elevation voltage is the maximum voltage the PCM177 can withstand during a worst case shorted cable fault condition or spike that is more dangerous to electronics than people.

Faults are isolated in under 500ms

*) = Additional price

#) = Superseded model.



Cable bundle may be screened.
Buttons may be local or remote.
The diode MUST be remote.
APCS does not supply the cable or dropping resistor.
Please ensure the cabling is accordance with regulations for the insulation.
APCS has not recommended any particular cabling.

In the interest of development and improvement, APCS reserve the right to amend, without notice, details contained in this publication. APCS will accept no legal liability for any errors, omissions or amendments.