BETA COMPUTRONICS PVT. LTD.
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MAGNETIC SENSOR

- INSTRUCTION MANUAL
- PACKING LIST
- TEST REPORT
- WARRANTY CERTIFICATE

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WEFT BREAK SENSOR FOR LOOM

1. **Introduction –** The Weft Sensor is highly sophisticated and reliable device to sense the weft breakages, and uneven weft tension in Circular Loom. It operates on the principle of magnetism and hence does not malfunction due to effect of dust and ambient light which are invariably present on any loom. The sensor does not require any maintenance like cleaning, adjustment, setting etc. and will give years of trouble free service. Periodic checking of magnet holders is required.

2. **Packing List -** After receipt of the box containing sensor, check for components as indicated in 'Packing List'. (Page No. 5)

3. **Installation –** The installation is very easy and can be done by any one having fair knowledge of Loom. First fit the magnetic reflector assembly on shuttle boom pipe. If original reflector assemblies are already there then remove them. Ensure that these assemblies are at equal distance from ring and nearest to ring. Next fix the sensor in the clamp provided. Put an universal joint on bolt of the clamp and mount the universal joint on pipe where a photo sensor is usually installed. See Figure 1.

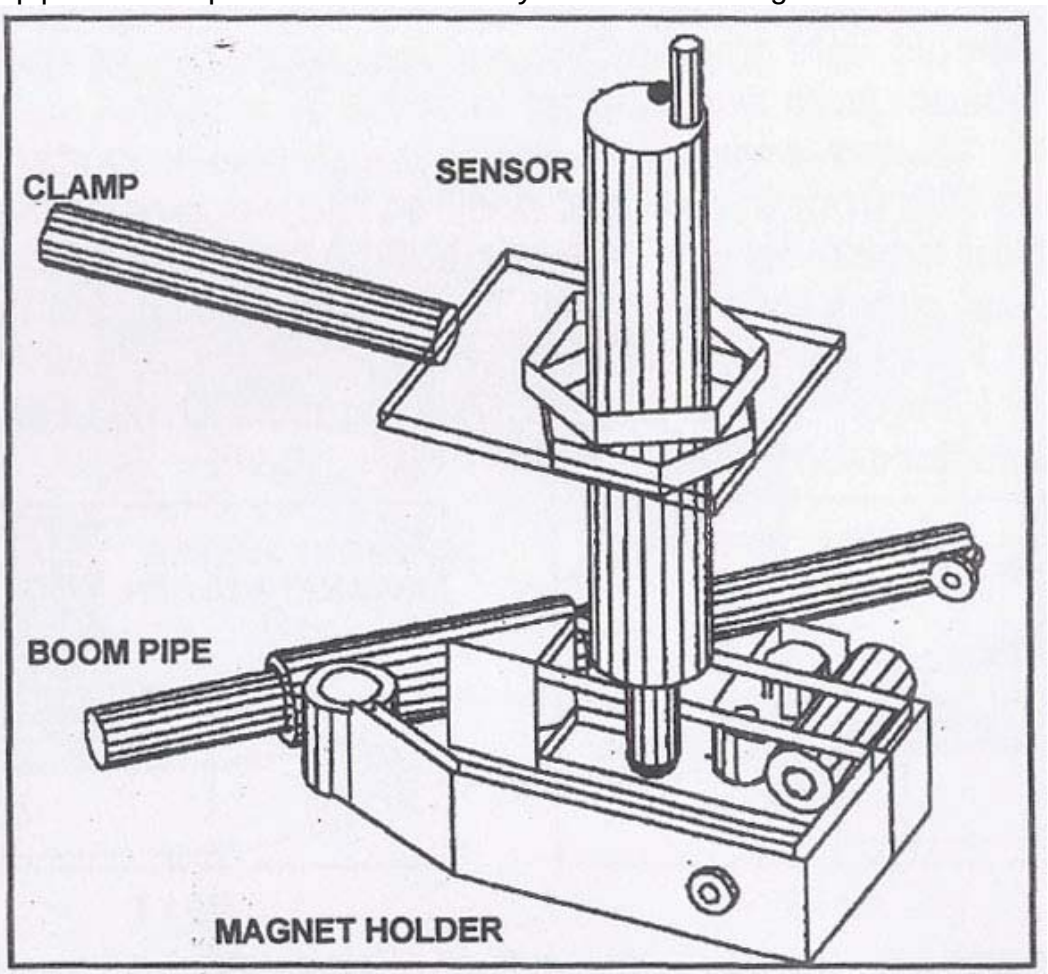

Fig -1

Now mount the Relay PCB in Loom Control Panel and connect 24 volts AC to connectors marked as "24 VAC". Connect the sensor to Relay PCB as below :

Sensor RED wire – 12 V

Sensor BLACK wire – 0V

Sensor GREEN wire : Sig. (Trip signal 12 V PNP output)

Finally connect the relay contacts in circuit which stop the Loom with cramming. You may use NO or NC contact depending on circuit requirement.'The relay contacts are marked as NC./COM/NO on connector J1.

Note: For loom with Loom Controller and 24 VDC supply, a small in line and cost effective alternative of PNP or NPN PCB is available. In that case. Relay PCB is not required. Please contact us for further details on PNP/NPNPCB

Use Cable ties or thread to fix the cable on support rod. Do not leave the cable loosely hanging on loom. Cable Should not get stretched. Dress it properly.

4. **Adjustments –** Rotate the loom and bring one magnetic reflector assembly under the sensor. Rotate the reflector assembly and bring the magnet to a position where it will be after weft breakage. The red LED on sensor should light up. Set the vertical distance between center of sensor bottom point and magnet to about 30 mm and at an horizontal offset of 10 mm away from magnet (This is important otherwise magnetic field from the normal position may trigger the sensor and a malfunction would occur.) Now bring all magnet one by one under the sensor and check for alignment. The adjustment should be within ± 5 mm. The Red LED on top of sensor should light. Adjust the height of sensor or level of reflector assembly as required till red LED lights up for all the reflector assemblies.

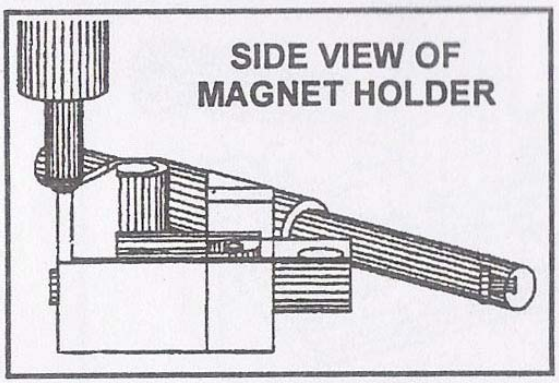

Fig - 2

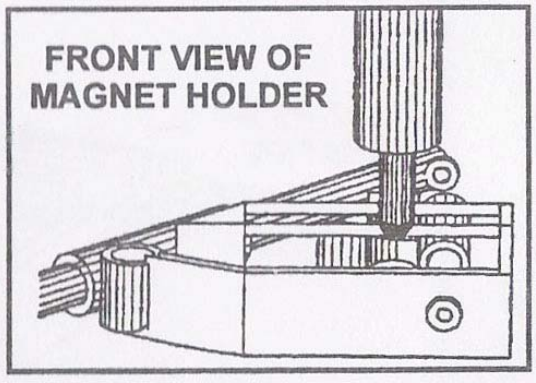

Fig - 3

Now remove one tape from the reflector assembly and run the Loom at normal speed. The LED on top of sensor should light up continuously. If it does not light, then refer to trouble shooting Section.

Now your sensor is ready and can be put to normal operation. To avoid the fabric wastage use cramming device and ensure that loom stops in 5-6 rotations. Run the loom at normal speed and when the weft breaks or if there is uneven tension in weft (poor winding on bobbin or shuttle brake is loose or if the bobbin is empty) the loom will stop instantly. The sensor does not require any maintenance but periodic checking of gaps will help in long way. Maintenance and setting of magnet reflectors is required to be done periodically.

5. **Precautions**: Following precautions will help in getting maximum advantage from sensor.

   a. The sensor will trigger even if the weft tension is low. Ensure that a proper spring is put in shuttle brake. The weft tension is reduced when the bobbin diameter is reduced. If sensor triggers at small diameter, then reverse the bobbin direction to get more tension in weft.

   b. The magnet reflector assembly must be tight on boom pipe. The location of all the assemblies should be same for all the shuttles. Further these should be in perfect horizontal position. The gap between sensor tip and magnet should be 25-30 mm and horizontal offset of 10 mm from magnet is desirable.

   c. Do not connect output of sensor to any other PCB. This may damage electronics inside the sensor. Our sensor is designed for our relay board only. In case you wish to use any other card, please take prior permission from our service department.

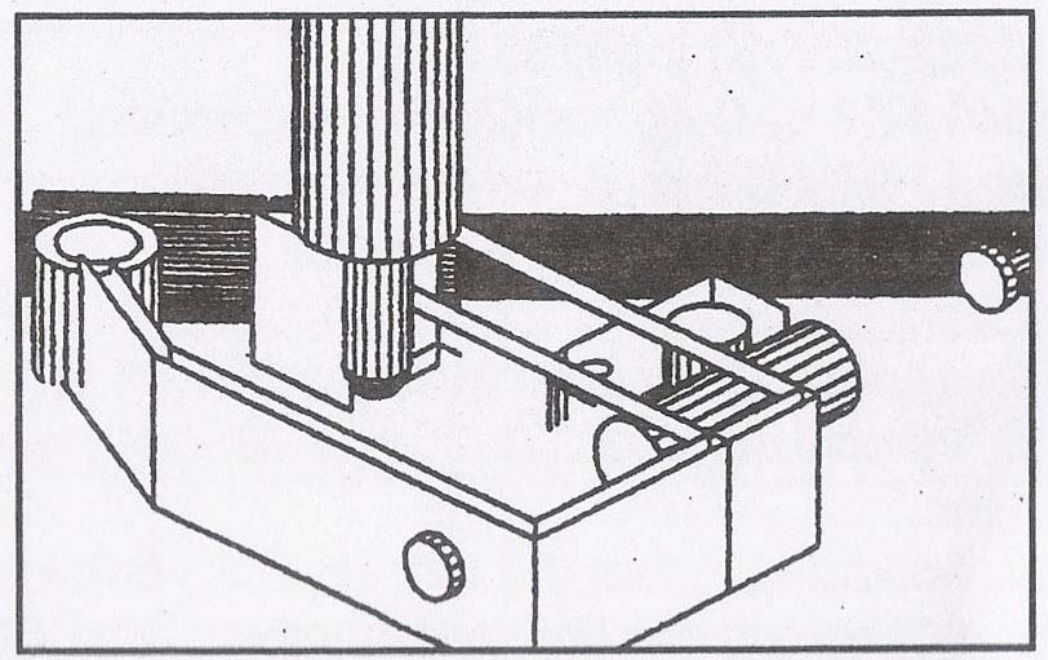

Fig - 4

d. We have supplied two / three red colour and two / three blue colour magnet holders with this set. Please mount these alternately on the loom to avoid, Magnetisation of sensors in long run.

e. It is highly recommended that yam path from shuttle bobbin to magnetic holder and ceramic eyelet on boom pipe should be as straight as possible by selecting the proper boom pipe size. This will reduce the wear and tear on boom reflector assembly and give a longer life to it (See Fig. 4)

6. LED Indicators :

a. The Sensor has one LED and its function is as under :
Red LED - Magnetic field sensed by sensor (Tape break condition)

b. The Relay PCB has two LEDs and their functions are as under :
   i. Red LED - Relay ON. (Relay picks -up when tape breaks.)
   ii. Green LED-Power ON (Always ON when Power supply is ON)

7. Trouble Shooting : Your sensor has been thoroughly tested at our works, however in case it does not work properly, follow the trouble shooting guide lines as under :

1. Red LED on relay PCB does not light up :
- ❖ Check for 22-26V AC Input on PCB.
- ❖ Check for 14-17 VAC on transformer secondary.
- ❖ Check for 17-22V DC on electrolytic capacitor.
- ❖ Check for 12V DC on PCB connector.

2. Red LED on sensor does not light even if weft is broken :
- ❖ Check for vertical distance (25-30mm) between magnet holder and sensor.
- ❖ Check for horizontal offset (10 mm approx.) between magnet holder's 180° roated position and sensor.
- ❖ Check for connection on relay PCB (marked as 12v, 0v)

3. Red LED on sensor lights up but loom does not stop :
- ❖ Check for connection on relay PCB (marked as Sig.)
- ❖ Check if relay operates when weft is broken.
- ❖ Check connection to loom circuit.
- ❖ Check relay contact (normally No contact is used.)

4. Loom stops even if weft is not broken. Red LED on sensor lights up.
- ❖ Shuttle bobbin tension is loose.
- ❖ Brake spring is weak.
- ❖ Increase horizontal offset between magnet and sensor
- ❖ Increase vertical distance between magnet and sensor

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5. **Loom stops when bobbin diameter is low :**
   - ❖ Low tension in brake spring.
   - ❖ Change brake spring.
   - ❖ Rotate the axis of shuttle bobbin to increase weft tension.

This should hopefully help you to correct the problem. But in case further help is required. Please feel free to contact us.

Note: It is recommended to fix N and S type reflectors alternately in each boom pipe.

PACKING LIST	
Sensor	1 No.
Relay P.C.B.	1 No.
Manual	1 No.
Packed By	Checked By

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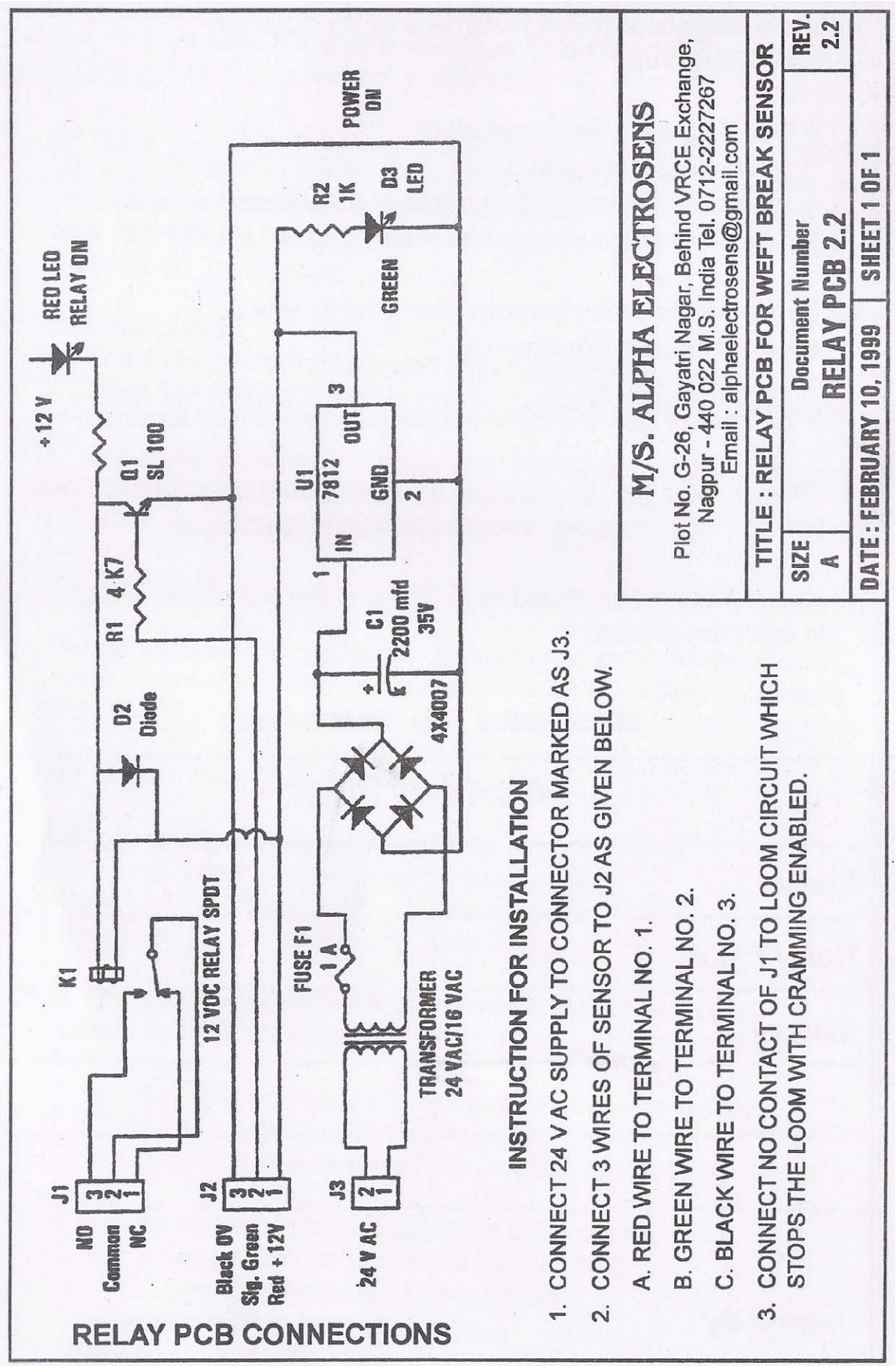

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WARRANTY CERTIFICATE

Customer : _____

Address : _____

Sensor Type : _____ Sr. No.: _____

Date of Delivery : _____

Warranty expires on : _____

Terms of Warranty :

1. Alpha Electrosens Nagpur (hereinafter referred to a A.E.) offers warranty on its products against any manufacturing defects and /or faulty material / workmanship strictly for a period of 6 months from the date of delivery. Under no circumstances, shall there be any extension in warranty period either because the sensor is partly used / unused or because the sensor might have been nonfunctional due to any reason whatsoever.
2. Warranty does not include / cover plastic parts, ceramics, cables etc. against damage due to mishandling, breakage, alteration and normal wear & tear. The replacement of these parts will be at the sole discretion of A.E. even during warranty period.
3. The defective part will be either replaced or repaired by A.E. or their authorised dealer. Whether to replace or repair a defective part will be left to the sole descretion of A.E. The replaced part will become property of A.E.
4. For installation and warranty servicing of weft break sensor at locations where AE does not have its office or dealer, travelling and other out of pocket expenses for each visit of the engineer will be charged extra. Alternatively during the warranty period, defective part must be sent to A.E. for repair / replacement on both ways freight paid basis.
5. This warranty extends only to problems arising out of normal functioning of the sensor and does not cover breakdown or services or spares cost arising out of whether partly or wholly, misuse of the equipment, abuse, tampering, negligence, mishandling modification or alternation in the circuitry / mechanical assemblies or its use under environmental conditions either not prescribed or suitable for electronic equipment warranty exclude breakdown or services or spares cost arising out of circumstances not considered as normal by A.E. or their dealer, The warranty speficially exclude damage cause due to fire, theft, riots, accidents and other exceptional circumstances, for which seperate insurance coverage is advised.
6. AE's liability udner this warranty, notwithstanding any thing to the contrary of the clauses, is restricted to ensuring that the equipment is in good working order and not other liability whether expressed or implied.
7. The warranty is confined to repairs or replacement of the defective parts only and does not cover any consequential or resulting liability, damage or loss. Furthermore, it shall in no case extend to pay of any monetary consideration or replacement of return of the sensor.
8. The warranty shall be null and void if the equipment is inspected and / or attempted to be repaired by any persons or organisation or agency other than A.E, or their authorised dealer.
9. Any dispute arising out of this warranty shall be subject to the jurisdiction of the court within the city only.

Authorized Signatory

Beta Computronics Pvt. Ltd.

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TEST REPORT FOR WEFT BREAK SENSOR

Serial Number	Model
Year	Date of Despatch
Customer	Date of Testing
	Order Reference
SENSOR	
Sensing Distance	Sensing Element
Sensor Current (Load)	Sensor Current (No Load)
Cable Length	
RELAY BOARD	
Type	Transformer Voltage 230 /24
Relay Make	Transformer Make
Fuse 1 Amp	AC Current
Additional Delay	DC Voltage
BOOM REFLECTOR ASSEMBLY	

TESTED BY APPROVED BY