

- Installation
- Adjustment and wiring
- Caution
- Structure

3N ELECTRONIC Co. Ltd.

ADDRESS: 239, LINQV ROAD, LINQV COUNTY, SHANDONG PROVINCE, CHINA

TEL: 86536-3152451,3152452 FAX: 86536-3152453 WebSite: www.3n2000.com

CHAPTER 1 - Installation and Environment

- 1-1. This device must be installed firmly and horizontally. The basement is built in either cement or steel. The strength of basement must guarantee that shake from other equipments nearby do not effect the feeder.
- 1-2. The level gradienter is necessary when anchor bolts take-up so that feeder runs in a level state in future operation.
- 1-3. Space more than 2-3 times of belt is necessary with along the two sides of feeder in order to do future maintenances.
- 1-4. While lifting, all four corners of the feeder must be lifted together, prevent it from damaging and deforming.
- 1-5. Watch out the motor, reducer and adjusting screw and other parts, free from damaging.
- 1-6. Cover feeder when operate some devices like wilders nearby. Ensure not burning the parts of feeder.
- 1-7. Ensure the position of feeding inlet while anchoring. It must aim at the outside feed-in part. No any force is allowed to apply to inlet when Connect the inlet to feed-in part. !!! This is key point. Otherwise the belt will damage and the precise of weighing will be disturbed.
- 1-8. A screw gate (any structure) needs to be installing for outside feed-in unit. So the material flow will be stop when necessary (maintenances).
- 1-9. It is strongly forbidden that any heavy stuff putting on the belt or anyone stepping on the belt. Which will damage the belt and load cell.
- 1-10. If the feeder have to install in a more than 1.5 meter height. Platform and enclosure must build along two sides of feeder.
- 1-11. The feeder must operate in-door condition.
- 1-12. Not allow install feeder in heavily dust condition. Not allow drop materials between belt and pulleys. Not allow materials dropping on belt from others than inlet unit.
- 1-13. Not allow install the feeder in a ditch.
- 1-14. It is strongly forbidden to any liquid spattering on feeder body.
- 1-15. Materials suit for this feeder are shiver or powder, not allow sticky materials enter the feeder.
- 1-16. Not allow feed such kind of material that is erosive to rubber and metal.
- 1-17. Not allow feed such kind of material something sharp in it. That will damage the belt
- 1-18. Not allow feed such kind of material which temperature higher than what determined in contract. If not this item in contract, feeding materials must be in normal temperature.
- 1-19. In operating, not allow high temperature air apply to feeder body, especially belt and load cell.

1-20. The feeder not allow to used in these fields that have a explode-proof requirement unless it is specially stipulated in contract.

CHAPTER 2 - Adjustment

Adjustments needed after first installation, annual overhaul and maintenances:

- 2-1. The body must be level. Exam anchors and ensure them not loose.
- 2-2. Adjust belt intensity with two take-up screws. Belt usually slides toward the side which belt looser.
- 2-3. Keep the belt in the center of frame.
- 2-4. Push-belt pulleys must be vertical with the direction of belt running.
- 2-5. Adjust take-up screws to make the frame of push-belt pulleys horizontal. Meanwhile, vertical distance from the lowest point of both belt edges to feeder body bottom should be same. Watch them through the windows which on two sides of body while adjusting.

2-6. Check again push-belt pulleys; Make sure them vertical with belt, which means horizontal with upper beam of frame.

3 三恩工控

2-7. The distance between belt and belt-stop roller should be 1 cm about and both must be same. The belt edge should be in the center of the roller. If they are not, adjust the pitch bolt (two on each side) or refit the connect plate. 2-8. Measure height of weighing roller with a one-meter longer ruler, and adjust the screws (bottom roller) to make weighing roller in same plane as the two fixed rollers connected weighing section. Check the plane repeatedly. After make sure they are in same plane, fasten the anchor screws to make adjusting screw firmly settled. The anchor screws on the brackets which weighing rollers put in. Do the adjustment respective both sides.

2-9. Regarding those feeder with materials-stop plate, Adjust the height of material-stop plate. Make it exactly close to the belt, neither touch nor have gap with belt.

2-10. Check the plough-shaped cleaner under belt. Adjust the bolt on two sides make bottom edge of cleaner trimly close belt without inclined. Fasten the bolts after adjusting. Not allow make this adjustment while belt running.2-11. Adjust the height of scraper next to discharge outlet. Make it exactly close to belt, neither touch nor have gap with belt. Fasten the bolts after adjusting.

2-12. Check the scraper next to tail pulleys. Make it close to belt, keep gap of 0.1-0.2mm. Fasten the bolts after adjusting.

2-13. Check up the motor and reducer. Make sure not loose in transport. If loose fasten them.

2-14. Clear out tool, bolt and all thing not belong the feeder on belt or nearby the feeder. Prevent them from involving in belt and moving parts while feeder is running, which is dangerous and causing damage.2-15. Check up belt to make sure no damage potency in running.

2-16. Keep all persons, especially keep their hands, hair and clothe far away from feeder body.

2-17. Ground line must be firmly connected (Over $4mm^2$ copper line). The resistance must be less than 4Ω .

2-18. Start the belt with low speed. Gradually speed up belt to fastest speed if it running normally.

Watch out careful and immediately stop belt if any abnormity. Must power off entire device before deal with problems so that prevent person from being hurt and feeder being damage because of unexpected belt moving. 2-19. Runs belt at highest speed for 2-3 hours. Watch out belt adjusting mechanism and make sure no belt slide off. 2-20. Check up all components of feeder. Watch out careful and immediately stop running if any abnormity. 2-21. Check up push-belt pulleys, plough-shape cleaner and scrapers (nearby discharge and next to tail pulleys). Watch out careful and immediately stop belt if any abnormity (like getting stuck, being tighten or scrubbing). 2-22. Watch out careful and immediately stop belt if materials and other thing get into between belt and pulleys.

Not allow do cleaning when belt running. That will be not safety.

CHAPTER 3 - Wiring and Caution

3-1. Cable for motor must measure up to Electrical motor power standard and wiring the motor according to Electrical operating regulation.

3-2. Check the motor connection (\triangle or Y). If frequency invert unit is 220V, it is must be done that change the motor connection into \triangle (220V)

3-3. Check the motor supply is important and vital whenever change frequency invert unit or wiring motor. Incaution will result to damage of motor.

3-4. Firmly wire motor cable in the motor wiring box prevent from loose off and accident.

3-5. If possible, it is better for wiring line cover with metal pipe and well connect pipe to ground.

3-6. Ground line must be over 4mm² copper line. Not allow to power on the feeder before the ground line well done.

3-7. Wiring line of both speed sensor and load cell must be far away from motor cable. Distance must be over 500mm

3-8. Adjust the gap between speed sensor and speed measure unit and makes it be 0.3-1.5mm. Moving direction of gear should be vertical with the line from indicator to signal wire of sensor. If the speed signal is not good, try to

2

3 三恩工控

rotate sensor a small angle. The key of mounting sensor is approach sensor to measure unit as close as you can do, as long as not touch the measure unit. Fasten sensor after adjustment and then bend the wires and bind them to sensor prevent from loose off.

Not allow tie the wires to motor!!!

3-9. Make sure wires of load cell not to be tight. If these wires of load cell go alone, soft metal pipe or wire trough should be used to prevent the wires from break out.

3-10. Wires and cables should all be bound and fixed well to prevent from involve into belt and other moving parts.3-11. Seal shield line well and make sure shield not be exposed and not touch any metal parts.

3-12. Check up wires timely. Anytime if find wires broken, too tight and being worn, stop the belt and deal with them to Guarantee the safety of both person and equipment.

CHAPTER 4 - CALIBRATE, WEIGHT and ADJUSEMENT

Calibrate usually do after mechanical installing and adjusting.

4-1. Do wires between amplifier and load cell. Powers on feeder for 15-20 minutes

4-2. Motor remain to power off. Put a 5-20 Kg weight on belt and make the weight on the center of the weighing section. Watch increment of analog result from the weight. It should be 15-45 per one Kg. In fact, the number should be 10-20 with belt width 800-1000mm, or 15-25 with belt width 500-650mm. If belt width is over 1200mm the number should be 5-10. If number failed to fall in the range, alter the switch set in amplifier and make number in this range. Then take off weight from belt.

4-3. Make sure No weight on belt and adjust "zero" adjuster make analog displayed on computer screen be 500-800. Measure voltage of load cell signal should be 0.6-1V

4-4. Put a 2-3Kg weight (depend on feeder production) on the center of weighing roller, just above the roller. Take down analog or measured voltage. Then move the weight into both terminal of weighing rollers (edge of belt) and watch analog or measure voltage. They should be same with those when weight on the center of roller (the less difference, the better). If the difference is too obviously, check whether weighing roller and adjacent two fixed rollers in same plane. And check up whether load cell and bracket of weighing roller fixed well.

Note: weight must put just above weighing roller, not allow any tilt.

4-5. Running belt make it fastest speed, operate computer to make "zero" process and record the zero value. Repeat the process 3 times. These values should be same about. Duration of zero process should be determined to be such a time section in which belt will move through exactly entire circles.

4-6. Prepare calibrating stuff:

Real materials are too dirty to collect them and weigh them. In real practice, it is better build something for calibration.

a. Get some metallic blocks that are well-shaped and smooth surface not easy rolling. Each weighs 3-5Kg. Weld a handle on them to carry easily. Total weight should be 100Kg around and must be accurate. Give the blocks series number prevent from losing. With these blocks a real materials flow dropping on belt can be simulated. While calibrating, put these blocks on belt at the position so called "entry of weighing section", one by one with belt moving.

Pick up the blocks when they have moved out of weighing section, at the position so called "end weighing section", and wait for measure total weight. Repeat use these blocks can simulate multiple total weights.b. Get some standard weight for calibration. They are used in same way as above.

IN ELectro

an Eloctron

3 三恩工控

CHAPTER 5 - DESCRIPTION OF COMPONENTS

- 1. Front support
- 2. Height Adjust Bolt of Scraper. Each left and each right
- 3. Height Adjust Lock Nut of Scraper.
- 4. Rubber Blade
- 5. Beam, each left and each right
- 6. Head Drive Pulleys (Main Drive)
- 7. End of Weighing Section. During calibrating, weights can be picked up when they pass this point.
- 8. Fixed Roller that ahead the weighing section.
- 9. Weighing roller, load cell mount bottom it and two adjust screw on two ends. Weighing roller must be in same plane with fixed roller 8 and 10.
- 10. Fixed Roller that next to the weighing section.
- 11. Entry of Weighing Section. During calibrating, weights can be put on belt at this point.
- 12. Rollers that support belt.
- 13. Door of Feeding Bucket.
- 14. Feeding Bucket
- 15. Level Valve of Feeding Bucket. Pulling backward properly make material flow on belt suitable. Too much pull off result to too much materials piling up on belt. That will damage belt.
- 16. Tail Drive Pulleys.
- 17. Take-up Adjust Nut. Each left and each right
- 18. Take-up Adjust Bolt. Cooperate with 17 to adjust belt intensity.
- 19. Adjust Lock Nut for Height of Weighing Roller. Each left and each right
- 20. Adjust Bolt for Height of Weighing Roller. Each left and each right. Adjust weighing roller to make it in the same plane as roller 8 and roller 10. After Adjusting, Lock bolts with nut 19.
- 21. Frame of Push-Belt pulleys. It is normally in level situation.
- 22. Fixed Bolt on plough-shaped cleaner. Each left and each right. Use for adjusting situation and appearance of cleaner.
- 23. Belt-stop Roller. Each left and each right
- 24. Belt-stop Roller Connected board. Each lift and each right
- 25. Fixed bolts for Belt-stop Roller connected board. Two on each side.
- 26. Push-belt pulleys
- 27. Plough-Shaped Cleaner.
- 28. Support for feeder.
- 29. Scraper of Tail pulleys
- 30. View Window of Push-belt pulleys (on the frame). Use for viewing the height of both belt edges. Each one side.
- 31. Fixed Bolt. Use for fixing Height adjust bolt of weighing roller.
 - h. Belt should be in center position after belt-stop roller adjusting done.
 - H. The vertical distance from the lowest point of belt to both bottom sides of support should be same.
 - L. Weighing Section: material pass this section be weighed.
 - Note: Material-stop plate is not shown in this diagram.
- 32. Discharge Cover (Optional)
- 33. Connection of Dust Collector dust (Optional)
- 34. Side Cover (Optional)
- (Finish)