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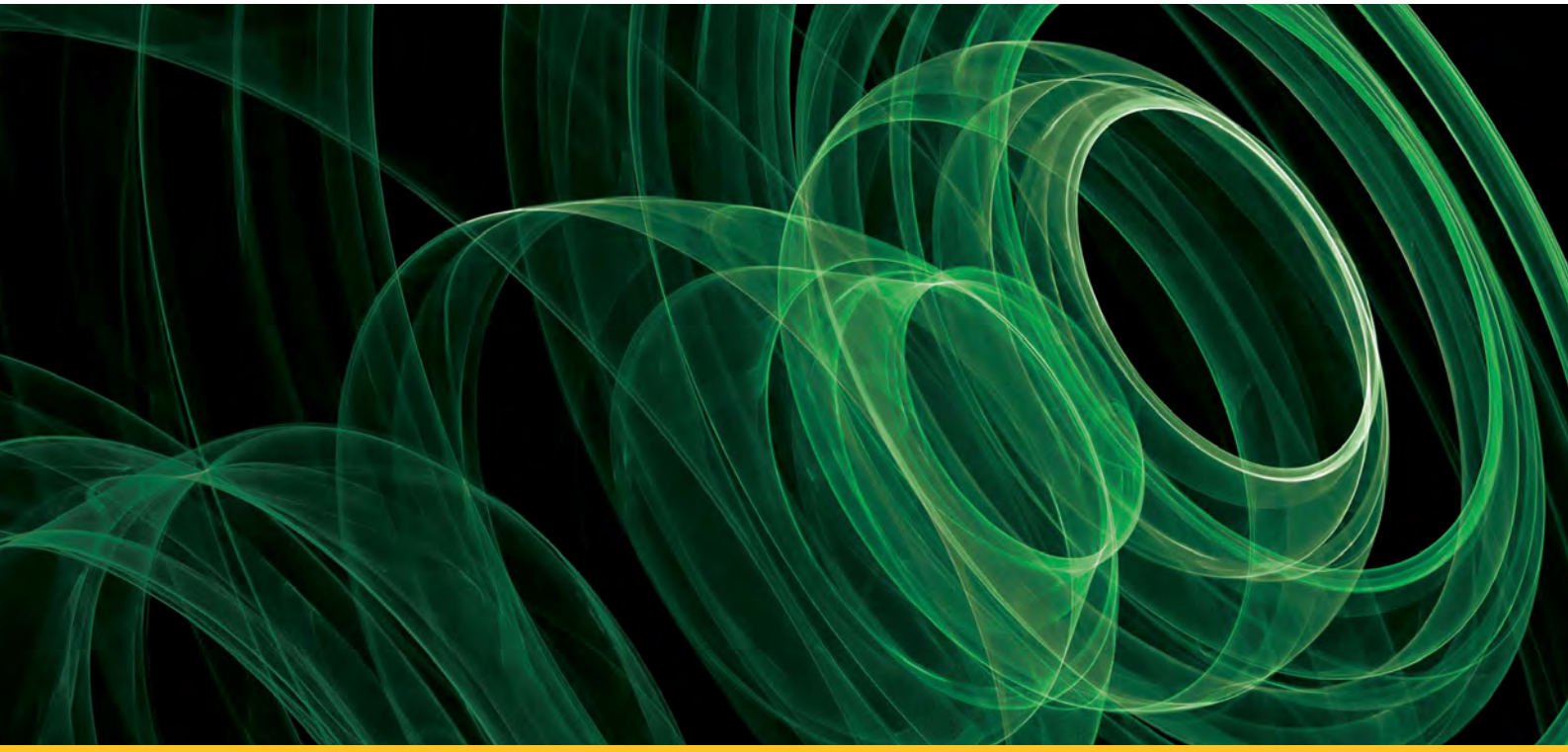

Annex
YarnMaster® 1N1/3N1
Instruction Manual LZE-V

Version 1/08. 2019

Loepfe Brothers Ltd.
Kastellstrasse 10
8623 Wetzikon/Switzerland

Phone +41 43 488 11 11
Fax +41 43 488 11 00
E-Mail service@loepfe.com
Internet www.loepfe.com

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1 Checkpoints for Installation

This checklist is to be used in addition to the document **Specification Loepfe OpenEnd 1N1 Yarn Clearer System** for a specific machine type. For deeper technical details refer to specification.

Type of OpenEnd machine and serial no.:	
Date manufactured:	
Customer:	
Date of commissioning:	
Responsible Loepfe employee:	
Responsible OpenEnd machine technician employee:	

LZE-V (CPU)

- The LZE is fitted safely into the machine head (4 screws on each corner).
- Power supply connected to (+24 V DC taken from the machine).
- Speed input via proximity sensor (delivered by manufacturer) connected individually for each machine side.
- LAN cable between LZE and first section board connected.
- All above wiring and cables are secured and away from moving parts or hot surfaces. Cables placed without tension.

Date: Checked by (Name of technician):

SE-board with stop board

- Mounted with 4 distance pieces. (The back of the SE-board must not be able to touch the machine frame under all circumstances.)
- Stop board safely mounted with 2 distance pieces and plastic pin.
- Each SE-board must be individually coded (with DIP switches and powered with +24 V DC taken from the machine).
- LAN connection to next and previous SE-board via Y-coupling.
- All above wiring and cables are secured and away from moving parts or hot surfaces. Cables placed without tension.

Date: Checked by (Name of technician):

Sensors (Sensing head)

- Mounted in a way the yarn runs centered in the measuring slot and positively touches both ceramics of the sensor. Yarn deflection should be 3° on both sides.
- Cables between sensors and SE-boards are away from turning parts and placed without tension. (Check with spinnbox in open and closed position.)
- Sequence of sensors left and right is correct (check with test program).
- Stop wires (delivered by manufacturer) between stop board and spindle electronics are correctly connected sequence wise.

Date: Checked by (Name of technician):

Signal repeater

Note: A signal repeater is compulsory between section 20 and 21 if the machine uses more than 20 sections.

- Power supply (+24 V DC taken from the machine).
- Check input/output direction (see specification).
- Mounted by use of 4 distance pieces and M4 screws (back of the signal repeater shall not touch the machine frame).

Date: Checked by (Name of technician):

Machine is good for commissioning

Date: Checked by (Name of technician):

2 Checkpoints for commissioning

The following checklist applies when all items of the previous installation checklist were found correctly installed.

Check software/firmware installed on LZE, SE-boards and sensors

All SE-boards and sensors are correctly registered by the LZE and have the following firmware installed.

- LZE SW package: V3.07 build 181211 (is minimum required)
- Rotor SE version: 701004_V9.25_$A620-40D0
- Rotor SN version: 70101_v1.05_$F426

Note: If this is not correct update the LZE and carry out “SE program” when necessary.

Check the following parameter and edit when necessary:

Machine type: e.g. TAITAN TQF-368 (16)
Number of rotors: (e.g. 496)
Select no of groups: (e.g. 2)
Set article parameters attach article set- tings to groups

Date: Checked by (Name of technician):

Check status of sensing head (SH)

- All SHs must be clean and without yarn in the measuring slot. On the LZE screen they appear in status "yarn broken" with 0 m produced and 0 % efficiency.
- No red LEDs should be on, only the green LEDs are flashing briefly.
- Leave all sensors in this status for a minimum of 30 min without entering yarn in the measuring slots.
- Sensors not appearing in status "yarn broken" by that time must specifically be checked or unlocked.

Date: Checked by (Name of technician):

Compare machine speed with Loepfe actual speed

- When the machine is on and running Loepfe shows the speed of the take up roller in [m/min] individually for both sides on the monitoring display. This speed must match with the one indicated by the machine manufacturer display.
- If they do not match refer to specification (Speed deviation).

Date: Checked by (Name of technician):

Carry out "new mean" (Lot Change)

- Activating "Lot Change" in production group menu will automatically carry out a "new mean" for all sensors attached to this group.

Note: It is very important that no yarn is entering the measuring slot of all sensors for one full minute after the "new mean". During this time internal calculations are carried out. There is no indication, neither on the LZE nor on the sensors when this is in progress.

- After a minute all sensors should be in status “yarn broken” with the green LED flashing briefly.

Date: Checked by (Name of technician):

Start producing yarn with one sensor after the other

- Make sure the yarn runs (oscillates) right in the center of the measuring slot and always positively touches both ceramics. As soon as yarn is detected, the sensor changes from "yarn broken" into "run inhibited" and a few seconds later into "running" state.

Note: Each sensor has to produce 1000 m of yarn before a valid "reference mean" is calculated. During the 1000 m period the sensor will adapt longer diameter changes, however, it will always react on short incidents as "neps", "shorts" or "long failures" within the matrix.

Date: Checked by (Name of technician):

3 Useful procedures

Finding a reference mean

- For each sensor, when 1000 m are done, the “reference mean” becomes fixed.

Note: Because the sensors do not share their means with others this needs to be achieved by each individual sensor.

The diameter of the yarn running though the sensor is indicated as “actual mean”. When “reference mean” and “actual mean” spread by more than the programmed value set under “article” the system will stop the affected rotor opening the associated relay contact for 1.2 s (a yellow LED on the stop board goes quickly on). The SH status changes from “running” into whatever the problem was (e.g. “quality stop”).

- When a quality problem has been detected the yarn end must removed from the sensor by the turning pack within 5 s.

Does the broken yarn remain longer in the sensor a “Dust lock” will appear.

- When a rotor is not able to stop (because of false wiring) it will come up with “Dust lock” after a few seconds. In this case check stop wiring.
- When all rotors are finally producing the means of all rotors can be compared under Monitoring/ Trends/Means. They should more or less be equal within the production group.

“Changing a sensor” checklist

Note: Before considering a sensor as bad. Make sure it is free of dust and dirt, yarn guidance is correct, no lock active, and an individual new mean procedure for this sensor remained unsuccessful. Also read the next section **Dealing with locks**.

- Replace the damaged sensor by a new one. Both LEDs go through an initialization process, after 15 s they shall go off and only the green LED flashes briefly.
- Check status on LZE (should be “yarn broken”). If not, initiate an unlock procedure via LZE. Also read the next section **Dealing with locks**.
- Carry out an individual “new mean” for the exchanged sensor.
- Wait for a minute before letting yarn in to the sensor.
- Start spinning and produce a minimum of 1000 m with the new sensor until the “reference mean” is fixed.

Dealing with locks

Note: There are quality locks and technical (hardware) locks.

- Basically a lock is cleared when both LEDs on the sensor remain dark (with exception of the green flash).
- Quality locks can be reset with the button on the affected SH (when the relevant function on the LZE under article is activated).
- A hardware lock must be reset via the LZE to switch off the LEDs (the SH button is not doing that).

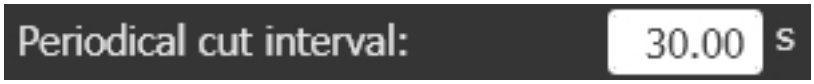
Note: It is highly recommended to carry out an individual “new mean” for hardware lock affected SHs after reset. This includes a minute waiting time followed by 1000 m production before a new “reference mean” is fixed.

Note: On the LZE the status of a stop or lock remains until a yarn enters the sensor. With this the status changes immediately to “run inhibited” and “running”, thereafter.

Status “yarn broken” or rotor running without yarn in the sensor

“Yarn broken” appears when a connected sensor is not in lock state and has no yarn detected, when yarn bounces out of the sensor or the yarn production process became interrupted for any reason.

- To prevent yarn running outside of the sensor a special function under setup/machine/advanced can be activated.



When a time in seconds (e.g. 30 s) is set a stop signal (by relay or telegram) for all rotors in status “yarn broken” will periodically be generated with the set frequency. This is to stop rotors running their yarn outside of the measuring slots. Status after rotor stop will be “yarn broken”.

- Function "Enable stop in case of yarn broken" ticked, will activate a stop signal every time the sensor state changes to “yarn broken” (by default it doesn’t do this).

This may especially be helpful when yarn is bouncing unquietly in the measuring slot. Whenever the “running” or “run inhibited” state changes to “yarn broken”, temporarily or permanently, the associated rotor will receive a stop signal and the fiber flow to stop.

Problems during piecing process

Piecing detection starts immediately after the yarn enters the sensor during the “run inhibited” phase. It ends when the indication changes to “yarn running”. Especially with semi-automatic machines it may happen that a piecing problem is detected before the spinning process really starts. In such cases the detection sensitivity under “article” can be reduced step by step from 100 % (full sensitive) to 50 % (half sensitive). Alternatively the “stop —> run inhibited” parameter which defines the time window while quality problems are valued as piecing problems can be shortened (default time is 8 s).

Sensor does not recognize yarn (some may run in “yarn broken” or “dust lock” state”

As a first thing check the dust value of this sensors. All values above 0.20 require for action as follows:

Note: Do not use screw driver or similar tools for cleaning.

- Carefully and properly clean the sensor slot with a special cotton bud (available from Loepfe). When doing so take good care not to damage or scratch the sensor glasses.
- Initiate a “new mean” (wait for a minute, when done so) and check the dust value. If it does not fall below 0.20 the sensor must be considered as bad. In this case follow the “Changing a sensor checklist”.

Machine running with single section show “no communication”

Since all the quality detection work is made on the SE-board a temporary connection problem with the LZE (Display unit) is not a serious issue. Usually the problem will solve itself when waiting for a while. Alternatively a warm start of the LZE (power off/on) solves the problem immediately. Such can be done without stopping production, simply unplug the power supply to the LZE temporarily. Should the problem stay after a warm start the LAN chain between the sections must be checked. Usually the problem is the threefold LAN coupling which links the affected section to the LAN chain.

Problems with “Dustlock”

A dust lock usually disappears when the yarn is removed from the sensor, the red LED will go off and the sensor is ready to work again after a minute (this time is needed to calculate a new dust value). If the dust value does not drop under 0.20 after a minute clean the sensor and initiate a “new mean”. Wait for a minute and check the dust value again, if still above 0.20 the sensor is to be considered as bad or unstable.

Rotor does not stop when a quality issue is indicated

A rotor stop on OpenEnd machines is triggered either by a NC (normaly closed) relay on a stop board or a telegram generated on an interface board sitting on each section board. It is very important these stop boards or interface boards be properly connected to their section boards by distance pieces with M4 screws and a plastic pin (these parts are delivered by Loepfe). To check, disconnect all Sensors and find one yellow LED on for each disconnected sensor on the stop board. These LEDs must stay continuously on even when gently rocking the stop board or interface board on its mounting.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