

# INSTRUCTIONS MANUAL

## FFAZ – AUTOMATIC FEEDER

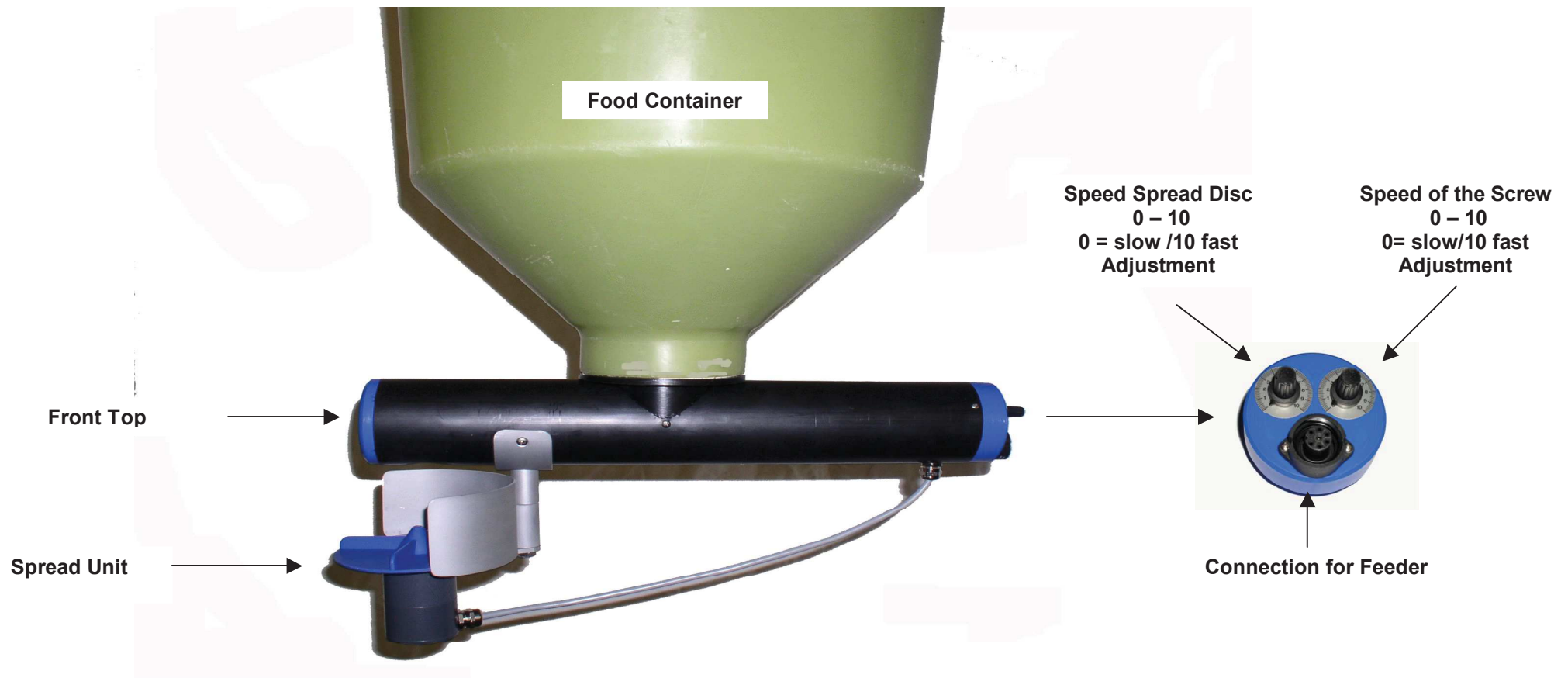


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System – Entwicklung  
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## Technical Datas FFAZ – Automatic Feeder with Spread Disc



### Technical Datas:

**IDEAL VOLTAGE** - between 18 Volt D.C. .... up to 30 Volt D.C. – variable Voltage

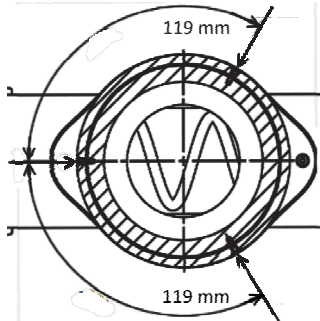
**Power needs :** 30 Volt D.C. - 1 A/h

24 Volt D.C. 1,2 A/h

12 Volt D.C. - 1 A/h - Spread Disc will works with 20% lower Speed

## INSTALLATION - FFAZ Automatic Feeder with Hopper:

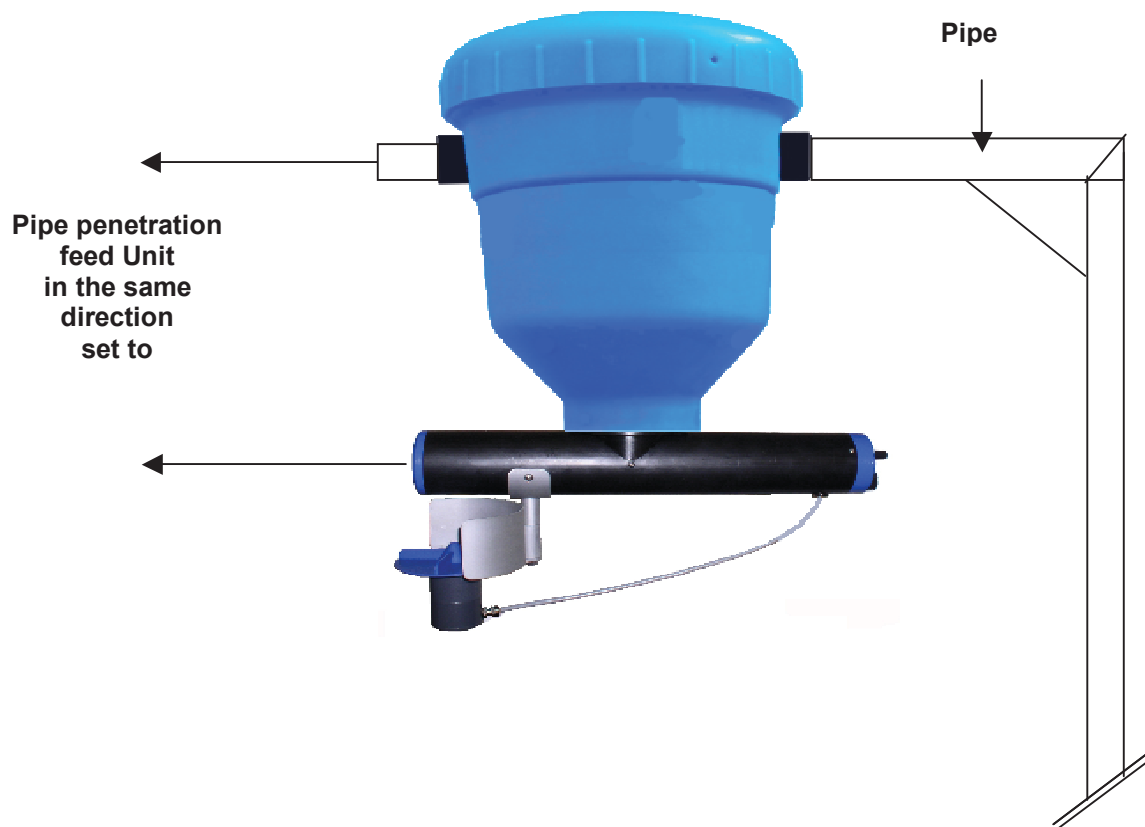
FFAZ stuck in hopper receptacle,  
with the drill bit 3.5 mm, drilling  
10 mm deep into adapter



Insert and tighten screws

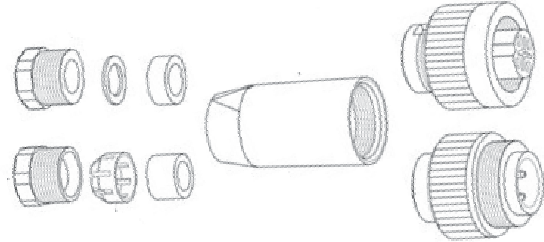


10 mm deep  
drill

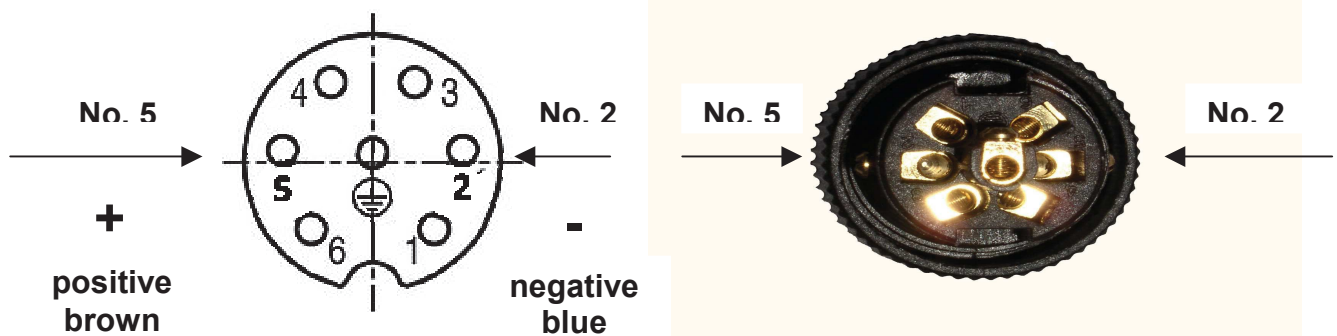
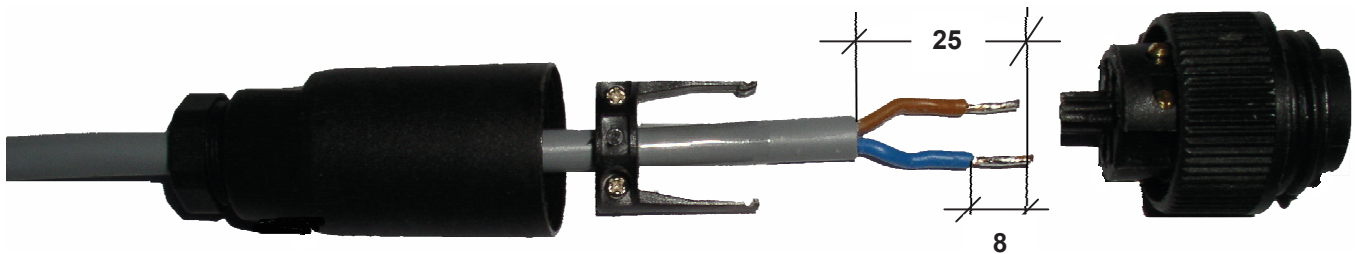


## Plug mounting FFAZ - automatic feeder:

### FFAZ Automatic Feeder Plug



**screwing on the plug is done as follows**  
**Cable cross-section: 2 x 1.5 mm<sup>2</sup>**



Next we check the assembly with a continuity tester to make sure there is no connection between positive and negative.

After this test is completed, the plug is screwed together - to hold in the middle and turn the collar forward and carefully together because of the fine thread.

A possible short circuit has the following effects:

- the machine does not start
- The output fuse of the controller is destroyed

If you have any questions, please use our fax number 49 7572 3791.

We are happy to help in every way.

Mengen, 20.05.2019



## Setting of the Timer , Control Unit for the Operation with:

1 Timer  
1 Control Unit ZK 812  
FFAZ Automatic Feeder

**!!!!!!! NEW – ONLINE CALCULATOR !!!!!**

free Download !!!

[www.ffaz-fischfutterautomaten.de](http://www.ffaz-fischfutterautomaten.de)

Example Datas:

Start Feeding	06:00 am
Stop Feeding	06:00 pm
Feed Amonut/Day	50 kg
Pause between feedings	30 Minutes (at your wishes)
Pellet/ Partikel Size	2.5 mm
Screw Speed - Stage 10	31.4 gr/sec. Food Chart enlistings

Average Datas Particle/Pellet size :	Feed amount/sec.
0.2 – 0.4 mm	14,3 gr./sec.
0.4 – 0.8 mm	17,1 gr./sec.
0.8 – 1.2 mm	20,0 gr./sec.
1.2 – 1.6 mm	21,4 gr./sec.
1.8 mm	24,2 gr./sec.
<b>2.5 mm</b>	<b>31,4 gr./sec.</b>
3.5 mm	31,4 gr./sec.
4.5 mm	31,8 gr./sec.
6.5 mm	27,0 gr./sec.

Food Chart enlistings – go to the Download area – free download !

### Excample

Timer - Electronic Control ZK812 - FFAZ – Automatic Feeder Spread Disc

### START:



→ **TIMER:** Start Feeding – Stop Feeding  
- Start Time 06:00 a.m Stop Time 06:00 p.m

Calculate now with the Harry Müller Feeding Formula - ( use the online Calculator)

(Feed per day 50.000 gr. **divided** / gr. / sec. ) **31,4 gr./sec.** → (Food Chart Size **2.5**) = Result **1.592 sec.**

(Start – Stop Difference minutes 720 min. **divided** / Pause between feedings **30 Min.**) = Result **24 feedings/day**

**1592 sec.** **divided** **24 feedings per day** = Result **66 sec.**

### Adjust the Electronic Control



### Description of Function:

Every day at 06:00 a.m. will start the Timer the Electronic Control ZK 810 (the Control will start always with the Paustime) – after 30 Min. Paustime - Start the Electronic Control the Feeding time 66 sec. then Feeding – Paustime – Feeding – Paustime the Control work with the Flip/Flop System .....up to the end ... Stop Feeding through the Timer at 06:00 p.m at the evening

### Pond 1

- Use the same calculation results as in the **Example 1**

### Adjust the Electronic Control:

**Füttern (Feeding) : 66 sec.**

**Pause (Paustime) : 30 Min.**



### Adjust Screw Speed at the Feeder:



← **Stage 10 !!!!**

### **PAUSE TIME - settings: very urgent please read !!!**

if you will working with 4 Feeders with Spread Disc and one Power Supply follow pause Time settings are necessary:

#### **DIFFERENT Pause Times from Feeder to Feeder**

1. Feeder 10 Min. Pause Time
2. Feeder 12 Min. Pause Time
3. Feeder 14 Min. Pause Time
4. Feeder 16 Min. Pause Time

- from Feeder to Feeder the Pause Time must be more than 2 Minutes
- no overload the Power Supply
- if you forget this System - the Power Supply will switched off automatically if is overloaded

([www.FFAZ-Fischfutterautomaten.de](http://www.FFAZ-Fischfutterautomaten.de))

**High Energie – Consumption** - no Stand by - the FFAZ – Automatic Feeder System use only then the Energie, when you need it!

Only the Timer runs 24h a Day – with very very low Energie Consumption!!!!

If the Timer switched off – the complete System is Energie less -

**High Efficiently**, elektrisk and electronic Componets with a high long life time, because they only be used, when the System works.

Please have a look for more Informations about our FFAZ – Automatic Feeder Systems.

[www.FFAZ-Fischfutterautomaten.de](http://www.FFAZ-Fischfutterautomaten.de)

## FOOD – CHART – DISPENSING of FOOD only for FFAZ – AUTOMATIC FEEDERS

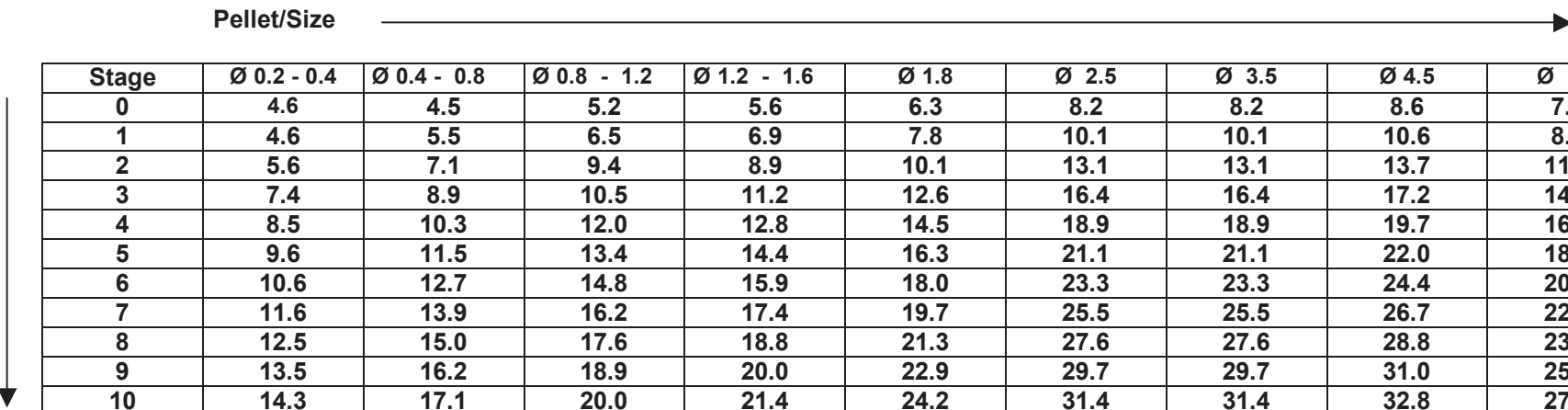
### Calibration of the feeder:

Measurement of the given feed amount in dependence on the partikel/Pellet Size at max. speed of the conveyor screw adjustment

### Calibration of your own food:

the Calibration figures given below represent average values. If you wish to do the calibration for your specific feed type and Conditions, please set the conveyors speed at maximum speed stage 10 – and measure the feed given per Minute. Feed your food in a empty bag – measure them with a scales - dividing the result by 60, now you will get the correct figure per second.

Pellet/Size



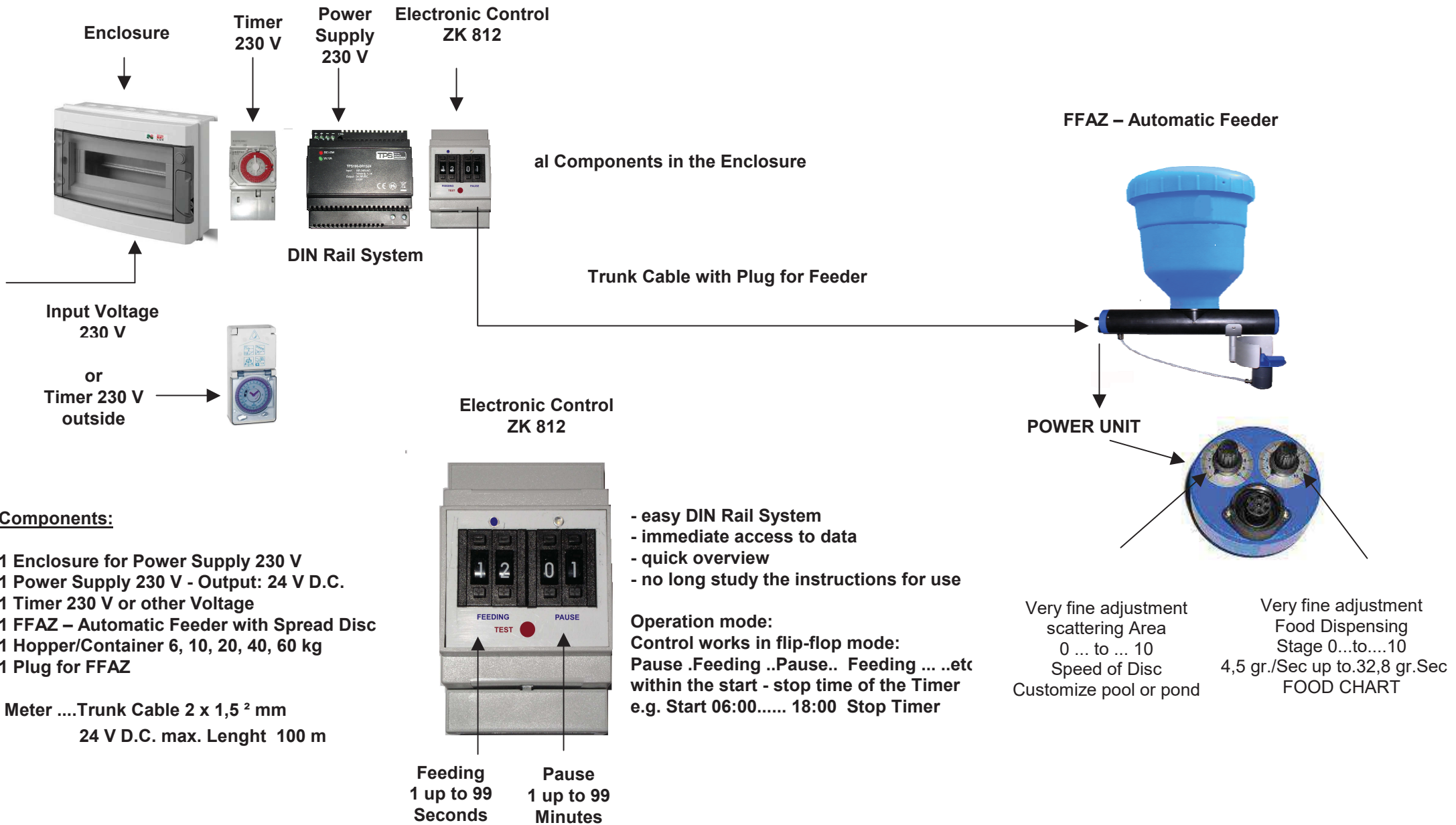
Stage	Ø 0.2 - 0.4	Ø 0.4 - 0.8	Ø 0.8 - 1.2	Ø 1.2 - 1.6	Ø 1.8	Ø 2.5	Ø 3.5	Ø 4.5	Ø 6.5	mm
0	4.6	4.5	5.2	5.6	6.3	8.2	8.2	8.6	7.1	gr./sec.
1	4.6	5.5	6.5	6.9	7.8	10.1	10.1	10.6	8.8	gr./sec.
2	5.6	7.1	9.4	8.9	10.1	13.1	13.1	13.7	11.3	gr./sec.
3	7.4	8.9	10.5	11.2	12.6	16.4	16.4	17.2	14.2	gr./sec.
4	8.5	10.3	12.0	12.8	14.5	18.9	18.9	19.7	16.3	gr./sec.
5	9.6	11.5	13.4	14.4	16.3	21.1	21.1	22.0	18.2	gr./sec.
6	10.6	12.7	14.8	15.9	18.0	23.3	23.3	24.4	20.2	gr./sec.
7	11.6	13.9	16.2	17.4	19.7	25.5	25.5	26.7	22.0	gr./sec.
8	12.5	15.0	17.6	18.8	21.3	27.6	27.6	28.8	23.8	gr./sec.
9	13.5	16.2	18.9	20.0	22.9	29.7	29.7	31.0	25.7	gr./sec.
10	14.3	17.1	20.0	21.4	24.2	31.4	31.4	32.8	27.0	gr./sec.

The datas that you will find here, they are all average datas in variation of +/- 10%

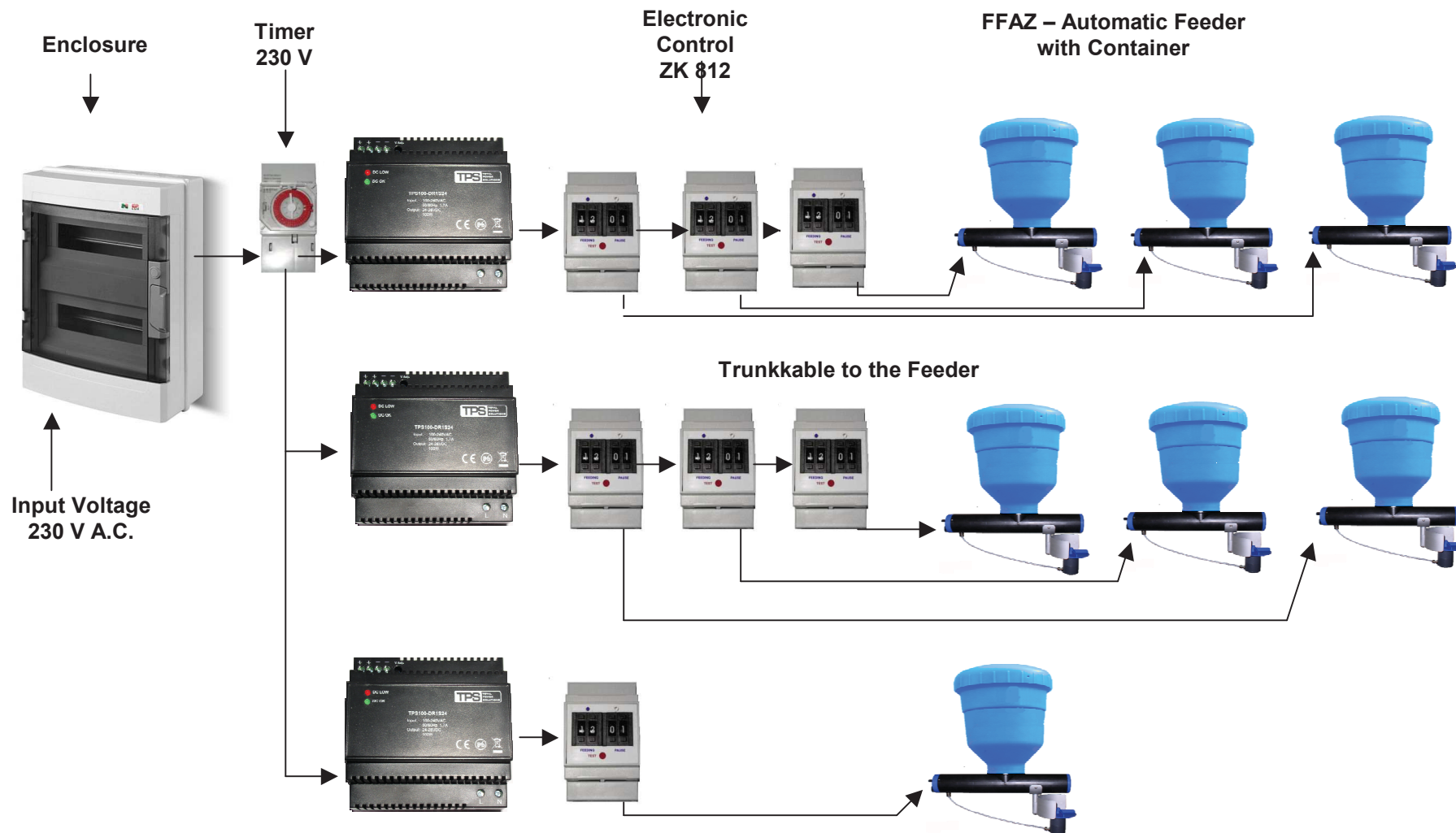
### AFTER CALIBRATION:

- you can compare your measurements with this chart measurements at stage 10 and particle/pellet size. You will find Differences between your datas und the listed datas in the chart, so you can calculate (for Example more/ less than 10%), so you have not to measure every stage position new.

# 1 FFAZ – FFAZ Automatic Feeder – with Spread Disc – 230 Volt Power Supply and Timer 230 Volt :



**7 FFAZ – FFAZ Automatic Feeder – with Spread Disc – POWERSUPPLY - Timer 230 Volt :**



- every Feeder you can programmed separately - Pause Time - Feeding Time
- every Feeder you can adjust the Feed output spending separately - full at Stage 10 - very low Stage 0 - with the Screw Potentiometer

## Description of Electronic Control ZK 812

### Function Description:

this control must be preceded by a timer with the start of feeding eg 08:00 o clock and STOP feeding as 16:00 o clock. The control will work in flip-flop mode = pause Feeding... pause ... Feeding ... Feeding between the start and stop times. Use our online Food Calculator.

**Feeding**  
1 – 99 sec.

**LED - Feeding**  
is flashing until the set Feeding expired.

**Feeding:**  
ON - 01 to 99 Sec. - control is active

**OFF - 00 Pos -** Function of the controller is interrupted

Fill Hopper or other maintenance



**Pause**  
1 – 99 Min.

**LED - Pause**  
Shows you the Control is working now,  
flashed every second

**Pause:**  
ON - 01 to 99 Min. - control is on

**OFF - 00 Pos -** The function of the controller is interrupted

Fill Hopper or other maintenance

**Input Voltage**  
- / +

**Output Voltage** → **to the Feeder**  
- / +

### Technical Specifications:

Input voltage: 12 V DC ... to ... 30 V DC variable

Output voltage: depending on the input voltage to 30 V DC

Output: 8 A

1 output: max. 2 FFAZ - Feeders with spreader

Protection: Installation in waterproof Enclosure

**WARNING:** use it only in closed dry Rooms – use it only with always closed Glass – TOP!!  
Repair only through skilled electrical tradesman !!!

### Description Electronic Control: - how does it working

put the 230 V input plug into your Timer 230 V (best Timer mechanical with disc a very easy one) – programming the Timer: “ **Start-Time** and **Stop Time**” as you will like it. When the Timer switched - **Start** the Control begins to working always begins with the “Pause-Time” after them automatically the Feeding Time – after them Pause-Time after them Feeding Time and so on ..... only the Timer can stop this Flip-Flop System with your **Stop – Time** programmed on your Timer. Between the START – TIME and STOP-TIME only in this part of Time the Control will working.

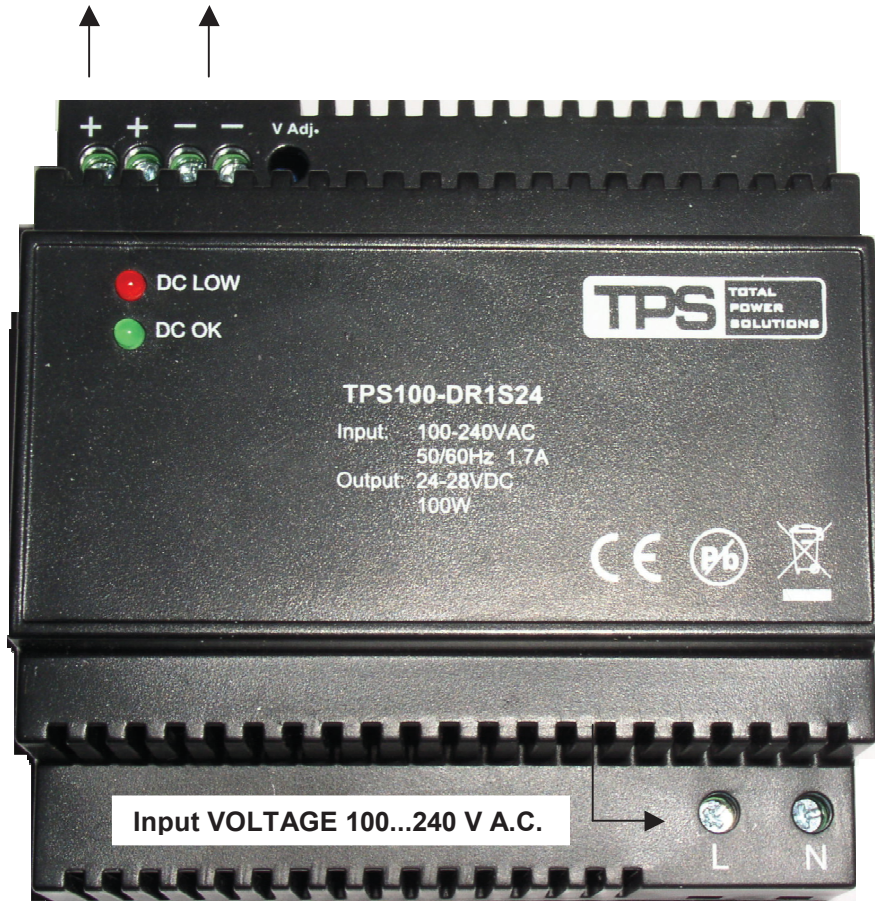
**Power failure:** - set your Timer again to the right Time – finished now - you dont need more things to do.

**Never you can spare more ENERGIE !!! – you need only a few for the Timer – if the Timer Stop the Feeding, the System is still sleeping !!!**



## Description POWER SUPPLY 100 V A.C. bis 240 V A.C.

Output Voltage 24 V D.C.



### Specification:

Max. Output Power: 100 W  
Nominal Voltage: 24 V  
Voltage Tolerance: 24-28 V  
max. Load: 4,2 A  
min. Load: 0,1 A  
Ripple: < 30 mV  
Noise: < 50 mV  
Voltage Range: 90-264 V A.C.  
Frequency: 47-63 Hz  
Overvoltage Protection: 30 V  
Overloaded Protection: 130 W  
Overcurrent Protection: 5,5 A

### Spezial Funktionen:

Universaler AC Weitbereichs Eingang  
Einfaches Snap On Schienensystem  
Schutz: Überspannung, Überstrom, Überlast  
Kompaktes Gehäuse  
Niedere Restwelligkeit  
100% Vollast Burn In Test  
Sicherheitsnormen  
EN60950-1, CE, RoHs  
Garantie: 3 Jahre  
EMC  
EN61204-3, EN55022 B, EN55011 B, EN61000-6-2,  
EN61000-4-3, EN61000-4-2, EN61000-4-4, EN61000-4-5,  
EN61000-4-6, EN61000-4-8, EN61000-4-11  
EMI  
FCC-B, CISPR22 B

## Watch out Outputchannels for max. 4 Feeders

max. 4 FFAZ Automatic Feeder are possible !!!!

- every Feeder 1 Control ZK 812

Pause Time different from Feeder to Feeder

Example: 1. Feeder 10 Min. Pause, 2. Feeder 12 Min. Pause,  
3. Feeder 14 Min. Pause, 4. Feeder 16 Min. Pause

- the Pause Time must be higher from Feeder to Feeder

If you dont do this is it possible that the Power Modul will  
switched of automatically

**Commissioning indoors only and only with waterproof  
Enclosure closed !!!**

**Maintenance and repair only by trained personnel**

Please use our Food Calculator online [www.ffaz.info](http://www.ffaz.info)