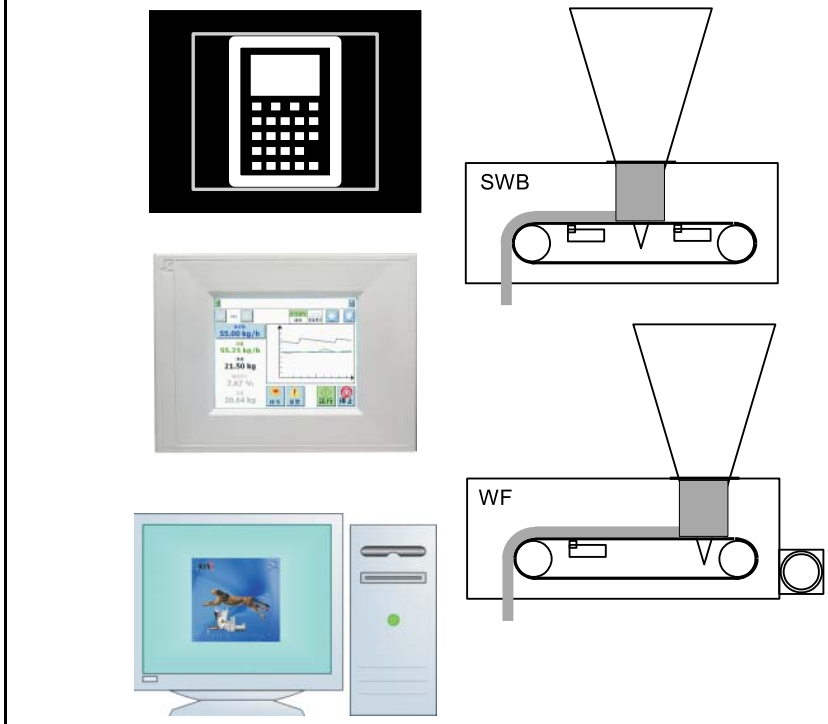
PROGRAMMING INSTRUCTIONS

KCM WBF Programming
Software Version 2.8



Read this document prior to operating the device.
This document contains all safety and warning notes.

Original operating instructions

0590020602-EN Rev. 1.7.0

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Before you call...

⇒ Do you have alarm displays? Are you able to eliminate the causes?

⇒ Have you modified part of the system, product or operating mode?

⇒ Have you tried to remedy the fault in accordance with the operating instructions?

⇒ Note the project or order number. You will find these on the machine or in the system manual.

- Example: 0403214

Using the manual:

⇒ This arrow identifies an individual action.

1. Numbers identify a sequence of actions which have to be executed step-by-step.

▲ This symbol identifies a general safety note.


Reference to another manual.


Important information.


This symbol indicates that tools are required for the following task.


Specifies where information or a situation must be checked.

If an error or ommission is found, please contact:
documentation@coperionktron.com

Doc. No.: 0590020602-EN
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1 Programming Reference

See operating manual for operator instruction with safety notes

The following programming instructions covers application programming for the displays KSU-II/KCM, KSL, K-Vision, KSC.
This manual is only for skilled staff instructed by Coperion K-Tron.

The menu architecture for the application is the same for all displays. The main differences between the displays are the navigation and the short variable name for the KSU-II/KCM.

1.0.1 Additional programming information

See instructions below for information on the following points:

- User interface operation; keypad and display function
- For feeder calibration
- General operation
- Technical specifications

KCM/ KSU-II operation with calibration procedures

K-Vision operation with calibration procedures

KSC operation with calibration procedures

KSL operation with calibration procedures

Smart Connex II Overview

KCM General PC Utilities

KCM Electronics

1.0.2 Manual notation

The following is standard through out this manual.

- KSU-II / KCMParameter name shown as <PARAM NAME>
- KSL / KSC Parameter name shown as <Param Name>
- Parameter value shown as <Param Value>
- Menu name as <Menu NAME>
- Alarm message as <Alarm Message>
- Display indication or key action result as <INDICATION>.
- Dialog box indication as <Dialog>.
- Key or button as **KEY**

The first parameter name (in CAPs) is for KSU-II/KCM display. The second parameter name below the first is for the KSL and KSC.

The **BOLD PARAMETERS** are command functions for the KSU-II/ KCM. For KSL and KSC functions keys are used instead of command functions.

1.0.3 Abbreviations and terminology

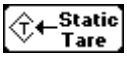
- Config port = diagnostic serial data port
- CPU = central processing unit, microprocessor
- HCU = Hurricane pneumatic loader control
- Host Channel = serial data connection to remote host computer
- HSU = User interface for HCU
- HMI = human, machine interface, usually a PC utilizing a commercial SCADA software package
- Internal Channel = serial data connection to SFTs/HCU and internal motor drives
- KCM = K-Tron control module, the SmartConnex II integrated feeder controller with local keypad and display
- KCM-SD = KCM with status display only
- kgr = host communication file residing in KCM
- KSC = K-Tron Smart Commander, a PC based HMI system for use with up to 30 controllers
- KSL = K-Tron line interface for up to 8 feeders
- K-Vision = K-Tron line interface for up to 16 feeders
- K-Net = KCM serial data connection to KSU-II, KSL, K-Vision or KSC
- K-Port 1 and K-Port 2 = data port for a K-Tron specific communication
- KSU-II = K-Tron single unit user interface for the KCM
- LWF = loss-in-weight feeder
- LSR = Pneumatic loader control
- MDU = Common representation of all types of drive boards (450 / 1600 watt DC drive, AC VFD drive, AC Interface, Stepper motor drive, Vibratory drive)
- pcb = printed circuit board
- SCADA = supervisory, control and data acquisition system
- Smart Connex II = second version of SmartConnex architecture
- SFT = Smart Force Transducer
- WBF = weigh belt feeder

1.0.4 Menu and sub-menu listing

- Product Change menu
- Calibration menu
- Alarm menu
  - Alarm limits sub-menu
  - Alarm setup sub-menu
- Tuning menu
- Scale menu
  - General scale sub-menu
  - SFT setup sub-menu
- Machine
  - General sub-menu
  - Machine set-up sub-menu
  - Motor sub-menu
  - Service sub-menu
  - Performance sub-menu
  - ActiFlow sub-menu
    appears when a ActiFlow is connected to KCM
  - Pre-Feeder sub-menu
    appears when a KCM AC VFD is connected to KCM
- I-O Setup menu
  - Digital Input sub-menu
  - Digital Output sub-menu
  - Setpoint Input sub-menu
  - Analog Output sub-menu
  - Modbus I/O sub-menu
- HCU Loader menu
  appears when HCU is connected to KCM
- LSR Loader menu
  appears when LSR is connected to KCM
- System menu
  - Communications sub-menu
  - SW Versions sub-menu
  - Parameter Backup sub-menu
  - Clock sub-menu
- Security menu

1.1 <PRODUCT CHANGE menu>

This menu allows easy product changeover.

Parameter	Definition
VOL BELTLOAD	The <VOL BELTLOAD> is also known as the BeltLoad Setpoint. A value of <VOL BELTLOAD> must be entered. In volumetric control, eg. belt feeder used as **Weigh Meter**, the belt speed is a function of <VOL BELTLOAD> and the operating setpoint. $$\text{Beltspeed[m/min]} = \frac{\text{Setpoint[kg/h]}}{\text{BeltLoadSP[kg/m]x60}}$$ **Notes:** • After the feeder is configured, calibrated and is operational, enter the actual operating belt load into this variable. • The <VOL BELTLOAD> is the reference used for HI and LO belt load alarms. • As a starting point, set to 2 x Product Density x Hopper opening area
BELT LOAD Beltloading	Displays the actual value of Belt Loading. Input range: Display only
STATIC TARE **Static Tare**	This action performs a static tare of the belt. The belt does not run. A static tare must be done prior to the <DYNAMIC TARE> so a reference value is found. **Notes:** • The weigh belt must be empty and clean prior to this test. ⇒ For KSU-II/KCM-KD select <STATIC TARE>. ⇒ Press **ENTER** twice. ⇒ For KSL press **MORE-F5**- then press  . ⇒ For KSC, press the  . • To cause a Static Tare action while the feeder is running will generate a <Out of Range> message. • The weigh belt must be empty of product.

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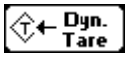
Parameter	Definition
DYNAMIC TARE **Dynamic Tare**	This command starts the dynamic belt tare function. The belt runs at a set speed that is ≤ 4 meter/min. ⇒ For KSU-II/KCM-KD select parameter <DYNAMIC TARE>, ⇒ Press **ENTER** twice. ⇒ Press **RUN** to start the Dynamic Tare function. ⇒ For KSL press **MORE-F5** then press  then press **RUN**. ⇒ For KSC, press  then press **RUN**. **Notes:** • Weigh belt must be empty of product. • Before starting, a value of <VOL BELTLOAD> must be entered and a Static Tare must also be completed. • Press **STOP** to stop the <DYNAMIC TARE> function. • A <Belt not empty> message will occur if a <STATIC TARE> is not done prior to <DYNAMIC TARE>. • A tare action while the feeder is running will generate an <Out of Range> message. • An error message 'Belt Tare Failed' will occur if the dynamic tare value falls outside a pre-defined value. • During the dynamic tare, the software will automatically update the parameter <BELT EMPTY LIMIT> if that value was previously zero. if the belt empty value is set, then running a dynamic tare will not alter it.
SPAN Weight Span	Span correction factor for fine compensation of weigh bridge alignment.This entry corrects for inaccurate massflow values. Input range: 0.4 to 2.5Default: 1.000 **Note:** This is the value used to calibrate the feeder.
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Parameter	Definition
EMPTY FDR	Empty feeder function. When started, the feeder runs at a drive command of 70%. The feeder stops automatically if the actual belt loading is less than the value denoted by <Belt Empty Limit>. **⚠ CAUTION** This command will start the feeder. Ensure that no one is working at the machine. ⇒ For KSU-II/KCM-KD select <EMPTY FDR>, then press **ENTER**  twice then **RUN**  key. ⇒ For KSL press **MORE-F5** then press  then press **RUN**. ⇒ For KSC, press  then press **RUN**. **Notes:** • The <EMPTY FDR> can be aborted with the **STOP** key. • <Empty Drive Cmd> may be changed by the Service Variables. • Shut off product flow to weigh belt.
ActiFlow CALIB	ActiFlow calibration function 1. Fill the feeder with material. 2. Set material characteristic “Easy, Medium, Hard or Manual“ in the <MACHINE SETUP menu> <ACTIFLOW sub-menu>. 3. Run the ActiFlow calibration. **Notes:** • This value is only displayed if an ActiFlow is connected. • This calibration routine will run a frequency sweep on the ActiFlow to find the mechanical resonance point of the feeder. During the calibration is no material fed. • Its important to have the feeder filled with material to a normal operating level before running this step, because the resonance point is significantly affected by material.
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1.1.1 Setting the <VOL BELTLOAD> (Belt Load Setpoint)

1. With the feeder running normally, measure the current value of belt loading.
2. Enter this value into the <VOL BELTLOAD> parameter in the <PRODUCT CHANGE menu>.

1.1.2 Setting Belt Empty Limit

Parameter <VOL BELTLOAD> needs to be correctly set before doing this procedure. It can be done two ways. The first way is done automatically, the second is done manually.

Setting Belt Empty Limit automatically:

1. Set the <BELT EMPTY LIMIT> to <0>.
2. Do a Static and Dynamic Tare.

When the tare is completed, the Empty Belt Limit will be automatically set.

Setting Belt Empty Limit manually:

1. Run the feeder in *VOL* control with the belt empty.
2. From the HOME menu, record the maximum belt loading value as the belt runs.
3. Read the value of <BELT LOAD SP> from the PRODUCT CHANGE menu.
4. Multiply the value from step 3 by <BELT EMPTY-%> in the BELT SETUP sub-menu, MACHINE menu.
5. Compute a <BELT EMPTY-%> value that results in the computed value from step 4 being about 25-50% larger than that recorded in step 2.
6. Enter that value into the <BELT EMPTY-%> parameter.

1.1.3 Setting High/Low Belt Load values

Use this procedure to set the High and Low Belt Loading values for implementing alarms on belt loading.

1. With the feeder operating normally, record the belt load value in the operating menu.
2. Calculate the following numbers:

H = 1.25* Belt Loading.

L - 0.75* Belt Loading.

3. Enter the value of “H” into the parameter <HI BELTLOAD> in the ALARM menu
4. Enter the value of “L” in the parameter <LO BELTLOAD> in the ALARM menu.

1.2 <CALIBRATION menu>

Use the <CALIBRATION menu> to perform feeder calibration..

Parameter	Definition
AUTO CALIBRATE	This action permits easy feeder calibration. The Mass of the discharged product is calculated during calibration in volumetric mode (constant speed). **⚠ CAUTION** ▲ This command will start the feeder. Ensure that no one is working at the machine. For KSU-II/KCM-KD select this parameter, press **ENTER**  twice and then **RUN**  . ⇒ For KSL press **MORE-F5** then press  then press **RUN**. ⇒ For KSC press  then press **RUN**. **Notes:** • <AUTO CALIBRATE> can be aborted with the **STOP** key. • The drive command is set by the value <CAL DC>. • The calibration time by <CALIB TIME>. • The discharged amount of product is shown by <CAL PROD FED>. • The calibration can only be started when the feeder is not running.
CALIB REMAIN [s]	A count down timer for the auto calibrate cycle. It shows how many seconds are left in the Calibration cycle.
CAL PROD FED Calibrate Product Fed	Shows the amount of material discharged during calibration cycle as calculated by the controller. Input range: Display in weight units
ACT PROD FED Actual Product Fed	After the calibration test has been completed, enter the weight of the actual delivered product in this variable. The <SPAN> in the CALIBRATION Menu will be automatically calculated. If you wish to calculate the <SPAN> manually, just ignore this entry and proceed to the PRODUCT CHANGE Menu and enter the computed span there. Default: 0

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Parameter	Definition
SPAN Weight Span	This is the weight span that corrects for mass flow inaccuracy. For accurate feeding, the span must be nearly 1.000 or there is a problem with the weighing system. Input range: 0 to 9.99 Default: 1.000 **Notes:** • This value is automatically calculated when an entry is made to the <ACT. PROD FED> variable. • The <SPAN> value can also be entered manually
CAL CORRELA-[%] Calibrate Correlation	Will be automatically calculated during calibration. The value shows the reliability of the calibration data. A value of 100% means that the weight samples taken during calibration are extremely uniform indicating smooth product discharge and no weight disturbances. Input range: Display only [%]
CAL CORR LIM-[%] Calibrate Corr Limit	If the <CALIB CORRELATION> is below this limit value the calibration test aborted. Input range: 0 to 100% Default: 80% **Note:** This value self-adjusts after each completed calibration cycle.
CAL DC-[%] Calibrate Drive Cmd	Drive command used during the auto calibration cycle. Input range: 0 to 100%Default: 10%
CAL TIME-[sec] Calibrate Time	Input of the duration of the automatic calibration cycle. Input range: 15 to 999 seconds Default: 30 seconds
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1.3 <ALARM menu>

This menu sets the alarm parameters and limits.

Any alarm that is set in percent, is disabled when the entry is <0>.

1.3.1 <ALARM LIMITS sub-menu>

Parameter	Definition
MASSFLOW ERR+[%] Massflow (+) Alarm Limit MASSFLOW ERR-[%] Massflow (-) Alarm Limit	Massflow error limit is the permissible difference in percentage between the setpoint and mass flow without triggering an alarm. Input range: 0 to 100%Default: 10%
DRIVE CMD HI-[%] Drive Command High Limit	The Drive Command High alarm is triggered when <Actual Drive Command> exceeds this value. Input range: >DRIVE CMD LO to 110% Default: 99%
DRIVE CMD LO-[%] Drive Command Low Limit	The Drive Command Low alarm is triggered when <Actual Drive Command> is below this value. Input range: < DRIVE CMD HI to 0% Default: 0%
HI BELT LOAD Beltload High [%] Limit	Maximum permissible value of belt loading in percent of <VOL BELTLOAD> which will not cause a High Belt Load alarm. If the actual belt loading goes above this value, an alarm will occur. If the <VOL BELTLOAD> is equal to your nominal belt loading, set this value to 120%. Input range: 0 to 250%Default: 120%
LO BELT LOAD Beltload Low [%] Limit	Minimum permissible value of belt loading in percent of <VOL BELTLOAD> which will not cause a Low Belt Load alarm. If the actual belt loading drops below this value, an alarm will occur.If the <VOL BELTLOAD> is equal to your nominal belt loading, set this value to 75%. Input range:. 0 to 100% Default: 10%
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Parameter	Definition
BELT SLIP LIM-[%] Belt Slip Alarm Limit	The Belt Slip Limit value as entered in the value of percentage if the belt slip feature is enabled. Input range: 0 to 99.9% Default: 0% **Note:** For belt slip to function, both the drum and the motor speed sensors must be installed. See section 1.3.2.
BELT SLIP VAL-[%] Measured Belt Slip	Ratio Signal between Motor Encoder and Belt Encoder,measured and averaged during 200 Pulses or 5 Min. If greater than the Belt Slip Limit, a Belt Slip alarm occurs if the feature is used. Input range: Display only [%]
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1.3.2 Belt slip detection set-up

For belt slip to function, the following configuration must be completed:

- In the <MACHINE menu>, <MACHINE SETUP sub-menu>, program <PICKUP LOCAT> as <Motor>.
- Wire the motor speed sensor to the speed feedback input of the KCM motor drive pcb as indicated by the provided wiring diagram.
- Wire the optical sensor that is mounted to the idler roller(drum) to the KCM CPU frequency input as indicated by the provided wiring diagram.
- The analog input in the <I/O SETUP Menu>, <SETPOINT INPUT sub-menu> parameter <Source> **must** be set either to <CPU Analog> or to <Extern>. If a remote setpoint is also to be used, then make the connection as programmed since the CPU frequency input is automatically assigned to belt slip detection.
- For take belt slip reference samples, run <DYNAMIC TARE> in <PRODUCT CHANGE menu>. Be sure that during this, there is no belt slip,
- If the Belt Slip Actual is less than 19%, the controller performs an automatic gravimetric belt speed correction with that slip error value.

1.3.3 <ALARM SETUP sub-menu>

Parameter	Definition
ALARM DELAY-[sec] Alarm Delay	Time between the alarm detection and activation of the alarm relay output when the alarm is of the type <Timed> or <Timed-Stop>. The alarm output will not be activated and the alarm will be cancelled if the fault is corrected within this time period. Input range: 0 to 999 seconds Default: 30 seconds.
STARTUP DELAY-[sec] Startup Delay	Time during which process related alarm signals are suppressed when the machine is being started up. See section 1.3.1. e.g. Massflow High error is suppressed. Input range: 0 to 999 seconds Default: 60 seconds.
STOP CLRS ALARM Clear Alarm on Stops	Select <Yes> if alarms are to be cleared when a stop occurs. Select <No> if alarms are not to be cleared during a Stop action. Default: No
ALR Number of Selected Alarm	Input of the alarm number, which can be selected from the list in the appendix. With the programming variable ALARM MODE the selected alarm number can be influenced. Input range: See section 2.6.
ALR Name of Selected Alarm	Shows the alarm function for the selected alarm number.
ALARM MODE Selected Alarm Mode	The selected alarm at the variable Alarm number can be influenced as follows: **Setting** — **Definition** IGNORE — Alarm will be ignored. IMMED — Alarm will be activated immediately but ALS output will not change. IMMED-STOP — Alarm will be activated immediately and ALS output switches ON. TIMED — Alarm will be activated after entered startup up- and alarm delays but ALS output will not change. TIMED-STOP — Alarm will be activated after entered startup and alarm delays and ALS output switches ON. Selection will depend upon the action desired. See section 1.3.4 for additional information.

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Parameter	Definition
STOP BY	This message displays what caused the KCM to last stop.
Feeder Stopped By	• Board Reset (Reset while running) • Loc Display (Stop button on local user interface) • Ext Display (Stop command by host or k-port device) • ALS Input (ALS digital input active) • DginRunEna (Run Enable digital input not set) • Stop Input (Stop edge on digital input) • MDU DrvEna (MDU drive enable input not set ,Term.7-8 & 9-10) • Zero SP (Setpoint zero, shows WAIT status if started) • Emptying (Stopped itself after empty command) • Interlock (Interlock digital input not set, shows WAIT if started) • Calib (Stopped itself after Calib command) • Tare (Stopped itself after dynamic tare command) • MDUInterlock (MDU hard interlock input not set, Term. 11-12) • MDU Alarm (Stopped itself because of a motor alarm)
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1.3.4 Alarm mode actions

- The following chart is important in that it describes the functions of controller outputs and display LEDs under differing alarm conditions.
- Alarm Relay is On for no alarm (fail-safe).
- For Alarm Stop to actually stop the machine, the Alarm shutdown output must be wired to the Alarm Shutdown input.

Alarm Mode	Alarm Display	Alarm LED	ALS Digital Output	Alarm Relay	ASR Bit
Ignore	Off	Off	Off	On	On
Alarm - Immediate	On	On-blinking	Off	Off	On
Alarm - Timed	On	On-steady during time-out On-blinking after time-out	Off	Off after time-out	On
Alarm Stop - Immediate	On	On-blinking	On	Off	On
Alarm Stop - Timed	On	On-steady during time-out On-blinking after time-out	On after time-out	Off after time-out	On

Table: 1 Alarm mode function

1.4 <TUNING menu>

This menu programs the tuning and control parameters for the application.

Parameter	Definition
DISPLAY FILTER [sec] Display Filter	Input of the time over which the mass flow display is determined. The greater the value the more stable the display. Input range: 0 to 999 secondsDefault: 15 seconds
INTEGRAL TIME [sec] Integral Time	The integral time for the control loop. The higher the value the more slowly the controller responds to a flow error. **Setting Reaction Consequence** 200: slow response to flow changes: poor flow regulation 2: fast response to flow changes: unstable and reactive control Input range: 5 to 250 seconds Default: 20 seconds
PREFDR SPAN Pre-Feeder DC Span	Nominal value is 1.00. Multiplies times the drive command for pre-feeder control. Increasing the value will increase belt loading for a given belt speed. This value will dynamically change when the Prefeeder Self Tune is <On>. It can be manually set if Prefeeder Self Tune is <Off>. Input range: 0.1 to 10.00 Default: 1.00
PREFDR TUNE Pre-Feeder Selftune	If set to <On>, sets the pre-feeder self-tuning algorithm to function. If <Off>, the self tune feature is off. This adjusts the pre-feeder span value so that actual belt loading becomes equal to the <VOL BELTLOAD>. Default: Off
SAMPLE TIME [ms]) Weight Sample Time [ms]	Setting of the weighing cells' measuring cycle in milliseconds. The weight on the weigh belt is measured using this value during feeding. Input range: 80 to 8000 msec. Default: 160 msec.
SFT CUTOFF[Hz] SFT CutOff Frequency	Cutoff frequency for the SFT internal digital filter. A lower value represents a more stable weight display albeit slower control response. Input range: 0.033 to 9.999 HzDefault: 0.4 Hz

1.4.1 Programming a prefeeder application

Use this procedure if you are using a prefeeder to the weigh belt feeder. For SWB300/600 applications, set the <PrefeederTune> to <On>. In this case, the drive command output to the prefeeder incorporates self limiting hysteresis control to reduce belt loading oscillations. With the Prefeeder Tuning function turned on, the prefeeder controller will try to drive the prefeeder drive command so that the belt loading result is equal to the <VOL BELTLOAD>.

- A separate KCM AC VFD drive can be used to control the prefeeder.

1. In the DIGITAL OUTPUT menu, set the following:
   – <DIG OUT>: <CPU_Out_Num>
   – <FUNCTION>: <PreFeeder>

<PreFeeder> signal is not <On> for Empty or Tare activity.

2. In the ANALOG OUTPUT menu, set the following:
   – <AOUT NUM>: <CPU>
   – <FUNCTION>: <PreFdr for DC>

The CPU outputs 0-20 mA only.

   – <AOUT MAX>: 100%
   – <AOUT MIN>: 20%
   – <DEADBAND>: 1%
3. In the TUNING menu:
   – <PREFDR TUNE>: <Off>
   – <PREFDR SPAN>: <0.80> to start
4. In the MACHINE menu, MACHINE sub-menu, set the following:
   – Verify the <Prefdr Dist> is correct. It is the measurement from the end of the prefeeder discharge to the weigh bar on the primary weigh bridge. Verify units.
5. In the PRODUCT CHANGE menu, set the following:
   – <BELT LOAD SP>: to desired
6. Make the wiring connections per the supplied drawing.
7. Put the feeder in volumetric control and apply product to the prefeeder.
8. Enter a <VOL BELTLOAD> greater than 1 kg/m.
9. Enter the desired operating setpoint.
10. Press **RUN**.
11. In the Tuning menu, set the Prefeed span to get the desired belt loading.
12. Switch to GRAV mode.

13. Set <PREFDR TUNE> to <On>.
14. Verify operation such that belt loading is maintained.

A faulty prefeeder span value can cause the Self Tune function not to work properly. If that is the case, reset the prefeeder span to a new value and redo the set-up.

1.5 <SCALE menu>

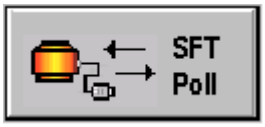
This menu programs the scale parameters and SFT operation in two separate menus/screens.

The secondary weigh bridge is used for tare correction. The primary weigh bridge is used to control the gravimetric feeder.

1.5.1 <GENERAL sub-menu>

Parameter	Definition
TARE or TARE 1 Tare 1st Scale	Tare on the primary weigh bridge. This value is set automatically when the Static or Dynamic Tare function is executed. Input range: 0 to scale range [kg] **Note:** TARE is displayed for a single weigh bridge. TARE 1 is displayed if a secondary weigh bridge is used.
NET WEIGHT or NET WEIGHT 1 Netweight 1st Scale	Display of the current net weight on the primary weigh bridge. Input range: Display only 0 to scale range [kg].
TARE 2 Tare 2nd Scale Only displayed when secondary weigh bridge is used.	Tare on the secondary weigh bridge if used. This value is set automatically when the Static or Dynamic Tare function is executed. Input range: 0 to scale range [kg] **Note:** In the <SFT sub-menu>, SFT Required=2 and the second SFT is at address <3>. This display will then be visible.
NET WEIGHT 2 Netweight 2nd Scale Only displayed when secondary weigh bridge is used.	Display of the current net weight on the secondary weigh bridge if used. Input range: Display only 0 to scale range [kg]. **Note:** In the <SFT sub-menu>, SFT Required=2 and the second SFT is at address <3>. This display will then be visible.
SCALE RANGE Scale Range	Input of the main weigh bridge's nominal capacity.This value will be read automatically from the connected SFT (s). Input range:Normal Display only [kg] or 1 to 999999 kg.

1.5.2 <SFT sub-menu>

Parameter	Definition
SFT REQUIRED Number of SFTs Required	Input of the number of connected SFTs. For a single SFT weigh belt feeder, enter <1>. For a dual weigh bridge SWB300/600 feeder, enter <2>. Address <1> SFT must be the main SFT and if the secondary weigh bridge is used, that SFT must have the address of <3>. Input range: 0 to 6
REPOLL	This command will cause the controller to execute a poll on the weight channel to locate connected and operational SFTs by address. ⇒ For KSU-II/KCM-KD select this parameter and press ENTER twice. ⇒ For KSL press Poll ⇒ For KSC press 
AUTO READDRESS Only on KSU-II/KCM-KD	This parameter allows SFTs to be auto-readdressed automatically. See section 1.5.3 for more information. ⇒ For KSU-II/KCM, press ENTER key for KSU-II/KCM.

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Parameter	Definition
SFTs SFT Configuration	The addresses and error signals of the connected weighing cells are displayed.Typically the parameter will appear as: <-1-------D> or <-123-----D>. The number representing the address of the SFT. Other codes in place of the SFT address include: ? = Invalid response from SFT. -- = No SFT at this address. t = SFT no longer responds. Weight channel data communication failure. f = Internal failure in the SFT, replace SFT. C = EPC address. D = MDU address. E = HCU / LSR address. F = ActiFlow address. G = Second MDU drive address. For a new initialization of the display press **ENTER** twice at the variable <REPOLL>. Input range: Display only
SFT SELECTED Node # Of Selected SFT	Selects the SFT to query parameters: SFT #, SFT SN#, SFT ADDRESSED, SFT WEIGHT, SFT TYPE, SFT STATUS. Input range: 0 to 11
SFT ADDRESSED SFT Addressed	Switching <Off> will address the selected SFT to <0>. Switching <On> sets the SFT address selected in the SFT SELECTED program parameter if there is an available spare SFT. Input range: On or Off
SFT WEIGHT SFT Weight	Displays the current gross weight on the selected SFT. Input range: Display only
SFT TYPE SFT Type	Displays the type of the selected SFT. Input range: Display only

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Parameter	Definition
SFT STATUS SFT Status	SFT error display. The <Process Status Word> of the selected weighing module is displayed. Any status word except 00000183 or 00000181 indicate SFT failures. Input range: Display only see chapter (2.2.4)
SFT # SFT Software or SFT Board SW Rev	Display of the software version of the selected SFT. Input range: Display only
SFT SN # SFT Serial # (Number)	Reports the serial number of the selected SFT.
SFT TEMPERATURE SFT Temperature	Indicates the SFT's internal temperature, in degrees Celsius, of the selected SFT, if the SFT software supports this display parameter.
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1.5.3 SFT Addressing

Unlike the SCM, the KCM does not switch the power of each individual SFT. Thus, if 2 or more SFT's have the same address, a different mechanism is used to change the address of an individual SFT. SFT version 'S' and later version SFTs, have special means to allow readdressing of individual SFTs with the same address. These are:

1. A command to poll and identify SFT's with the same address based on their serial number.

2. A command to change the address of a SFT also based upon serial number.

Terminology:

- New SFT: software version = 'S' or later
- Old SFT: software version 'N' to 'R'
- Note: SFT version 'M' (1st FAST SFT 1997) will not automatically address since they have no means to change the address 'on the fly'
- Spare SFT: SFT has address <0>
- Poll: Polling the internal channel address 0 to 12 to see on which address any connected SFT responds
- Auto Address: Automatically change the address of a Spare SFT to the next available address
- Auto Readdress: Automatically readdresses all SFT's from 1 to n

Auto addressing rules:

1. Auto addressing takes place on power-on with a present spare SFT on address 0.

2. If an SFT is found on address 0, it gets readdressed to the next available address.

3. If one or more new spare SFT's are found on address 0, they get readdressed to the next available address.

4. A single SFT on any address > 0 stays at the same address after addressing.

5. If there are several SFT's occupying the same address, these SFT's get addressed to the next available address.

6. If an old SFT is found together with new ones on the same address, the new ones get readdressed, the old one stays at the same address.

Auto readdressing by user command only rules:

The rules are the same as for auto addressing but:

1. All new SFT's get readdressed to 1, 2, 3 … n where the old SFT's will stay on their current address.

2. SFT's get addressed in the order they are found. Thus, if there is no conflict and the addresses are 1…n, the final addresses will be the same as before.

1.5.4 Manual addressing of SFTs

To set the address of a newly installed SFT to a prescribed address, follow the next procedure.

1. Select SCALE menu, SFT sub-menu.
2. View SFTs variable to verify the SFT in question is at address <0>.
3. Select <SFT SELECTED>.
4. Enter the new SFT address.
5. Select <SFT ADDRESSED>.
6. Select <On>.
7. View SFTs variable to verify the SFT is now at the desired address.

To manually change the address of a properly installed SFT to a new defined address, follow the next procedure.

1. Select SCALE menu, SFT sub-menu.
2. View SFTs variable to verify the SFT address to be changed is present.
3. Select <SFT SELECTED>.
4. Enter the SFT address seen from step 2.
5. Select <SFT ADDRESSED>.
6. Select <Off>.
7. View SFTs variable to verify the SFT address is now <0>.
8. Select <SFT SELECTED>.
9. Enter new SFT address.
10. Select <SFT ADDRESSED>.
11. Select <On>.
12. View SFTs variable to verify the SFT is now at the desired address.

1.6 <MACHINE SETUP menu>

This menu programs the feeder specific information. The data is arranged in three separate screens or menus.

1.6.1 <GENERAL sub-menu>

Parameter	Definition	
SETPOINT MODE Setpoint Mode	**Setting**	**Meaning**
	LOCAL	Feeder is operated as an individual unit.
	RATIO	Percentage of an external analog setpoint input = operating setpoint.
	DIRECT	External analog setpoint input = operating setpoint.
	LINE1-8	Feeder Setpoint is entered from the Line overview Page. In this mode the feeder is assigned to a line. It's called recipe mode. Use Line1 for KSL.
	Input range: See list Default Local	
MAX SETPT Maximum Setpoint	Input of a maximum permissible setpoint value. This value depends on the maximum throughput performance of the feeder. Input range: 0 to 999999 kg/h Default: 7200 kg/hr. **Note:** This value also scales the ratio setpoint input and massfow and setpoint analog outputs.	
SP RAMP INC	Input of the setpoint ramp rate. Input range: 0 to 1000 kg/h Default: 10 kg/hr. **Note:** When this Setpoint Ramp value is non-zero, then when the KCM/KD is showing the HOME page, hitting the '7' or '9' button will ramp down/up the setpoint. notice the little ramp symbols on the KCM keypad next to the 7 and 9.	
IMPACTOR PERIOD only displayed if digital output set to Impactor	Impactor Period is the time between impact cycles in seconds. Input range: Display only	

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Parameter	Definition
IMPACTOR TIME only displayed if digital output set to Impactor	The Impactor Time sets the length of the pulse in mSec, 0 = output off. Also The Impactor Time can be set to make Multi-Pulse. Each Impact can be one or several pulses. To program Multiple-Pulses, use the least significant digit. For example, 503 mS gives three 500 mS pulses, 705 mS gives 5 pulses, 1000 gives one long pulse (for pneumatic vibrator) Multi-Pulse Details: • The multi pulse on time and off time are equal. E.g. 303 = 300 mS on time and 300 mS off time • Maximum time is 10 seconds total. • Duration = 9900 is allowed (one long pulse) • Duration = 707 is allowed but 708 is not. (707: 1.4 seconds * 7 = 9.8 seconds. 708 = 11.2 seconds
UNITS Units Selection	Selection of the desired units. **Setup:** kg/h, kg/min, lb/h, lb/min, T/h (metr. Ton), ET/h (engl. Ton), gr/h, gr/min. Input range: See list Default kg/h **Notes:** • This selection change automatically all weight specific units. • Note, the unit, English Ton, ET, is the so-called Long Ton which is 2240 lbs. this is not the American ton which is 2000 lbs.
RUN TIME-[hours] Feeder Run Time	Display of the total run time in hours. A value may be entered as a baseline. Input range: Normal Display only
FDR ADDR Feeder Number or Feeder Address	Address of the selected KCM. Input range: 1...31 **Notes:** • If the KCM CPU DIP switch, positions <1> to <5> are all set to <0>, then the feeder address is set by this entry, else it is from the DIP switch and then this parameter is ‘read only’. • The KCM address can also be set based on digital inputs.

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Parameter	Definition
APPLICATION Control Type or Application Type	Input of the connected feeder type: **Selection:** LWF, WBF, SFM, PID, VOL, LWB, WBB, SFB, XTR, Confirm, GWB Input range: See list Default WBF for WBF
LANGUAGE Only for KSU-II/KCM-KD	Selects the desired language for the KSU-II. Choices are English, German, French, Spanish, Italian and Custom.
SCREEN SAVER Only for KSU-II/KCM-KD	When set to <On> activates the KSU-II and KCM/KD screen saver function. Input range: On or Off Default: On
Feeder Name Only for KSC/KSL	Enter feeder name at KSL only.
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1.6.2 Changing feeder control application type

To change the feeder from one application type to another, perform the following procedure.

1. Select <APPLICATION>
2. With **NEXT,** select the desired new application like <WBF>.
3. Press **ENTER**.
4. Press **ENTER** again or wait for the parameter <APPLICATION> to again appear.
5. Select <Confirm>
6. Press **ENTER** to load new application.

1.6.3 Loading language file

- The following languages are supported without loading any external files: English, Deutsch, Spanish, French and Italian. If you pick "Custom" as the language, you will need to download the language file.
- It is important to erase any previous file before downloading a new one since it will not overwrite an existing file.
- The following language files are available: Chinese, Japanese, Korean, Danish, Polish, Portuguese, Russian and Turkish.

1. To load the language file to the KCM, switch parameter SYSTEM - COMMUNICATION - CONFIG MODE to "Diag".
2. Connect the PC with a null modem cable to the config port and run a terminal program like Windows HyperTerminal with 19200, 8, n, 1.
3. Press enter on the PC to start the interactive menu. Next press "2" to select Flash File Information,
4. Press "4" to erase the previous file and 'y' to confirm the erase.
5. Press "3" to download the file, then load the file with Z-Modem from HyperTerminal.

1.6.4 KSU-II/KCM-KD screen saver description

The screen saver is used to protect the screen from burning out when always the same data is shown. The screen saver is based on the parameter <MACHINE SETUP> menu, <GENERAL> sub-menu, <SCREEN SAVER> parameter to <On/Off>. The value On or Off is held in the KSU-II EEPROM. This allows to program each KSU-II individually to have the screen saver on or off. The default value is On.

The screen saver functions as follows:

1. After setting the screen saver to ON or in case it is already ON whenever a key is entered, a 12 hour timer starts to count down.
2. If the 12 hour timer has counted down to 0, the screen is set to its lowest brightness level. The screen data displayed is unchanged. The 12 hour timer restarts.
3. If the 12 hour timer has counted down again to 0, the KSU-II is set to the Home page and the screen is cleared. A screen saver character (all pixels on) moves smoothly through each character position line by line. When it reaches the last character position it restarts on the first top left position.
4. When the screen saver is in state 2 or 3 above, any key entered in the keypad will restore the screen to the normal brightness and screen data. The 12 hour timer restarts.

1.6.5 <MACHINE SET-UP sub-menu>

The following parameters set-up specific weigh belt feeder mechanical configuration.

- For the KSL, it is shown as <Belt Mechanics>
- Parameters marked with an ^ are Read Only unless the <FEEDER TYPE> is <Other>. For SWB300, SWB600, WF300 and WF600, these entries are pre-set and must not be changed.

Parameter	Definition
FEEDER TYPE Feeder Type Selection	This entry selects the type of weigh belt feeder to be used. Choices are: WF300, WF600, SWB300, SWB600, Other Default: SWB300
GEAR REDUC Gear Reduction	Enter the reduction value of the motor speed reducer that is installed between the drive motor and drive roller. See the gear reducer nameplate for the reduction to be entered here. (SWB only) If a WF series feeder is used, the total gear reduction is calculated as the InlineReductionRatio*(LargeSprocketTeeth/SmallSprocketTeeth) where the sprockets are used in the chain drive. Input range: 0.01 to 9999 Default: 43.68 **Note:** The GearReduction MUST get changed before running a dynamic tare or anything else.
PICKUP LOCAT Pickup Position	Select the location of the speed sensor for belt speed measurement. Choices are: Drum, Motor Default: Drum (belt idler roller)
PICKUP TEETH Speed Pickup Teeth	Input of the number of teeth on the pick up gear. This gear is used for measuring the speed. Input range: 5 to 9999 Default: 2000 for Drum, 120 for Motor in <PICKUP LOCAT>
BELT LENGTH^ Belt Length^	Entry is the length of the weigh belt in meters Default: 2.4200 meters or 7.9396 ft The default value is correct for SWB300 and SWB600.
DRUM DIA^ Drum Diameter^	Entry is the diameter of the idler roller in meters Default: 0.0900 meters or 0.2953 ft The default value is correct for SWB300 and SWB600.

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Parameter	Definition
TRANSPRT LEN^ Transport Length^	Entry is the transport length or distance between the point of bulk material discharge and the point of weight measurement on the weigh bridge. Input range: 0.01 to 9.99 mDefault: 0.2250 meters or 0.7382 ft The default value is correct for SWB300 and SWB600.
DECK GAP^ Deck Gap^	The entry is the distance between the two weigh bridges when used. When you select SWB300/600, the correct values are entered. Default: 0.5960 meters, or 1.9554 ft **Note:** This entry is displayed only when two weighbridges are used. This entry is for SWB applications only.
DECK LENGTH^ Weigh Deck Length^	Entry is the distance in meters between the two end bars on the weigh bridge. The default value is correct for SWB300 and SWB600. Default: 0.300 meters or 0.9843 ft
PREFDR DIST Prefeeder Dist	Distance from the pre-feeder discharge to the weigh bar of the primary weigh bridge. Input range: 0 to 9.99 Default: 0.4 meter
PREFDR EMPTY	Empty prefeeder when running the empty cycle. Input range: YES/NO Default: NO
BELT EMPTY LIM Belt Empty Limit	Entry in belt loading units. When the actual belt loading becomes less than this value, the feeder stops after being commanded to run by the **EMPTY** Command. Also, when the Belt Loading < Belt Empty Limit, massflow = 0. This entry is also used to trigger the Belt Build-Up alarm. Input range: 0 to <VOL BELTLOAD> Default: 0 kg/meter
SFT TMP SETPOINT only displayed if digital output set to SFTCooling	This is the temperature setpoint used by the SFT Cooling algorithm in °C. Input range: 30 to 60 Default: 40
SFT TEMP PBAND only displayed if digital output set to SFTCooling	This gives the allowed temperature band used by the SFT Cooling algorithm in °C. (With SP = 50 and Band = 10,the SFT temperature ranges from 45 to 55). Input range: 0 to 50 Default: 10

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Parameter	Definition
SFT TEMP INTERVAL only displayed if digital output set to SFTCooling	This is a time interval for the SFT Cooling algorithm in units of seconds. Input range: 50 to 240 Default: 50
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1.6.6 <MOTOR sub-menu>

The motor sub-menu is shown for two types of drives.

- DC drives 450 and 1600 watts
- AC VFD
- AC interface

1.6.7 <MOTOR sub-menu> for DC drive

Parameter	Definition
MOTORLOAD ACT Actual Motorload	Displays the actual motor load. Input range: Display only [%]
MAX. MOT POWER-[watts] Max Motor Power	This entry sets the maximum output power to the motor when using the internal KCM DC motor drive.(See nameplate on DC motor for value) Input range: 25 to 1600 W Default: Depends upon installed drive
MAX MOT VOLTAGE Motor Voltage	This entry sets the maximum output voltage to the motor when using the internal KCM DC motor drive. (See nameplate on DC motor for value) Input range: 90 to 220 Vdc Default: 180 Vdc
MAX MOT SPEED-[rpm] Maximum Motor Speed	Input of the maximum motor rpm for 100% drive command. Input range: Drive specific.Default: drive specific (See nameplate on DC motor for value)
MDU STATUS MDU Status	The MDU status codes reveal operational condition of the Drive. See listing of MDU status codes in manual 0490020605. Also listed in the Appendix. See section 2.2.1.
DC CEILING-[%] Drive Command Ceiling	Limitation of the drive command output to the motordrive. Input range: 10 to 125%Default: 110%

1.6.8 <MOTOR sub-menu> ONLY for AC VFD motor drive type

Parameter	Definition
MOTORLOAD ACT Actual Motorload	Displays the actual motor load. Input range: Display only [%]
MOTOR	Motor type setting. Input range: Manual, Baldor ½ hp ,Y602 ½ hp (Marathon motor), Baldor 2 hp, EMWB 450W, EMWB 1600W, AKM43H (Kohlmorgan servo motor for Pharma Feeder), B56H5Q (Lafert servo motor for Pharma feeder in Hazardous locations) Selecting <Manual> permits the viewing of <PAR.SELECT> and <PAR.VALUE> for the input from the motor data.
PAR.SELECT **Note:** These parameters are only needed if a CUSTOM ac motor is used. Using one of the motors from the selection list means, all of these parameters are automatically filled in with correct defaults	The motor characterization parameters in the mini-loop. FLCurrent[A] (Full load motor current in Amps) MagCurrent[A] (Motor's magnetizing current in Amps) RatedFreq[Hz] (Motor's rated frequency in Hz) MaxFreq[Hz] (Maximum frequency used by KCM Hz) MinFreq[Hz] (Motor's rated minimum frequency in Hz) OverCurrent[%] (programmable shutdown limit in% of Full Load Current) OCurrTime[s] (programmable shutdown limit in seconds) OverCurr2[%] (programmable shutdown limit#2 in% of Full Load Current) OCurrTime2[s] (programmable shutdown limit#2 in seconds) Inertia[pu] (total inertia of motor plus load in internal units) X1[Ohms] (Motor Impedance X1 parameter in Ohms) X2[Ohms] (Motor Impedance X2 parameter in Ohms) Xm[Ohms] (Motor Impedance Xm parameter in Ohms) R1[Ohms] (Motor Impedance R1 parameter in Ohms) R2[Ohms] (Motor Impedance R2 parameter in Ohms)
PAR.VALUE	Value for the selected parameter.
MAX. MOT POWER [watts] Max Motor Power	This entry sets the maximum output power to the motor. (See nameplate on motor for value) Input range: 25 to 1600 W Default: Depends upon installed drive

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Parameter	Definition
MAX POWER LOW [watts]	This entry sets the maximum output power to the motor for low gear or when two different Motors are used. (See nameplate on motor for value) Input range: 0 to 450 W Default: 0
MAX MOT VOLTAGE Motor Voltage	This entry sets the maximum output voltage to the motor. (See nameplate on motor for value) Input range: Read only Default: 230 VAC
MAX MOT SPEED - [rpm] Maximum Motor Speed	Input of the maximum motor rpm for 100% drive command. Input range: Drive specific.Default: drive specific (See nameplate on motor for value)
MDU STATUS MDU Status	The MDU status codes reveal operational condition of the Drive. See listing of MDU status codes in section 2.2.1.
DC CEILING-[%] Drive Command Ceiling	Limitation of the drive command output to the motordrive. Input range: 10 to 125%Default: 110%
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1.6.9 <MOTOR sub-menu> for AC Interface

Parameter	Definition
MAX MOT SPEED - [rpm] Maximum Motor Speed	Input of the maximum motor rpm for 100% drive command. Input range: Drive specific.Default: drive specific (See nameplate on motor for value)
MDU STATUS MDU Status	The MDU status codes reveal operational condition of the Drive. See listing of MDU status codes in section 2.2.3.
DC CEILING-[%] Drive Command Ceiling	Limitation of the drive command output to the motordrive. Input range: 10 to 125%Default: 110%

1.6.10 Using an external motor drive

The CPU outputs 0-20 mA only.

1. The AC Interface is installed.
2. In the <I/O SETUP menu> <ANALOG OUTPUT sub-menu>, set the following:
   – <ANALOG NUM>: <CPU>
   – <FUNCTION>: <Drive Command>
   – <DEADBAND>: <0.25>
   – <AOUT MAX>: 100% (This is the output span value)
   – <AOUT MIN>: 20% (This is the offset value)
3. Make the wiring connects per the provided drawing.
4. Run the feeder in volumetric control
5. Adjust <Aout Max> to get the desired motor speed for a given value of drive command.

1.6.11 SERVICE SETUP sub-menu

Parameter	Definition
S.VAR Service Variable Function	Display of the service variable name. See list in the appendix.
S.VAR VALUE Service Variable Value	Display and change of the service program value as selected with S. VAR.

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Parameter	Definition
TRACETICK Tracetick	This parameter sets the time interval for recording operating data to KCM internal memory so that it can be retrieved and viewed on a PC for later analysis. Two types of data are recorded: Trace data e.g. massflow and operational status. e.g. gravimetric control. The second data type recorded is Alarm History data. Selections: Stop: The trace recording is stopped and the data can be read from the Configuration serial data port using HyperTerminal. When <Stop> is selected, the data can be read from the KCM at any time as long as power to the KCM is not interrupted. Restarting of the <TRACETICK> can be done without losing data if done within 1 hour of stopping the trace. <1 sample>: Each sample point of data is recorded. No more than five minutes of data can be stored without older data being over-written. <1/4 Sec>: 4 samples per second of data <1 Sec>: 1 sample per second of data <5 Sec>: 1 sample of data every 5 seconds <15 Sec>: 1 sample of data every 15 seconds <60 Sec>: 1 sample of data every 60 seconds <1 SmpRun>: Each sample point of data is recorded. No more than five minutes of data can be stored without older data being over-written. Only when the feeder is running <1/4 SecRun>: 4 samples per second of data. Only when the feeder is running <1 SecRun>: 1 sample per second of data. Only when the feeder is running <5 SecRun>: 1 sample of data every 5 seconds. Only when the feeder is running <15 SecRun>: 1 sample of data every 15 seconds. Only when the feeder is running <60 SecRun>: 1 sample of data every 60 seconds. Only when the feeder is running <Save to File>: Only for KCM with Web Interface. When changed to <Save to File> the data will be sent from the KCM to the Ethernet CPU. This process takes approximately four minutes. After four minutes, the data will be available for examination/copy using the browser. Default: 1 second

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Parameter	Definition
TRACETICK Tracetick	**Notes:** • The default value of 1 second will return after a KCM power interruption. Any other value of <Trace Tick> is not stored during a power interruption. • There are 3600 individual samples of data in storage. So for a 1 second timetick, 1 hour of data is preserved. For a 60 second timetick, 60 hours of data are stored.  Please see manual 0690020601 for operational details on using this resource.
STOP ON PSW/ASW	This is the PSW or ASW bit number on which the recording will stop. **Notes:** • <STOP ON PSW/ASW> uses PSW and ASW, not PSR and ASR. • <STOP ON PSW/ASW> number meanings: – 0 = not stop, default, continuous running. – 1…255 PSW bit number that changes the recording to STOP if the status changes (from 1 to 0 or 0 to 1,). – 300…555 PSW bit number, minus 300, that changes the recording to STOP if the status changes from 0 to 1. – 600…855 PSW bit number, minus 600, that changes the recording to STOP if the status changes from 1 to 0. – 1000…1127 ASW bit number, minus 1000, that changes the recording to STOP if it gets active.

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1.6.12 <PERFORMANCE sub-menu>

Parameter	Definition
INT CHANNEL-% Internal Channel-%	The internal channel performance is calculated in two parts, the bandwidth load and the error counter where it considers 10 errors per minute as bad and 100% load as bad. Both values are taken in square as follows: IntChanPrf% = 100 * 1 - [(Load² + (0.1*Err/min)²) /2] Example: 5 errors/min and 50% load = 75% performance. Expect normal values of 75% to 99%.
KCM TEMP. [C] KCM Temperature	Displays the actual temperature in the KCM in °C. Input range: Display only.
TORQUE-% Only for DC motor Torque-%	The motor torque is derived from the power indication according to the following formula: Torque = 100*(actual power * nominal speed) / (nominal power * actual speed). **Notes:** • On low speeds, this indication might be inaccurate. • 100% torque is the maximum allowed. • Not for AC Drive Interface. • At low speeds, torque will reach a maximum of 100% before <Actual Power> reaches <Maximum Motor Power>. At high speeds, the opposite will occur.
BRUSH REMAIN-% Brush Remain-% Only for DC motors	The DC motor brush life is estimated according to the following formula: Estimated_Life = Expected_Life * Nominal_Power / Current_Power To indicate the remaining life, the following formula is calculated once per second: Brush_Remain = Brush_Remain - [(100/(3600*5000))*(MotorPower / Nominal_Power)] Where: 100 indicates in percent (3600 * 5000) expected life in seconds (Motor_Power / Nominal_Power) The current power ratio, limited to ≥ 0.1 If the motor is new, one should enter 100% in <BRUSH REMAIN> Also after checking the brushes, the parameter can be modified on the basic of current brush life.

1.6.13 <ACTIFLOW sub-menu>

This menu is only displayed, if a ActiFlow is connected.

Parameter	Definition
DISPLACE.[%]	Displacement of the ActiFlow. Input range: Display only
MATERIAL	Setting of the vibration from the ActiFlow according to the material properties. Material selection: Off ActiFlow off Easy Easy flowing material (little vibration) Medium Medium flowing material Hard Hard flowing material (hard vibration) Manual Manual setting Standard: Medium **Note:** ActiFlow Ceiling: Easy = 60%, Medium = 80%, Hard = 95%
ACF FLOOR only displayed if manual	Minimum ActiFlow Drive Command Input range: 0 to 100%
ACF CEILING only displayed if manual	Maximum ActiFlow Drive Command Input range: 0 to 100%
STATUS	The ActiFlow status codes reveal operational condition of the controller. See listing of status codes in section 2.2.5.
FREQUENCY	Displays the actual frequency. Input range: Display only

1.6.14 <PRE-FEEDER sub-menu> ONLY for AC VFD motor drive type

Parameter	Definition
MDU STATUS MDU Status	The MDU status codes reveal operational condition of the Drive. See listing of MDU status codes in section 2.2.1.
MOTOR	Motor type setting. Input range: Manual, Baldor ½ hp ,Y602 ½ hp (Marathon motor), Baldor 2 hp, EMWB 450W, EMWB 1600W, AKM43H (Kohlmorgan servo motor for Pharma Feeder), B56H5Q (Lafert servo motor for Pharma feeder in Hazardous locations) Selecting <Manual> permits the viewing of <PAR.SELECT> and <PAR.VALUE> for the input from the motor data.
PAR.SELECT **Note:** These parameters are only needed if a CUSTOM ac motor is used. Using one of the motors from the selection list means, all of these parameters are automatically filled in with correct defaults	The motor characterization parameters in the mini-loop. FLCurrent[A] (Full load motor current in Amps) MagCurrent[A] (Motor's magnetizing current in Amps) RatedFreq[Hz] (Motor's rated frequency in Hz) MaxFreq[Hz] (Maximum frequency used by KCM Hz) MinFreq[Hz] (Motor's rated minimum frequency in Hz) OverCurrent[%] (programmable shutdown limit in% of Full Load Current) OCurrTime[s] (programmable shutdown limit in seconds) OverCurr2[%] (programmable shutdown limit#2 in% of Full Load Current) OCurrTime2[s] (programmable shutdown limit#2 in seconds) Inertia[pu] (total inertia of motor plus load in internal units) X1[Ohms] (Motor Impedance X1 parameter in Ohms) X2[Ohms] (Motor Impedance X2 parameter in Ohms) Xm[Ohms] (Motor Impedance Xm parameter in Ohms) R1[Ohms] (Motor Impedance R1 parameter in Ohms) R2[Ohms] (Motor Impedance R2 parameter in Ohms)
PAR.VALUE	Value for the selected parameter.
MAX. MOT POWER [watts] Max Motor Power	This entry sets the maximum output power to the motor. (See nameplate on motor for value) Input range: 25 to 1600 W Default: Depends upon installed drive

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Parameter	Definition
MAX MOT SPEED - [rpm] Maximum Motor Speed	Input of the maximum motor rpm for 100% drive command. Input range: Drive specific.Default: drive specific (See nameplate on motor for value)
MDU TEMP. [C] MDU Temperature	Displays the actual temperature in the MDU in °C. Input range: Display only.
MOTOR RPM	Current motor speed in RPM.
MOTORLOAD ACT Actual Motorload	Displays the actual motor load. Input range: Display only [%]
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1.7 <I/O SETUP menu>

These menus program the digital and analog I-O functions. The KSL shows these variables over four pages; Digital Output, Digital Input, Analog Input, Analog Output. The KSC uses 3 screens.

See KCM Electronics manual for wiring details

I/O Definitions:

- DENA = drive enable
- ALS = alarm shutdown
- Inputs with an * are activated by an edge transition. All other inputs are by level
- ^ indicates a digital output that can be mapped to DIGOUT MAP
- CPUIn1...CPUIn4 are for the programmable digital inputs on the CPU pcb, terminal block J8
- MDUIn1... MDUIn2 are for the programmable digital inputs on the MDU (Drive) pcb, terminal block J1
- CPUOut1...CPUOut4 are for the programmable digital outputs on the CPU pcb, terminal block J8
- MDURel1... MDURel3 are for the programmable relay outputs on the MDU (Drive) pcb, terminal block J5
- ExtIn1...ExtIn8 and ExtOut1...ExtOut8 are used for remote MODBUS I-O.

1.7.1 <DIGITAL INPUT sub-menu>

Parameter	Definition
DIG IN Digital Input	Selection of the desired digital input for programming. CPUin1 to CPUin4, MDUin1, MDUin2, Spare1, Spare2, ExtIn1 to ExtIn8. **Note:** For ExtIn function to work, Modbus I-O must be configured first and the external I-O module (e.g. WAGO) connected via K-Port 2.
FUNCTION Digital Input Function	Function of the selected digital input Selection: None, Start*, Stop*, Interlock, Run Enable, ALS Input, Ack Alarm*, Clr Alarm*, Start/Stop, Vol Mode, Loc/Ext, Rat/Dir, Ext Alarm, Total Clr*, Data Lock, Empty*, Belt Drift, Belt Index, Dynamic Tare*, Calib*, ADDR+1, ADDR+2, ADDR+4, ADDR+8 Default: CPUIn1 = Start, CPUIn2 = Stop, CPUIn3 = ALS Input **Note:** If feeder is running then: • Interlock requires no Start command upon release of Interlock for the feeder to re-start • Run Enable requires a Start command upon release of Run Enable to re-start the feeder
STATE Digital Input State	Displaying the actual status of the selected digital input. Input range: Display only (Off or 0 = not active, On or 1 = active)
POLARITY Polarity	The selected digital input changes the function from e.g NO to NC. Selections are: Input range: Normal or Inverse Default: Normal

1.7.2 <DIGITAL OUTPUT sub-menu>

It is not allowed to change Digital output function, polarity and map if the feeder is running.

Parameter	Definition
DIG OUT Digital Output	Selection of the desired digital output for programming. Selections: CPUOut1 to CPUOut4, MDURelay 1, MDURelay 2, MDURelay 3, Spare, ExtOut1 to ExtOut8. **Note:** For ExtOut function to work, Modbus I-O must be configured first and the external I-O module (e.g. WAGO) connected via K-Port 2.
FUNCTION Digital Output Function	Function of the selected digital output. Selections: None, Run, Any Alarm, Alr Relay, ALS Out, Drive Ena, Grav Mode, PSRMAP^, ASRMAP^, TotalPulse, Tare Run, Prefeeder, SFTCooling, Impactor Input Range: See list Default: CPUOut1 = Run, CPUOut2 = Alr Relay, CPUOut3 = ALS Out, CPUOut4 = Drive Ena, MDURelay1 = Drive Ena, MDURelay2 = None, MDURelay3 = Alr Relay
STATE Digital Output State	Displaying the actual status of the selected digital output. Input range: Display only (Off or 0 = not active, On or 1 = active)
POLARITY Polarity	The selected digital output changes the function from e.g. NO to NC. Selections are: Input range: Normal or Inverse Default: Normal
EXT TOT PULS External Totalizer Pulse	Input of the resolution of an external Totalizer Input range: 0* to 999999Default: 0 kg/pulse The maximum pulse rate is 3 pulses/second. The calculation of the increment is as follows: Ext Tot Increment(min) = Massflow[kg/hr]/1000
DIGOUT MAP^ Digital Output Map	If at the variable <FUNCTION> the selection PSRMAP or ASRMAP was made, it is possible to program any output function listed in the table in the appendix. See sections 2.4 and 2.6.

1.7.3 <SETPOINT INPUT sub-menu>

Refer to manual KCM Electronics for more information.

For calibration, see section 1.7.5

Parameter	Definition
SOURCE Analog Input Source	Selection of the desired setpoint input. Select: CPU_0-10kHz, CPU_Analog, Extern **Notes:** • See KCM Electronics manual for wiring details when selecting CPU source inputs. • For Extern function to work, Modbus I-O must be configured first and the external I-O module (e.g. WAGO) connected via K-Port 2. • Check the jumper on the KCM CPU for the following possible choices: 0-5 VDC, 0-10 VDC, 0-20 mA if CPU_Analog is the input selection.
AIN VALUE-[%] Analog Input Value%	Display of the actual input value in percentage of the maximum value, AinMax as defined below. Input range: Display only
AIN MIN-[%] Analog In Value Min	Scaling of the analog output for the minimum value. (Offset adjustment e.g. 20% for 4 mA). This value can be used also to invert the analog input. Input range: 0 to *100% *Inverted 100%
AIN MAX-[%] Analog In Value Max	Scaling of the analog output for the maximum value. This value can be used also to invert the analog input. Input range: 100 to *0%Default: 100% *Inverted 0%
DEADBAND-[%] Deadband	Input of the deadband in percentage of the maximum value. Changes at the input below this value will have no change to the setpoint value. Input range: 0 to 100%Default: 0%

1.7.4 <ANALOG OUTPUT sub-menu>

- The KCM CPU only outputs a 0-20 mA current value. Use appropriate resistors to convert to the desired voltage.
- Maximum source voltage is 12 Vdc for the current output.
- For calibration, see section 1.7.5.

Refer to KCM Electronics manual for more information on electrical connections and operational limitations.

Parameter	Definition
AOUT NUM Analog Output	Selection of the desired analog output for the KCM. Select: CPU, EXT1 - EXT3 Input range: See list **Note:** For Ext1-Ext3 functions to work, Modbus I-O must be configured first and the external I-O module (e.g.WAGO) connected via K-Port 2.
FUNCTION Analog Output Function	Function of the selected analog output: SETPOINT (20mA/Max. setpoint) x Actual setpoint MASSFLOW (20mA/Max. setpoint) x Massflow NET WEIGHT 1 (20mA/ScaleRange) x NetWeight 1 NET WEIGHT 2 (20mA/ScaleRange) x NetWeight 2 DRIVE COMMAND (20mA/100%) x Percent drive command MOTOR SPEED (20mA/Max Mot RPM) x Act Mot Spd BELT LOAD (20mA/BeltLoadSP) x belt loading PRE FDR DC (20 ma)*(DrvCmd) x PrefeederSpan TORQUE (20mA/100%) x Percent torque ANALOGIN Retransmit Analog Input Input range: See list Default: None
AOUT VALUE-[%] Analog Output Value%	Display of the actual output value in percentage of the maximum value. Input range: Display only
AOUT MIN Analog Output Minimum	Scaling of the analog output for the minimum value. (Offset adjustment e.g. 20% for 4 mA) This value can be used also to invert the analog output. Input range: 0 to *100% *Inverted 100%

Table page 1 of 2

Parameter	Definition
AOUT MAX. Analog Output Maximum	Scaling of the analog output for the maximum value. This value can be used also to invert the analog output. Input range: 100 to *0%Default: 100% *Inverted 0%
DEABAND-[%] Analog Output Deadband	Input of the deadband in percentage of the maximum value. Changes at the output below this value will have no change to the process value. Input range: 0 to 100%Default: 0%
Table page 2 of 2	

1.7.5 Calibrating analog I-O

The formula for an analog value output can be demonstrated by the following formula as an example. Setpoint will be used as the value and 20 mA is the full scale representation.

$$Val = 20 \times \left[\left(\frac{Setpoint}{MaxRate}\right) \times (AoutMax - AoutMin) + AoutMin\right]$$

Deadband works as indicated in the following equations.

$$Val \leq Deadband(Val \rightarrow 0)$$

$$\Delta Val \leq Deadband(Val \rightarrow PreviousVal)$$

$$\Delta Val > Deadband(Val \rightarrow NewVal)$$

To calibrate an analog output, do the following. In this example, setpoint is the output parameter. Have your calibration meter connected to the analog output.

1. Enter Setpoint =0.
2. Modify the min value so that the actual analog output is correct.

For a 4-20 mA signal, this will be around 20%.

3. Enter Setpoint = Max Setpoint, Adjust Aout max value so that analog output is exactly correct.
4. Double check with Setpoint = 0, but no adjustment is normally required.

1.7.6 <MODBUS I/O sub-menu>

This menu is not available on the KSL, K-Vision or KSC.

Parameter	Definition
ADDR 80 - 83	These are the read only I-O addresses for any external Modbus I-O that has been connected to K-Port 2. For each address, the module type (if connected) or problem will be indicated. Possibilities at each address are: WAGO, MISSING, CONFLICT, NONE WAGO = the Wago system of Modbus I-O modules is connected. CONFLICT = Addresses of connected modules are in conflict after powering the system. Select <REBIND NOW>**.** Press **ENT** twice to clear the fault. MISSING or CHANGED = Module that was present is no longer found. Select <REBIND NOW>**.** Press **ENT** twice to clear the fault. Input range: 80 to 83Default: 80
DETAILS	This read only parameter presents information about the operation of each connected external Modbus I-O device. Node Select: 80, 81, 82, 83 Type Select: Anlg In, Anlg Out, Dig In, and Dig Out are the possible functionality for connected modules I/O Point: 1-8. – Up to 8 points, of the same type, are possible at any address.
REBIND NOW	When the I-O functions have been configured, press the **ENT** key twice to rebind variables to the I-O points installed. **Note:** If alarm 39 occurs (Ext_IO_Fail), the <REBIND NOW> function can clear the alarm. However, this action will remove all external I-O function. It is best to examine why the external module failed before executing Rebind Now. The <REBIND NOW> function assigns <None> to any previously programmed external I-O point and then performs a new binding based upon the rule as follows: Lowest module by address with lowest I-O point is assigned the lowest I-O number e.g. Four digital input module at address 80 is automatically bound with EXTIN1 at module input 0 to EXTIN 4 at module input 3. After the <REBIND NOW> action, each I-O point requires reassignment of its function. e.g. <Start>.

1.7.7 Adding External Modbus I-O, an example

Follow this procedure to configure remote I-O.

⇒ Preset the Modbus I-O module to an address of 80, 81, 82 or 83.

⇒ Program the Modbus I-O module to follow the K-Port 2 communication specifications

– 19,200 baud, 8E1

⇒ Program K-Port 2 for Modbus I-O

⇒ Make all wiring connection between the KCM and the external modules

Then do the following:

1. Power the KCM and the external I-O modules together.
2. Use the <MODBUS I/O sub-menu> to perform the following set-up.

If it is not possible to power the KCM and modules together, then once everything is powered, select <REBIND NOW> parameter to permit module binding.

3. Verify that at the module preset address, the specific module is found by name at the parameter <ADDR80-83>. e.g. 80 = WAGO.
4. Open the <DETAILS sub-menu>.
5. Enter module address at <NODE SELECT>.
6. Open <TYPE SELECT>.
7. Note that if the automatic binding was done properly, the module will have each I-O point already set to a KCM input or output point.

e.g. If the module was a digital 4 input module at address 80, the screen would look like this:

I/O POINT 1 -> EXTIN1

I/O POINT 2 -> EXTIN2

I/O POINT 3 -> EXTIN3

I/O POINT 4 -> EXTIN4

I/O POINT 5 -> None

I/O POINT 6 -> None

I/O POINT 7 -> None

I/O POINT 8 -> None

8. Go to the specific I-O menu and set the function for each active I/O point. e.g. set the digital input function for <Clr Tot>.
9. Test the function of each module I-O point.

1.8 <HCU / LSR LOADER menu>

This menu programs the loader function. This menu is used in place of the HSUor LSR.

- This menu is only displayed, if a HCU / LSR is connected.
- The HCU / LSR Loader controller is connected to the KCM via the Internal Channel.
- Be sure that the LOADER parameter is <disabled> in the <LOADER menu>. Hide the <LOADER menu>.

- See manual 0290023601 for more HCU loader operational information.
- See manual 1090034605 for more LSR operational information.
- See KCM Electronics manual for more information.

Parameter	Definition
COMMAND **Loader Command**	The following commands can be selected and be executed with the **ENTER** key: None — No function Run — Starts the conveying cycle Stop — Stop the conveying cycle Clr Alrm — Deletes all pending alarms Disch On — Starts discharge Disch Off — Stops discharge **⚠ WARNING** ▲ Conveying starts if you press **ENTER** at the selection <RUN>. The process can be stopped only by selection of the command stop. The start/stop key on the control unit does not have a function for the loader.
HCU CYCLE Active Cycle	Displays the current active cycle. Motor — Motor Timer active. After the timer expired the motor will stop. LoadDly — Delay until the valve is closing and a new conveying cycle is starting. Load — Hurricane is conveying material. Line Clr — Conveying pipe emptying cycle is active. DischDly — Discharge delay time. Delay = Time until the motor stops. Disch — Discharge cycle: Display only. Input range: Display only

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Parameter	Definition
HCU TIME -[sec] Active Time	Remaining time in the current active cycle. Input range: Display only
HCU STATUS Loader Status	Display of the current status of the HCU. Normal OK. ALARM — HCU has an alarm. PROG — HCU in programming mode. REC FULL — Receiver is full. BUFFER FULL — Buffer hopper is full. HCU COM FAIL — Serial communication between KCM and HCU interuppted. Input range: Display only
PARAM NUM Not on KSL	Input of the parameter number. The name and value represented by the parameter number will be displayed under the variables PARAM DESC and PARAM VALUE respectively. Input range: see section 1.8.1 and manual 0290023601.
PARAM VALUE Parameter Value	Input of the desired value for the selected PARAM NUM. input range: see section 1.8.1 and manual 0290023601.
PARAM NAME Parameter Name	Display of the parameter name selected with PARAM NUM. Input range: Display only See section 1.8.1 and manual 0290023601.
Table page 2 of 2	

1.8.1 Programming parameters for HCU

This table shows parameter number and description, which can be entered in the section 1.8 for HCU loader control.

Param Number/ Param description	KSU Param. D	Min	Max	Step	Default	Actual
P1 – Load Timer **(Cycle 3)**	Load	5 sec	300 sec	1 sec	20 sec	
P2 – Clear Timer **(Cycle 4)**	LineClr	0 sec	30 sec	1 sec	0 sec	
P3 – Discharge Timer **(Cycle 6)**	Disch	2 sec	90 sec	1 sec	10 sec	
P4 – Filter Delay Timer	Fill Dly	1 sec	5 sec	0.1 sec	5 sec	
P5 – Filter Pulse Timer	Fil Pul	0 sec	0.5 sec	0.1 sec	0.1 sec	
P6 – Motor Timer **(Cycle 1**)	Motor	30 sec	1620 sec	30 sec	5 min	
P7 – Load Delay Timer (**Cycle 2)**	Ld Dly	0 sec	20 sec	1 sec	5 sec	
P8 – Discharge Delay Timer **(Cycle 5)**	Dis Dly	0 sec	20 sec	1 sec	5 sec	
P9 – Input Filter: Receiver Proximity Sensor	In: Rec	0.1 sec	10 sec	0.1 sec	3 sec	
P10 – Input Filter: Buffer Hopper Proximity Sensor	In: BuH	0.1 sec	10 sec	0.1 sec	3 sec	
P11 – Input Filter: Supply Hopper Proximity Sensor	In: SuH	0.1 sec	10 sec	0.1 sec	1 sec	
P12 – Input Filter: Remote Start	In: Strt	0.1 sec	10 sec	0.1 sec	0.5 sec	
P13 – Input Filter: Remote Stop	In: Stop	0.1 sec	10 sec	0.1 sec	0.5 sec	
P14 – Input Filter: Discharge Valve Switch	In: DisV	0.1 sec	10 sec	0.1 sec	1 sec	
P15 – Input Filter: Filter Pressure Switch	In: FiPs	0.1 sec	10 sec	0.1 sec	1 sec	
P16 – Input Filter: Discharge Request	In: DiRe	0.1 sec	10 sec	0.1 sec	1 sec	
P17 – Input XOR Mask	Xor Msk				7F(dec127)	
P18 – Oper M (Operating Mode) 1 = Self contained with discharge valve, 2 = Single central with discharge valve, 3 = Self contained, 4 = Single Central	Oper M				1	
P19 – Clean Filter 0 = disables all cleaning, 1 = clean during discharge cycle, 2 = clean during load cycle, 3 = clean during both discharge and load cycles.	Clean M				1	
P20 – Discharge Mode, 1 = Fill mode, 2 = WBF mode	Disch				1	
P21 – Controller Address	HCUAdd				0x01	
P22 – Controller Software Version	HCU SW					
P23 – Supply Hopper Low Alarm Timer	Al ShLo	0 sec	600 sec	10 sec	0 disable	
P24 – Differential Pressure High Alarm Timer	Al DPHi	0%	100%	1%	0 disable	
P25 – Load Cycle Alarm Counter	Al Cycle	0 cycle	20 cycle	1 cycle	0 disable	
P26 – Discharge Valve Alarm Timer	Al Valve	0 sec	15 sec	1 sec	10 sec	
P27 – On/Off Counter	O/F Cnt			N/A		
P28 – Run Time Counter	Run Cnt			N/A		
P28 – Handheld display Software version	HSU SW			N/A		
P63 – Digital input states	Dig In			N/A		

1.9 <SYSTEM menu> (only KSU-II/KCM).

This menu is only used with the KSU-II/KCM-KD display and not available for KSL or K-Vision or KSC or KCM-SD.

This menu programs the key communication functions for the KCM.

1.9.1 <COMMUNICATION sub-menu>

Siemens 3694R protocol is not supported.

Parameter	Definition
HOST PROT	Input of the desired communication protocol Input range: Modbus, ALLEN BRAD AB-CIF, Siemens 3694R, ProfibusDP, Modbus/TCP, DeviceNet, Ethernet/IP, ModbusPlus, Profinet IO. Default: None
HOST FILE	Select either a custom downloaded *.kgr file for data communications or select a pre-loaded file (built-in). See manual 0590020611 for details. Input range: Kgr File, Small, Full. Default: Kgr File
IP	IP Adress Only present when an Ethernet Host board is installed. If the KGR file is used, this parameter is read-only.
NM	Net Mask Only present when an Ethernet Host board is installed. If the KGR file is used, this parameter is read-only.
GW	Gateway Only present when an Ethernet Host board is installed. If the KGR file is used, this parameter is read-only.
K-PORT1 PROT	Selects the function for K-Port1 Input range: None, KSU, KSL, KSC/K-Vision. Default: KSU
BAUD RATE	Displays baud rate selections when K-Port1 is set to KSC/K-Vision or if set to KSL and the service variable K10S_KCDR is <1>. Input range: 9600, 19200, 38400, 57600, 115200

Table page 1 of 2

Parameter	Definition
K-PORT 2 PROT	Selects the function for K-Port2 Input range: None, KSU, Modbus I-O, KSC/K-Vision. Default: KSU
BAUD RATE	Displays baud rate selections when K-Port2 is set to KSC/K-Vision or Modbus I-O. Input range: 9600, 19200, 38400 **Notes:** • For Modbus I-O when selecting 19200 Baud, it runs at 19200, 8, E, 1 and the digital I/O have the bytes swapped (Wago750-312 mode). • For Modbus I-O when selecting 9600 Baud, it runs at 9600, 8, N, 1 and the digital I/O have the bytes not swapped (Wago 750-315/ 300-000 Default mode).
CONF MODE	Input of the protocol for the following: Diag, KMB, Config, User IF Input range:see above Default: User IF **Notes:** • Select <KMB> for ParamStore. • Select <Config> for SmartConfig activities. • Select <User IF> for PC access to KCM parameter data via the Conf port. • Select <Diag> is used for diagnostic trace functions and for loading a language file.
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1.9.2 <SW VERSIONS sub-menu>

Parameter	Definition
SELECT ONE	Selection of the Hardware for Informations Input range: KCM CPU, MotorDrv, ActiFlow, LSR, EPC, Host Board.
SW#	The application software part number and revision.
HW#	The hardware number and revision. The Host Board HW# will be shown as: Profibus, DeviceNet, ModbusPlus, EthIP/ModTCP, ProfinetIO, Comm Board, or blank, if no board is installed.
SER#	The serial number.
HPORT#	The firmware version host port board
BOOT#	The bootstrap version

1.9.3 Drive type by displayed MDU#

MDU # Software from Display	MDU Drive Type	PCB Part Number
04900-20211	1600 Watt DC motor drive	0000002610
02900-20200	450 Watt DC motor drive	0000007405
14900-20201	450 Watt DC motor drive	0000007405
17900-20201	AC VFD	0000046813
04900-20202	AC Interface	0000003413
03900-20202	Vibratory drive	0000000684
04900-20212	Universal stepper drive	0000005987
02900-26200	LoPo stepper drive	0000001430
02900-26200	HiPo stepper drive	0000004568

1.9.4 <PARAMETER BACKUP sub-menu>

This menu provides a method for parameter back-up in the KCM K-Prom.

It is important to save your programming to the K-Prom using the steps below, once your programming is verified and complete.

Parameter	Definition
PASSWORD Entered Password	Password to access the <ACTION> function of saving and recalling data from a K-PROM. Default: <1234> See section 1.9.5 on how to change this entry.
ACTION Backup Action	Action functions are: Save, Recall. <SAVE> stores active operational data to the back-up storage area of the K-PROM. <RECALL> places into active operational memory the saved K-PROM data.

1.9.5 Changing the K-PROM password.

See manual 0690020601 for detailed information on changing the K-PROM password with your PC.

1.9.6 <CLOCK sub-menu>

- This menu is only available for the KCM (graphic display).
- When the KCM is connected to a K-Vision, the clock parameters will be set automatically from the K-Vision to synchronize all system clocks.

Parameter	Definition
YEAR	
MONTH	
DAY	
HOUR	
MINUTES	
SECOND	

1.10 <Security menu> (only KSU-II/KCM)

This menu sets access for all menus in the KSU-II/KCM.

- The access to the parameter in the security menu can be de-activated by the data lockout input of the KSU-II/KCM-KD display (see section 1.10.1).
- All programmed security selections (e.g RD/WR) will be de/ activated immediately by programming the ACCESS TYPE.
- Menus marked with * are hidden by default.

Parameter	Definition	
PRODUCT CHANGE CALIBRATION ALARM TUNING SCALE MACHINE SETUP I-O SETUP HCU LOADER* SYSTEM	**AccessType** RD/WR READ HIDE	**Permission** Reading and writing possible. Read only possible. No access menu. Menu is not visible.
FDR BEING VIEWED	Only shown on KSU-II	
TOT KEY	Select: <Clear Only>, <Rd Onl>y, <Any Num> as entries.	
SP ACCESS	Select: RD/WR, Read. Hide.	
KEYS	Select: All Enabled, Disa Vol/Grav, Disa AlarmClear, Disa Vol&AlCl All Enabled = Disa Vol/Grav = Disa AlarmClear = Disa Vol&AlCl =	 all function buttons active. disable GRAV/VOL key disable alarm CLR key disable GRAV/VOL & alarm CLR keys
CONFIRM RUN KEY	Setting this to YES, will make all Start button pushes from the KCM/ KD Keypad popup a confirm dialog that needs to be acknowledged by the operator for the feeder to actually start. Input range: YES / NO Default: NO	

1.10.1 Function data lock out

For additional information see Electronics manuals for KCM and for KSU-II.

To activate the security function is it necessary to assign a digital input to <Data Lock> by KCM or use the data lock input from KSU-II and to connect a key switch to that input. To enable the <SECURITY menu> to change the settings the key switch needs to be closed. When the settings are made and the key switch is opened, the <SECURITY menu> and all the menus set to read only, will be read only. To prevent that an operator can disable the key switch in the <I/O SETUP menu>, the <I/O SETUP menu> should be set to read only or to hidden.

Programming procedure:

1. Close key switch.
2. Select <SECURITY menu>
3. Select menu which needs to change.
4. Press **ENTER** key.
5. Select with **NEXT** key the security mode RD/WR or read or hide.
6. Press **ENTER** key.
7. Open key switch.
8. Check the menu for function.

2 Appendix

2.1 Belt Index

Activated only if a digital input is set to Band index.

If enabled, One metal strip in the Belt is triggering one Proximity Sensor. So that means one belt index signal per belt revolution. During taring cycle The controller runs the belt with fixed speed and divides the belt in 64 segments between indexes (one belt length).

2.2 Status tables

2.2.1 DC Drive hex status codes

- This table shows the possible values of the variable <MDU STATUS> displayed in <MOTOR sub-menu> 1.6.7

Failure modes occur on bits 7 to 15, excluding 9

Bit	Function	Hex Code
0	1 = Motor Run. 0 = Stop.	0001
1	1 = safety switch closed. 0 = open.	0002
2	1 = Drive enable input closed. 0 = open.	0004
3	1 = Bit 1 Input activated (low level). 0 = not activated, (high level).	0008
4	1 = Bit 2 Input activated (low level). 0 = not activated, (high level).	0010
5	1 = Relay 2 energized. 0 = off.	0020
6	1 = Relay 3 energized. 0 = off.	0040
7	1 = Serial Master Time-out.	0080
8	1 = Thermal pre-alarm (>70C).	0100
9	1 = Relay 1 energized. 0 = off.	0200
10	1 = Speed deviation	0400
11	1 = Current limit	0800
12	1 = Safety relay failure	1000
13	1 = General motor failure.	2000
14	1= Control-less running	4000
15	1 = EEPROM failure.	8000

2.2.2 AC VFD hex status codes

This table shows the possible values of the variable <MDU STATUS> displayed in <MOTOR sub-menu> 1.6.8

Failure modes occur on bits 7 to 15, excluding 9

Bit	Function	Hex Code
0	1 = Motor Run. 0 = Stop.	0001
1	1 = safety switch closed. 0 = open.	0002
2	1 = Drive enable input closed. 0 = open.	0004
3	1 = Bit 1 Input activated (low level). 0 = not activated, (high level).	0008
4	1 = Bit 2 Input activated (low level). 0 = not activated, (high level).	0010
5	1 = Relay 2 energized. 0 = off.	0020
6	1 = Relay 3 energized. 0 = off.	0040
7	1 = Serial Master Time-out.	0080
8	1 = Thermal pre-alarm (>75C).	0100
9	1 = Relay 1 energized. 0 = off.	0200
10	1 = Speed Deviation alarm	0400
11	1 = Over Current condition detected	0800
12	1 = feeder stopped due to safety switch going unconnected	1000
13	1 = general alarm that causes the feeder to shutdown	2000
14	1 = motor control state machine error	4000
15	1 = EEPROM failure.	8000
16	1 = general alarm bit caused shutdown	0001 0000
17	1 = motor alarm. No motor current detected when trying to run	0002 0000
18	1 = encoder alarm. Motor current detected, but not pulses	0004 0000

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Bit	Function	Hex Code
19	1 = AC Mains voltage out of range	0008 0000
20	1 = I/O fault detected on 5, 12, or 24 VDC supply	0010 0000
21	1 = current above programmable user current limits	0020 0000
22	1 = motor's internal thermal switch or PTC tripped	0040 0000
23	1 = motor parameter error	0080 0000
Table page 2 of 2		

2.2.3 AC Interface hex status codes

This table shows the possible values of the variable <MDU STATUS> displayed in <MOTOR sub-menu> 1.6.9

Failure modes occur on bits 7 to 15, excluding 9

Bit	Function	Hex Code
0	1 = Motor Run. 0 = Stop.	0001
1	1 = safety switch closed. 0 = open.	0002
2	1 = Drive enable input closed. 0 = open.	0004
3	1 = Bit 1 Input activated (low level). 0 = not activated, (high level).	0008
4	1 = Bit 2 Input activated (low level). 0 = not activated, (high level).	0010
5	1 = Relay 2 energized. 0 = off.	0020
6	1 = Relay 3 energized. 0 = off.	0040
7	1 = Serial Master Time-out.	0080
8	1 = Thermal pre-alarm (>75C).	0100
9	1 = Relay 1 energized. 0 = off.	0200
10	Not used.	0400
11	Not used.	0800
12	Not used.	1000
13	Not used.	2000
14	Not used.	4000
15	1 = EEPROM failure.	8000

2.2.4 SFT status table

This table shows the table of the possible Status displayed in the <SCALE menu> at the variable SFT Status 1.5.2.

Bit	Function	Hex Code
0	1 = Group mode	0001
1	1 = Group leader	0002
2	Not used	0004
3	1 = Continuous mode	0008
4	1 = Error received	0010
5	1 = Baud Rate range error	0020
6	1 = Not used	0040
7	1 = Filter on	0080
8	1 = Weight conversion complete	0100
9	1 = EEPROM read or write error	0200
10	1 = K-FFP (Fast Frequency Processor) error	0400
11	1 = Ft - temperature frequency out of range	0800
12	1 = Fw - weight frequency out of range	1000
13	1 = Weight window range error	2000
14	1 = Temperature window range error	4000
15	1 = General alarm	8000

Example:

0183= group mode, group leader, filter on, weight conversion complete.

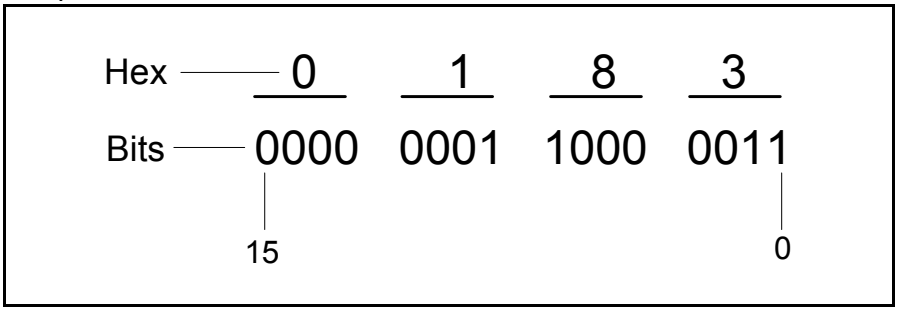

Fig. 2.1 SFT hex codes

2.2.5 ActiFlow drive hex status codes

This table shows the possible values of the variable <STATUS> displayed in <ACTIFLOW sub-menu> 1.6.13

Failure modes occur on bits 7 to 15, excluding 9

Bit	Function	Hex Code
0	1 = Activator Run. 0 = Stop.	0001
1	1 = safety switch closed. 0 = open.	0002
2	unused	0004
3	1 = Bit 1 Input activated (low level). 0 = not activated, (high level).	0008
4	1 = Bit 2 Input activated (low level). 0 = not activated, (high level).	0010
5	unused	0020
6	unused	0040
7	1 = Serial Master Time-out.	0080
8	unused	0100
9	1 = Relay 1 energized. 0 = off.	0200
10	1 = Displacement deviation	0400
11	1 = Current limit/short-circuit	0800
12	1 = Spring failure	1000
13	1 = General drive failure.	2000
14	unused	4000
15	1 = Sensor failure.	8000

2.3 Service variables

This table shows the Service Index which can be entered for the variable <S.VAR> displayed in <SERVICE SETUP sub-menu> 1.6.11.

Description	Variable	Feeder Type	Current Value
PreLoad MF=SP	When set to <1> the MF value is preloaded with SP upon KCM starts or large SP changes. When set to <2> the MF will equal Setpoint even in Volumetric mode. When set to <3> there is a quick starting massflow filter mode. The MF filter is preloaded to SP (in Grav or Vol mode) but the display filter time is reduced by a factor of 10. Then, within 2 times the display filter time, it is increased to the set value. For example, if it is set to 30 sec, it starts with 3 sec and then within 30 secs it is increased to 30 sec. Some additional optimizations had to be made to smooth out the constantly changing filter time.	all (not GWB)	
Web UI Function	WebUIFunction = 1: Disables automatic insertion of Web KSU registers in KGR and built-in files. Requires a reset of the KCM to take effect. This would be set to one if a customer absolutely needs data defined in the registers that are normally reserved for web KSU registers. When set to one the web interface virtual KSU will not show data. WebUIFunction = 2: For Ethernet boards, on next KCM power up only, disables the FTP password. This can be used if the FTP password is forgotten for recovery. The Service Variable is set back to 0 after the KCM is reset.	all	
Empty/Jog DC	Value of drive command when emptying the feeder. Default is 70%.	all (not GWB)	
Auto Span Limit	Limit in actual range of the allowed span deviation from 1.000 to allow a auto-span calculation to proceed. Default is 0.98-1.02 or an entry of 2.	all (not GWB)	
Com1 Read	K-Port 1 reads per second; <=100	all	
Com1 Write	K-Port 1 writes per second:<=10	all	
Com1 Err	K-Port 1 error counter:<= 1/hour	all	
Com2 Read	K-Port 2 reads per second:<=100	all	
Com2 Write	K-Port 2 writes per second:<=10	all	
Com2 Err	K-Port 2 error counter:<= 1/hour	all	
Host Read	Host channel reads per second: <=100	all	
Host Write	Host channel writes per second: <=10	all	
Host Err	Host channel error counter: <= 1/hour	all	
IntCh Msgs	Internal channel (SFT/MDU/LDR/ActiFlow) messages per second	all	
IntCh Err	Internal channel (SFT/MDU/LDR/ActiFlow) error counter	all	
IntCh Load	Internal channel (SFT/MDU/LDR/ActiFlow) loading in percent: <= 50%	all	
IntCh Node	Internal channel (SFT/MDU/LDR/ActiFlow) last failed node	all	
IntCh Opcode	Internal channel (SFT/MDU/LDR/ActiFlow) last opcode	all	
KpromWriteCount	Counter for the write cycles to the Kprom	all	
RefArr Dev Lim	Sets the maximum FF deviation allowed in the refill array. If the FF deviation from Refill Complete to Refill Request is greater than the RefArrDevLim, the limit is used, else the actual FF values are used. Default is 30% deviation.	LWF, LWB	
Modulation%	Shows the percent screw modulation used when <Modulation> selected. When 0%, the modulation effect is zero.	LWF	

Table page 1 of 2

Description	Variable	Feeder Type	Current Value
AltHostMode	0 = FakeK10S and Station Name disabled 1= FakeK10S mode (K-Commander-KCDR, a separate K-Link unit (black box) or KDU using extended software. If <KPORT1 PROT> is set to <KSL> then K-Port1 baud rate is selectable.) 2 = Same as 1 but alarms will self-clear even if the alarm timed out 3 = Station name set to “FDR” plus feeder address 4 = Station name set Feeder Name (string) if initialized, else to “FDR” plus feeder address	all (not GWB)	
SWUpdateMode	0 = default IAP normally it means the comm board and all slave devices are allowed to use IAP 1 = Force reprogram of Comm board The KCM reload the comm board software on next power up, even if the s/w versions seem the same. If an SFT REPOLL is executed, then the software of all devices connected on the internal serial channel are reloaded regardless of if they have the same version as stored in the KCM. 2 = inhibit all IAP functions. 3 = Do not switch the internal channel to 38400 Baud. The internal channel stays at 19200 Baud.	all	
PertValueMode	0 = PertValue is displayed in Grams 1 (default) = PertValue is displayed as a% of setpoint. With setpoint=0, pert value is shown in Grams.	LWF	
MFDispFilter2	If <0>, the massflow display is filtered only by the variable <MF Display Filter>. If <1>, the display is filtered by 1 times more. If <2>, the display is filtered by two times more. etc. Maximum value = 100.	LWF	
VolRate	If set to other than <0>, this will add a variable <BULK DENSITY> to the <PRODUCT CHANGE menu>. After a Auto FF calibration is done, this value will display the volumetric capacity of the feeder.	LWF	
ForceVibAlgo	This allows to interface the AC board to 3rd party vibratory drive. If set to <1> that is used to unhide the menu parameters for the tuning and calib.	LWF	
ScaleRange	Input from the scale range.	LWF	
RefillRepTm	This parameter is zero by default. When 0, the refilling functions are all the same as before. To enable this feature, (auto restart) this new parameter must be set to a non-zero value, such as 60 (seconds) and the refill must be programmed to Auto Terminate. Then, when there is a refill time out and the Net Weight is still below the refill request point, the refill terminates (as normal), but also will start the AutoTerm Refill Repeat Timer. When this AutoTerm Refill Repeat Timer expires, the refill cycle starts over again automatically. This continues until the weight goes at least above the refill request point.	LWF	
SegIndex	Number of 0-63 that follows the belt increment	WBF, WBB	
SelfTune	0 = Off, 1 = On	PID	
Table page 2 of 2			

2.4 Global Process Status Register table

Bit code	Short Name	Description
0	dbi	Database invalid flag (For internal KCM use only). Used by K-Vision, not for customer use.
1	cvar	Changed variable present (For internal KCM use only). Used by K-Vision, not for customer use.
2	run	Motor/machine running
3	disa	Run disabled by Interlock input or run enable input
4	ena	Drive output enabled
5	als	Alarm shutdown input active
6	als_out	Alarm shutdown output active
7	al_rel	Alarm relay active
8	hard_al	Complement of Alarm relay
9	soft_al	On for any alarm present
10	warning	Warning active
13	emptying	Machine is being emptied by Empty function
15	wait	Feeder received a start command but is waiting
20	start_ok	Start input will start feeder
21	started	Started status
22	kl_init_comp	KLink initialization complete
23	ksu_present	If KSU II is present, bit is set true
24	extern	If set to true, External Setpoint mode is active, else Local SP mode
25	direct	If true and bit 24 is true, then output is in Direct Mode. If bit 24 is true and bit 25 is false, then the SP mode is Ratio
26	jog	Jog Input
27	grun	Gated Run for Run Signal on digital outputs.
28	line	Line mode
32	HCU_alarm	HCU / LSR loader alarm
Table page 1 of 3		

Bit code	Short Name	Description
33	HCU_rec_full	HCU / LSR receiver is full
34	HCU_buf_full	HCU / LSR buffer full
35	HCU_commfail	HCU / LSR communication failure to CPU
36	HCU_loading	HCU / LSR loading status
37	LSR_Running	LSR running
40	hard_interlock	Drive (MDU) hard interlock input status
41	interlock_in	Interlock input bit status
42	enable_In	Run enable input bit status
46	vol_mode_in	Volumetric input bit status
47	extern_in	Machine set for External SP bit input
48	direct_in	Machine set for Direct SP bit input
49	ext_al_in	External alarm input bit active
57	SFTCoolOut	SFT cooling output status
64	dsp_present	Local user interface present
65	init_cpl	CPU initialization complete
66	mass	Mass mode status
67	calib	Currently running an auto calibrate routine
91	impactor output	Impactor function output bit state
208	FDR_EMPTY	Feeder Empty
209	CALIB_OK	Calib OK
210	CALIB_FAIL	Calib Fail
224		Current state of KCM Digital Input #1
225		Current state of KCM Digital Input #2
...		...
239		Current state of KCM Digital Input #16
240		Current state of KCM Digital Output #1
241		Current state of KCM Digital Output #2
Table page 2 of 3		

Bit code	Short Name	Description
...		...
255		Current state of KCM Digital Output #16
Table page 3 of 3		

2.5 WBF Process Status Register table.

Bit code	Short Name	Description
14	Sec-Deck	Secondary weigh bridge is active
50	Prefeeder enabled	Prefeeder enable output bit state
53	BeltDrift	Belt drift has been detected
54	BeltIndex	Belt index function bit state
55	ActiFlow_Calib	Actiflow Calibration cycle
70	Dynamic tare ongoing	Dynamic tare is in progress

2.6 Global Alarm Status Register table

Alarm- number	Short Name	Description
0	cb_fail	KCM Hardware error. EEPROM data is corrupt. For example, this message will occur after updating or changing firmware on the KCM.
1	kprom_fail	The K-PROM cannot be accessed by the KCM CPU. Checksum error in parameter memory
2	kprom_kgr_fail	Checksum error in kgr file area
3	power_glitch	Power fail signal but no reset
4	kprom_wrcount	K-Prom exceeded 100'000 write cycles
5	ic_fail	Internal channel has failed to communicate between the CPU and the connected devices.
6	weight_fail	SFT(s) failed Serial communication to the load cell interrupted f = SFT internal failure. communication OK t = No communication from the SFT to the controller board ?= Not valid answer from SFT
7	num_sft	Number of SFTs does not match that required.
8	BadSFTStatus	SFT is showing an incorrect status
9	NoMDUFound	The KCM CPU did not find a motor drive on the internal channel on power-up.
10	MDU NO MOTOR	No current detected after voltage sent to motor.
11	MDU_TIMEOUT	Motor drive has lost communication with the KCM CPU and then turns off all digital outputs and shuts of drive power.
12	MDU_THERMAL	Drive temperature has been exceeded > 75 deg C. Drive stops.
13	MDU_SPEED	No speed feedback signal is present when motor is asked to run. Speed deviation from target > ± 5 rpm Wrong motor voltage programmed.
14	MDU_CURRENT	Motor current limit is exceeded
15	MDU_HWFAIL	Safety Relay, Control-less run, EEprom-fail, Temperature>85°C
Table page 1 of 4		

Alarm- number	Short Name	Description
16	MDU NO ENCODER	Motor Current detected, but no speed feedback
17	MDU I/O Fault	A resettable fuse on the drive board protecting 5V, 12V, and 24 V supplies has tripped. Possibly a short circuit in wiring.
18	MDU VOLTAGE	Voltage is < 200V or > 265V
19	MDU_DRIVE_FAIL	MDU drive pcb has failed (vibratory drive only. Drive coil current too high).
20	MDU_POLARITY	Coil polarity is incorrect on the vibratory drive. (Vibratory feeder only). Displacement frequency out of range.
21	Hcu_Removed	HCU/LSR was removed.
22	HCU_alarm	HCU/LSR has an alarm.
23	HCU_eeprom	HCU/LSR EEPROM failed
24	HCU_driver	HCU/LSR digital output driver has detected a fault.
25	HCU_supp_hp	Material is below the level of the supply hopper proximity sensor. Proximity Sensor failed.
26	LDR PROX.S.FAIL	For HCU: The differential pressure across the filter is too high indicating a clogged filter
26	LDR PROX.S.FAIL	For LSR: Receiver is still full after discharge. Receiver proximity switch too sensitive adjusted or failed.
27	HCU_cyc_count	If HCU P20 Discharge Mode =01“Fill” mode then: „Gravity Gate mode“ • Max. numbers of load cycle exceeded, because Buffer Hopper Low input has been active (on) for more than the allowed load cycles. The Buffer Hopper Low signal going inactive clears the load cycle counter. If P20 Discharge Mode =02 (LWF) mode then: „Power mode“ • Discharge Request input has been on for more than the allowed load cycles. The Discharge Request signal going inactive clears the load cycle counter.
28	HCU_disch_vlv	Discharge valve has failed to either open or close properly. This alarm is automatically disabled in P18 Operating Modes 03 and 04
Table page 2 of 4		

Alarm- number	Short Name	Description
29	HCU_rec_full	Receiver is still full after discharge. Receiver proximity switch too sensitive adjusted or failed
30	Klink_Wrong_Kgr	Protocol of KGR file does not match that required by the installed communication circuit card
31	Klink_No_Kgr	No KGR file loaded
32	HPort_failil	Host communication pcb error
33	HPort_fail_init	Host communication pcb could not be initialized
34	HPort_illeg_bd	Improper pcb installed in the host port location
35	KPort_fail	K-Port has failed
36	KPort_fail_init	K-Port communication pcb could not be initialized.
37	KPort_illeg_bd	Host communication pcb is installed on the wrong port location-(K-Port).
38	KGR_param_error	One or more feeder parameters are not correct for the specified feeder
39	Ext_IO_Fail	The MODBUS I-O connection has failed
40	ext_alr	Digital input on KCM selected for External Alarm is active.
41	aux_interlock	Drive pcb Safety switch digital input is open during operation.
42	start_ignored	Start conditions not fulfilled
43	mf_high	The current massflow is above the tolerance entered in <ALARM menu> parameter <MF ERR+>
44	mf_low	The current massflow is below the tolerance entered in <ALARM menu> parameter <MF ERR->
45	dc_ceil	Drive command has reached the limit <DC CEILING>
46	dc_high	The drive command has exceed the value <DRV CMD HI> Limit in the <ALARM menu>
47	dc_low	The drive command has dropped below the value <DRV CMD LO> Limit in the <ALARM menu>
48	check_brushes	DC motor brushes may be wearing out and ready to fail.
49	reset_while_run	It is set if the feeder was running before the power down or reset occurred
Table page 3 of 4		

Alarm- number	Short Name	Description
50	acf_fail	ActiFlow Alarm.
51	acf_sensor	ActiFlow sensor failed.
62	battery_low	Lithium battery below 2.5V
65	HostTimeout	KSC/KVS host timeout
66	MDU_Controlless	Separate MDU control less running alarm
71	unexpected_reset	Unexpected reset (reset without power failure)
72	reset_digout_sw	Unexpected reset after digital output switching
73	MDU_ACILIM	AC Motor current above programmable limits. Default values for programmable limits are 150% for 60 sec, and also 200% for 5 seconds.
74	MDU_THERMOSTAT	AC drive motor thermostat open
75	MDU_PARAMERR	AC drive parameter settings incorrect
76	Agitator MDU alarm	For remote vertical agitator drive
77	Keypad Failure	The software recognizes 10 start button pushes in 10 seconds or less. If the Start button appears to be pressed down for more than 5 seconds.
100	TooManyWrites	WARNING K-Prom more than 100 K-Prom writes happen in one hour or less.
101	DC_GTS_eq_0	Warning if DC MDU and encoder = 0
102		Warning Agitator is disabled but machine runs
Table page 4 of 4		

2.7 WBF Alarm Status Register table.

Alarm- number	Short Name	Description
52	Belt_Slip	Belt is slipping beyond the belt slip limit or Actual Pulses from Belt Encoder is less 2 of expected 10 Pulses (Time/samples depending on Speed SP)
53	Scale_Over	The weight is above the permitted gross range.
54	Scale_Under	The gross weight is below zero.
55	High_beltload	Weight is above the High Belt Load Limit
56	Low_beltload	Weight is below the Low Belt Load Limit
57	Belt_Drift	The belt is drifting off the machine
58	Belt_Buildup	Material is accumulating on the weigh belt such that the belt loading on the secondary weigh bridge is greater than the Belt Empty Limit*BeltLoadSP.
61	Belt_Index	If no belt Index is detected during taring or if the expected belt index signal is not active in the segment it has been calibrated during taring.
63	SFT cooling alarm	SFT Temperature is too high

2.8 Parameter listing

Variable / Menu	Value	Value
Home menu		
SP		
MF		
DRIVE CMD-%		
Belt Load		
Belt Speed		
Motor RPM		
Total		
Product Change Menu		
Belt Load SP		
Belt Load		
Span		
Calibration Menu		
Cal Product Fed		
Act Product Fed		
Span		
Cal Correla		
Cal Corr Limit		
Cal DC-%		
Cal Time [sec]		
Alarm Menu		
Alarmlimits sub-menu		
Massflow Err (+)-%		
Massflow Err (-)-%		
Drive Cmd Hi-% (		
Drive Cmd Lo-%		
Hi Belt Load-%		
Lo Belt Load-%		
Table page 1 of 7		

Variable / Menu	Value	Value
Belt Slip Limit-%		
Belt Slip Value-%		
Alarm Menu		
Alarm Setup sub-menu		
Alarm Delay-sec.		
Startup Delay-sec.		
Stops Clrs Alarms		
ALR Number		
ALR Mode		
Tuning Menu		
Display Filter		
Integral Time		
Prefeeder Span		
Prefeeder Tune		
Sample Time		
SFT Cutoff Frq		
Scale Menu		
General sub-menu		
Tare or Tare 1		
Net Weight or Net Weight 1		
Tare 2		
Net Weight or Net Weight 2		
Scale Range		
SFT sub-menu		
SFT REQUIRED		
SFTS		
SFT SELECTED		
SFT ADDRESSED		
SFT WEIGHT		
Table page 2 of 7		

Variable / Menu	Value	Value
SFT TYPE		
SFT STATUS		
SFT #		
SFT SN#		
SFT TEMPERATURE		
Machine Setup Menu		
General sub-menu		
Setpoint Mode		
Max Setpoint		
Units		
Run Time - hours		
Fdr Address		
Application		
Language		
Screen Saver		
Machine Setup sub-menu		
Feeder Type		
Gear Reduction		
Pick-up Location		
Pick-up Teeth		
Belt Length		
Drum Diameter		
Transport Length		
Deck Gap		
Deck Length		
Prefeeder Distance		
Belt Empty Limit		
Motor sub-menu		
Actual Power		
Table page 3 of 7		

Variable / Menu	Value	Value
Maximum Motor Power		
Maximum Motor Voltage		
Maximum Motor Speed		
MDU Status		
DC Ceiling-%		
Service Setup sub-menu		
TRACETICK		
STOP ON PSW/ASW		
Performance sub-menu		
INT CHANNEL		
KCM TEMPERATURE		
TORQUE		
BRUSH REMAIN		
I/O Setup Menu		
Digital Input sub-menu		
CPU1		
CPU2		
CPU3		
CPU4		
MDU1		
MDU2		
EXT1		
EXT2		
EXT3		
EXT4		
EXT5		
EXT6		
EXT7		
EXT8		
Table page 4 of 7		

Variable / Menu	Value	Value
Digital Output sub-menu		
CPU1		
CPU2		
CPU3		
CPU4		
MDURELAY1		
MDURELAY2		
MDURELAY3		
EXT1		
EXT2		
EXT3		
EXT4		
EXT5		
EXT6		
EXT7		
EXT8		
EXT TOTAL PULSE		
DIGIOUT MAP		
Setpoint Input sub-menu		
SOURCE		
AINVALUE-%		
AIN MIN-%		
AIN MAX-%		
DEADBAND-%		
Analog Output sub-menu		
AOUT NUM		
FUNCTION		
AOUT VALUE		
AOUTMIN		
Table page 5 of 7		

Variable / Menu	Value	Value
AOUTMAX		
DEADBAND		
Modbus I/O sub-menu		
ADDR. 80		
ADDR. 81		
ADDR. 82		
ADDR. 83		
HCU Loader		
Refer to Manual 0290023601		
System Menu		
Communication sub-menu		
HOST PROT		
HOST FILE		
K-PORT 1 PROT		
BAUD RATE		
K-PORT 2 PROT		
BAUD RATE		
CONFIG MODE		
CONFIG PORT		
Parameter Backup sub-menu		
PASSWORD		
Security Menu		
Calibration		
Alarm		
Tuning		
Scale		
Machine Set-Up		
I-O Set-Up		
HCU Loader		
Table page 6 of 7		

Variable / Menu	Value	Value
System		
Fdr Being Viewed		
Tot Key		
SP Access		
KEYS		
Table page 7 of 7		