



Servo press kit YJKP - Parse logging data

Parse logging data of the servo press kit YJKP

YJKP

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1 Components/Software used

Type/Name	Version Software/Firmware
Servo press kit YJKP	EVO 4.1
Application software YJKP (GSAY-A4-F0-Z4-2.3.0)	V2.3.0
Firmware controller (CECC-X)	V3.8.14
Firmware motor controller (CMMT-AS)	V36.12.0

Table 1.1: Components/Software used

2 Application description

This application note describes how you can parse the logging data of the servo press kit.

3 Parse logging data

3.1 Data storage and format

The data storage of the logging file depends on the storage device.

The logging file is stored in CSV-Format.

Data storage device	Save Destination
USB	File PressResults.log in the directory (/servo_press/logging)
SD card	File PressResults.log in the directory (/servo_press/logging)

Table 3.1: Data storage devices for logging

3.2 Statistics

Section	Description
Part no.	Sequential number of the press process
Program name	Name of the program
Program ID	ID number of the program
Timestamp	Date and time of the press process
Result	Result of the press process (TRUE → OK FALSE → Not OK)
Max. position	Maximum electric cylinder position achieved during the whole press process
Max. force	Maximum force sensor value achieved during the whole press process
NOK source	Information about why the press process was terminated (only with result = not OK) - Digits 1...3 contain the step number of the press process being carried out (example: 010 = step 10) - The last digit contains the actual reason why the press process was terminated (Table: Digit 4 coding)

Table 3.2: Statistics descriptions

Digit 4 coding	Description
1	Termination by the "Position mode" step
2	Termination by the "Force mode" step
3	Termination by the "Digital signal mode" step
4	Termination due to the waiting time for "Read input" being exceeded (time out)
5	Termination because of the "Windowing" evaluation
6	Termination because of the "Threshold" evaluation
7	Termination because of the "Envelope" evaluation
8	Press process was terminated manually • When the servo press software has control priority: FALSE at the CECC-X-M1-YJKP - input X3.5 • When the host has control priority: FALSE at the host interface - control word bit 4

Table 3.3: Digit 4 coding descriptions

3.3 Curves

Section	Description
No.	Number of recorded curves

Table 3.4: Curves description

3.4 Intersection (Curve 1-5)

Section	Description
Max. position	Maximum position of curve X
Max. force	Maximum force of curve X
NOK source	Information about why the press process was evaluated with not OK - Digit 1 contains the evaluation method of the press process being evaluated with not OK (1 = Window, 2 = Threshold, 3 = Envelope) - Digit 1 contains the number of the evaluation method of the press process being evaluated with not OK - Example: Hex code: 203 → Threshold 3
Window X: Intersection	Intersection code sees Table 3.6: Window intersection code (1 = Intersection 0 = No intersection)
Window X: Upside position	Position of upside intersection point
Window X: Upside force	Force of upside intersection point
Window X: Downside position	Position of downside intersection point
Window X: Downside force	Force of downside intersection point
Window X: Left side position	Position of left side intersection point
Window X: Left side force	Force of left side intersection point
Window X: Right side position	Position of right side intersection point
Window X: Right side force	Force of right side intersection point
Window X: Min. position	Maximum position inside window X
Window X: Max. position	Maximum position inside window X
Window X: Min. force	Maximum force inside window X
Window X: Max. force	Maximum force inside window X
Threshold X: Intersection	1 = Intersection 0 = No intersection
Threshold X: Position	Position of intersection point
Threshold X: Force	Force of intersection point
Envelope X: Intersection	Intersection code sees Table 3.7: Envelope intersection code (1 = Intersection 0 = No intersection)
Envelope X: Upside position	Position of upside intersection point
Envelope X: Upside force	Force of upside intersection point
Envelope X: Downside position	Position of downside intersection point
Envelope X: Downside force	Force of downside intersection point

Table 3.5: Intersection (Curve 1-5) descriptions

Hex Code	Upside	Downside	Left side	Right side
0001	--	--	--	x
0010	--	--	x	--
0100	--	x	--	--
1000	x	--	--	--

Table 3.6: Window intersection code

Hex Code	Upside	Downside
01	--	x
10	x	--

Table 3.7: Envelope intersection code

3.5 Variables

Section	Description
No.	Number of variables
Value	Value of variable

Table 3.8: Variables descriptions

3.6 Sequencer

Section	Description
Steps	Number of steps
No.	Number of steps

Table 3.9: Sequencer descriptions

Function:

Function	Description
1	Position mode
2	Force mode
3	Digital signal mode
4	Delay time
5	Tare
6	Read input
7	Set output
8	Variable
9	Force control / smart force control

Table 3.10: Function descriptions

3.6.1 Position Mode (PM)

Input	Description
1	Record (TRUE → Active FALSE → Inactive)
2	Position method (TRUE → Relative FALSE → Absolute)
3	Configuration target position (TRUE → Variable FALSE → Value)
4	Value target position mm
5	Variable target position
6	Configuration target distance (TRUE → Variable FALSE → Value)
7	Value target distance mm
8	Variable target distance
9	Configuration max. force (TRUE → Variable FALSE → Value)
10	Value max. Force N
11	Variable max. force
12	Configuration velocity (TRUE → Variable FALSE → Value)
13	Value velocity mm/s
14	Variable velocity mm/s

Table 3.11: Position mode descriptions

3.6.2 Force Mode (FM)

Input	Description
1	Record (TRUE → Active FALSE → Inactive)
2	Position method (TRUE → Relative FALSE → Absolute)
3	Configuration target position (TRUE → Variable FALSE → Value)
4	Value target force N
5	Variable target force N
6	Configuration max. position (TRUE → Variable FALSE → Value)
7	Value max. position mm
8	Variable max. Position
9	Configuration max. distance (TRUE → Variable FALSE → Value)
10	Value max. Distance
11	Variable max. Distance
12	Configuration velocity (TRUE → Variable FALSE → Value)
13	Value velocity mm/s
14	Variable velocity mm/s

Table 3.12: Force mode descriptions

3.6.3 Force Control (FC) / Smart Force Control (SFC)

Input	Description
1	Record (TRUE → Active FALSE → Inactive)
2	Configuration target force (TRUE → Variable FALSE → Value)
3	Value target force N
4	Variable target force N
5	Configuration max. position (TRUE → Variable FALSE → Value)
6	Value max. position mm
7	Variable max. Position
8	Configuration holding time (TRUE → Variable FALSE → Value)
9	Value holding time ms
10	Variable holding time ms
11	Configuration velocity (TRUE → Variable FALSE → Value)
12	Value velocity mm/s
13	Variable velocity mm/s
14	Configuration K_p (TRUE → Variable FALSE → Value)
15	Configuration K_i (TRUE → Variable FALSE → Value)
16	Configuration K_v (TRUE → Variable FALSE → Value)
17	Enable K_i
18	Variable K_p
19	Variable K_i
20	Variable K_v
21	Value K_p
22	Value K_i
23	Value K_v
24	Configuration velocity (TRUE → Variable FALSE → Value) Duplicated from input 11.
25	Value velocity mm/s Duplicated from input 12.
26	Variable velocity mm/s Duplicated from input 13.
27	Configuration force tolerance (TRUE → Variable FALSE → Value)
28	Value force tolerance %
29	Variable force tolerance %
30	Activate velocity switch

Input	Description
31	Value velocity switch middle position mm
32	Value velocity switch approach velocity mm/s
33	Value max. force N
34	Value time limit ms
35	Configuration middle position (TRUE → Variable FALSE → Value)
36	Variable middle position mm
37	Configuration approach velocity (TRUE → Variable FALSE → Value)
38	Variable velocity switch approach velocity mm/s
39	Configuration max. force (TRUE → Variable FALSE → Value)
40	Variable max. force N
41	Configuration time limit (TRUE → Variable FALSE → Value)
42	Variable time limit ms
43	Enable smart force control

Table 3.13: Force control descriptions

3.6.4 Digital Signal Mode (DSM)

Input	Description
1	Record (TRUE → Active FALSE → Inactive)
2	Position method (TRUE → Relative FALSE → Absolute)
3	Digital signal
4	Configuration max. position (TRUE → Variable FALSE → Value)
5	Value max. position mm
6	Variable max. position
7	Configuration max. distance (TRUE → Variable FALSE → Value)
8	Value max. distance
9	Variable max. distance
10	Configuration velocity (TRUE → Variable FALSE → Value)
11	Value velocity mm/s
12	Variable velocity mm/s

Table 3.14: Digital signal mode descriptions

3.6.5 Delay Time (DT)

Input	Description
1	Configuration delay time (TRUE → Variable FALSE → Value)
2	Value delay time ms
3	Variable velocity mm/s

Table 3.15: Delay time descriptions

3.6.6 Tare

Input	Description
1	Tare (TRUE → Active FALSE → Inactive)
2	Configuration offset (TRUE → Variable FALSE → Value)
3	Value offset N
4	Variable offset

Table 3.16: Tare descriptions

3.6.7 Read Input

Input	Description
1	Number of inputs
2	Read input (TRUE → TRUE FALSE → FALSE)

Table 3.17: Read input descriptions

3.6.8 Set Output (SO)

Input	Description
1	Number of outputs
2	Set output (TRUE → TRUE FALSE → FALSE)

Table 3.18: Set output descriptions

3.6.9 Variable

Input	Description
1	Number of variables
2	Value of variable

Table 3.19: Variable descriptions

3.7 Recipes

Section	Description
No.	Number of recipes

Table 3.20: Recipes description

3.8 Evaluation Result (Curve 1-5)

3.8.1 Windowing

Section	Description
Active	Windowing configuration (TRUE → Active FALSE → Inactive)
Window X: Active	Window X configuration (TRUE → Active FALSE → Inactive)
Window X: Config.	Position method (TRUE → Relative FALSE → Absolute)
Window X: Config. min. position	Configuration min. position (TRUE → Variable FALSE → Value)
Window X: Min. position value	Value min. position
Window X: Min. position variable	Variable min. position
Window X: Config. max. position	Configuration max. position (TRUE → Variable FALSE → Value)
Window X: Max. position value	Value max. position
Window X: Max. position variable	Variable max. position
Window X: Config. min. force	Configuration min force (TRUE → Variable FALSE → Value)
Window X: Min. force value	Value min. force
Window X: Min. force variable	Variable min. force
Window X: Config. max. force	Configuration max. force (TRUE → Variable FALSE → Value)
Window X: Max. force value	Value max. force
Window X: Max. force variable	Variable max. force
Window X: Config. downside	0 = Don 't care 1 = Forbidden 2 = In 3 = Out

Table 3.21: Windowing descriptions

3.8.2 Threshold

Section	Description
Active	Threshold configuration (TRUE → Active FALSE → Inactive)
Threshold X: Active	Threshold X configuration (TRUE → Active FALSE → Inactive)
Threshold X: Config.	Position method (TRUE → Relative FALSE → Absolute)
Threshold X: Mode	Threshold mode (TRUE → Force FALSE → Position)
Threshold X: Config. position	Configuration position (TRUE → Variable FALSE → Value)
Threshold X: Position value	Value position
Threshold X: Position variable	Variable position
Threshold X: Config. min. position	Configuration min. position (TRUE → Variable FALSE → Value)
Threshold X: Min. position value	Value min. position
Threshold X: Min. position variable	Variable min. position
Threshold X: Config. max. position	Configuration max. position (TRUE → Variable FALSE → Value)
Threshold X: Max. position value	Value max. position
Threshold X: Max. position variable	Variable max. position
Threshold X: Config. force	Configuration force (TRUE → Variable FALSE → Value)
Threshold X: Force value	Value force
Threshold X: Force variable	Variable force
Threshold X: Config. min. force	Configuration min. force (TRUE → Variable FALSE → Value)
Threshold X: Min. force value	Value min. force
Threshold X: Min. force variable	Variable min. force
Threshold X: Config. max. force	Configuration max. force (TRUE → Variable FALSE → Value)
Threshold X: Max. force value	Value max. force
Threshold X: Max. force variable	Variable max. force
Threshold X: Config	0 = Up 1 = Down 2 = Left 3 = Right

Table 3.22: Threshold descriptions

3.8.3 Envelope

Section	Description
Active	Envelope configuration (TRUE → Active FALSE → Inactive)
Envelope X: Active	Envelope X configuration (TRUE → Active FALSE → Inactive)
Envelope X: Config.	Position method (TRUE → Relative FALSE → Absolute)
Envelope X: Points upside	Number of points upsides
Envelope X: No.	Number of envelope points
Envelope X: Config. force	Configuration force (TRUE → Variable FALSE → Value)
Envelope X: Force value	Value force
Envelope X: Force variable	Variable force
Envelope X: Config. position	Configuration position (TRUE → Variable FALSE → Value)
Envelope X: Position value	Value position
Envelope X: Position variable	Variable position
Envelope X: Points downside	Number of points downsides
Envelope X: No.	Number of envelope points
Envelope X: Config. force	Configuration force (TRUE → Variable FALSE → Value)
Envelope X: Force value	Value force
Envelope X: Force variable	Variable force
Envelope X: Config. position	Configuration position (TRUE → Variable FALSE → Value)
Envelope X: Position value	Value position
Envelope X: Position variable	Variable position

Table 3.23: Envelope descriptions

3.8.4 Singularity

Section	Description
Active	Singularity configuration (TRUE → Active FALSE → Inactive)
Singularity X: Min. force result	Did a valid minimum force point successfully identified inside the ROI bounds?
Singularity X: Min. force index	The curve array index where the minimum force occurred.
Singularity X: Max force result	Did a valid maximum force point successfully identified inside the ROI bounds?
Singularity X: Max. force index	The curve array index where the maximum force occurred.
Singularity X: Peak result	Was a valid local force peak successfully found?
Singularity X: Peak index	Array index corresponding to the detected peak point.
Singularity X: Valley result	Was a valid local force valley successfully found?
Singularity X: Valley index	Array index corresponding to the detected valley point.
Singularity X: Bending result	Was a valid bending/inflection point successfully detected within the slope limit ranges?
Singularity X: Bending index	Array index corresponding to the point of maximum slope change.
Singularity X: Result	Overall window OK/NOK result. (TRUE if all active validations passed).
Singularity X: Min. force position	Position (displacement in mm) of the minimum force point.
Singularity X: Min. force value	Force value (kN or N) at the minimum force position.
Singularity X: Max. force position	Position (displacement in mm) of the maximum force point.
Singularity X: Max force value	Force value (kN or N) at the maximum force position.
Singularity X: Peak position	Position (displacement in mm) of the highest peak.
Singularity X: Peak force	Force value (kN or N) of the highest peak.
Singularity X: Valley position	Position (displacement in mm) of the lowest valley.
Singularity X: Valley force	Force value (kN or N) of the lowest valley.
Singularity X: Bending position	Position (displacement in mm) of the maximum slope change point.
Singularity X: Bending force	Force value (kN or N) at the maximum slope change point.
Singularity X: Bending value	Bending characteristic value: The maximum index-averaged force gradient change computed.

Table 3.24: Singularity descriptions