

Motoriky

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Status	
Priority	MIDDLE
Topic Leader	
Developer	@Peiqing Li
Supporter	@Zhiyi Yuan
Deadline	

任务简述

分类	内容
JIRA	
发起人	
Input 输入	
使用什么资源	
如何做	
谁进行	
Output输出	
关键测量	

目录

Motorky简介

- Motorky是总部开发的野库（有库和例程见附件），该库可以控制步进电机、直流电机，也能发脉冲方向控制伺服或变频器。可以做速度控制和位置控制等。
该库包含四个功能块：DS \ FI \ MM \ SM
更多详情请参考motorky的HTML HELP文档

✔ MotorKy库中有分数来代替浮点数的部分，比如速度规划，位置规划，还有PID的实现，做算法的话，很有参考价值

The screenshot displays the Motorky software interface. On the left is the 'Project View' pane showing a hierarchical tree of files and folders. The 'motorky' folder contains sub-folders like 'Global', 'Libraries', and 'Motorky', along with various source files (.c, .h) and libraries. The 'ds.st' file is currently selected. On the right is the 'Motorky::ds.c [Ansi C]' window, which shows a table of function declarations for the 'Motorky' module.

Name	Type
FB FI	
init	Motorky_Init_Enc_typ
cmd	Motorky_Cmd_typ
param	Motorky_Param_typ
info	Motorky_Info_typ
IOMapping	Motorky_FI_IOMapping
intern	Motorky_Intern_typ
internFI	Motorky_InternFI_typ
FB MM	
init	Motorky_Init_MM_typ
cmd	Motorky_Cmd_typ
param	Motorky_Param_typ
info	Motorky_Info_typ
IOMapping	Motorky_MM_IOMapping
intern	Motorky_Intern_typ
internMM	Motorky_InternMM_typ
FB DS	
init	Motorky_Init_NoEnc_typ
cmd	Motorky_Cmd_typ
param	Motorky_Param_typ
info	Motorky_Info_typ
IOMapping	Motorky_DS_IOMapping
intern	Motorky_Intern_typ
movTargetTimeOffset	DINT
units2output	Motorky_ConvertPosition
FB SM	
init	Motorky_Init_SM_typ
cmd	Motorky_Cmd_typ
param	Motorky_Param_typ
info	Motorky_Info_typ
IOMapping	Motorky_SM_IOMapping
intern	Motorky_Intern_typ
tofBoostCurrent	Motorky_TOF
dPosition	DINT
oldPosition	DINT
units2output	Motorky_ConvertPosition
filterLevel	INT
setTimeOffset	DINT

使用场景

- 编码器齿轮比换算，精确的方法是整数运算，motorky里面相关的齿轮比函数是ConvertPosition
- Motorky可以配合DS，SM，MM模块使用
- 使用X20DS1319走速度模式
- 使用X20DS1319走位置模式，X20DS1319的配置

ame	Value	Description
Cycle time	150	Cycle time in us (25..255us)
Cycle prescaler	4	Multiples of system timer
Cycle offset	0	Cycle offset in us (-4096..4095us)
Physical I/O channel configuration		
Configuration channel 01	input	Select operating mode input channel
Configuration channel 02	input	Select operating mode input channel
Configuration channel 03	output push/pull inverted	Select operating mode input/output channel
Output control channel 03	Movement D	Select control source
Configuration channel 04	output push/pull inverted	Select operating mode input/output channel
Output control channel 04	Movement F	Select control source
Configuration channel 05	input	Select operating mode input channel
Configuration channel 06	input	Select operating mode input channel
Configuration channel 07	input	Select operating mode input/output channel
Output control channel 07	direct I/O handling	Select control source
Configuration channel 08	input	Select operating mode input/output channel
Output control channel 08	direct I/O handling	Select control source
I/O handling		
Direct I/O		
Direct I/O handling	off	De-/activate direct I/O handling
Oversampled I/O		
Oversampled I/O handling	off	De-/activate oversampled I/O handling
Edge detection		
Edge detection	off	De-/activate edge detection
Movement		
Movement	position control	De-/activate movement
Max. movement frequency	250 kHz	Select max. frequency of increments
Position resolution	0	Set position resolution - decimal places (micro steps)
Data format of position values	32 bit	Select data format
Data format/mode of target time value	29 bit	Select data format/mode
Data format nettime of current position	off	Select data format
Target position range	32	Set target position range
Reference #1 range	32	Set reference #1 range
Reference #2 range	32	Set reference #2 range
Number of Fifo entries	32 entries	Select Fifo size [entries]
Target time delay	0	Set target time delay [μs]
Configuration reference pulse #1	start/end position	Configure reference pulse position and size

Motorky库相关 关联文档

- DDA算法工程实践-2021技术大会-李沛卿.pdf

Motorky库中的应用

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速度和位置计算

对加速度进行
累加

```

/* compute speed difference */
speedDifference = pSpeedRamping->setSpeed - pSpeedRamping->actualSpeed;

if (speedDifference > 0)
{
    /* compute absolute speed difference */
    absoluteSpeedDifference = ABS(pSpeedRamping->setSpeed) - ABS(pSpeedRamping->actualSpeed);

    /* speed must be increased ? */
    if (absoluteSpeedDifference > 0)
    {
        /* accelerate in positive direction */
        pSpeedRamping->vIntegral += pSpeedRamping->acceleration;
        /* set state "accelerating" */
        pSpeedRamping->motionState = MOTION_STATE_ACCELERATING;
    }
    else
    {
        /* decelerate in positive direction */
        pSpeedRamping->vIntegral += pSpeedRamping->deceleration;
        /* set state "decelerating" */
        pSpeedRamping->motionState = MOTION_STATE_DECELERATING;
    }
}

```

- DS1319控制雷赛步进电机减小震动调试方案_A.pdf
- DS1319模块带施耐德驱动器和电机的motorkey功能库使用说明_V1.1.docx
- 如何使用Motorky中的DS功能块控制步进电机运动.docx

01_需求说明梳理

反馈时间	反馈者	解决人	状态	需求说明	结果
2022.09.27			未开启		

02_开发与收集相关资料

✓

总部工程师在Bitbucket上维护的仓库链接
[Browse CZ - INT - Support_Level1 / Motorky - Bitbucket \(br-automation.com\)](#)

编写时间	编写人	版本信息	链接与说明
2022.12.29	Roman Vancura	2.23	Motorky_V2.23.0.zip 带有例程的Motorky库，支持Intel芯片与ARM芯片

03_可用输出物

更新时间	更新人	版本信息	链接与说明
2022.09.27			

04_问题处理记录

反馈时间	更新人	反馈人	状态	问题	解决方式
2022.09.27			未开启		

文档信息

File	Modified
 Motorky_V2.23.0.zip	2023-02-10 by Zhiyi Yuan
 image2023-2-10_15-31-46.png	2023-02-10 by Zhiyi Yuan
 image2023-2-10_15-38-6.png	2023-02-10 by Zhiyi Yuan
 image2023-2-10_15-40-18.png	2023-02-10 by Zhiyi Yuan
 LibMotorky2.23.chm	2023-02-10 by Zhiyi Yuan
 如何使用Moterky中的DS功能块控制步进电机运动.docx	2023-02-10 by Zhiyi Yuan