TF02-W Software Communication

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2018.07.10

Version Control

Version	Date	*Change mode	Changes	Author
1.0	2018-7-2	C		Xingjian LIU
1.1	2018-11-6	M		Xingjian LIU
1.2	2018-11-19	M		Xingjian LIU
1.3	2020-04-24	M		Xiaomin Shen

*Change mode: C — Create, A — Add, M — Modify, D — Delete

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To improve the user experience, TF02-W has released a configuration interface. With this interface, user can change the working parameters of TF02-W's wiper like the working time interval, the working angle and the wiping times. All the parameters can also be read from this interface. And through this interface, user can set TF02-W's wiper to work immediately.

To enable the interface, you need to enter the configuration mode of TF02-W. In configuration mode, you can modify the working parameters of TF02-W's wiper with specific commands below. When the configuration is done, you need to Exit configuration mode to make TF02-W work normally. See the following flow chart:

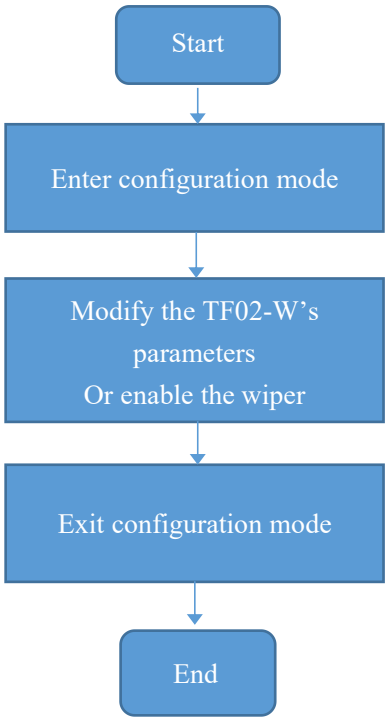

Chart 1 TF02-W Communication Interface

Note: Please check the response command to guarantee secure communication.

2.1. Configuration mode

TF02-W has two different modes, configuration mode and working mode. In the

working mode, TF02-W will detect the range and output detecting data. In the configuration mode, the detecting function of TF02-W is disabled. Meanwhile, the communication interface is enabled, which is used to set the working parameters.

2. 1. 1. Enter configuration mode

HOST：

Command format	Description
AA 55 F0 00 01 00 00 02	

Device：

Command response	Description
AA 55 F0 00 01 00 00 02	Succeed

2. 1. 2. Exit configuration mode

HOST：

Command format	Description
AA 55 F0 00 00 00 00 02	

Device：

Command response	Description
AA 55 F0 00 00 00 00 02	Succeed

2.2. Parameters Setting

In the configuration mode, the working parameters of TF02-W's wiper, including working angle, time interval and wiping times, can be modified with specific commands.

2. 2. 1. Enable the wiper

In the configuration mode, the TF02-W's wiper will start to work immediately with the command below.

HOST：

Command format	Description
AA 55 F0 00 00 00 00 b0	

Device：

Command response	Description
AA 55 F0 00 00 00 00 b0	Succeed

Note: The wiper will work with the default parameters.

2. 2. 2. Modify Angle

HOST：

Command format	Description
AA 55 F0 00 start_angle end_angle 00 b1	start_angle: start angle of wiper end_angle: end angle of wiper

Device：

Command response	Description
AA 55 F0 00 start_angle end_angle 00 b1	Succeeded
AA 55 F0 03 start_angle end_angle 00 b1	Failed: parameter error

Note:10~140degree or 0~130degree

2. 2. 3. Modify Time Interval

The time interval means the waiting time between two wiping. The Unit of the waiting time is minute.

HOST：

Command format	Description
AA 55 F0 00 wait_min_hi wait_min_lo 00 b2	wait_min_lo：Waiting time, lower 8 bits wait_min_hi：Waiting time, higher 8 bits

Device：

Command response	Description
AA 55 F0 00 wait_min_hi wait_min_lo 00 b2	Succeeded
AA 55 F0 03 wait_min_hi wait_min_lo 00 b2	Failed: parameter error

Note: The time interval cannot be less than 1 min.

2. 2. 4. Modify Wiping Times

Take a round-trip wipe as one time. Wiping times can be modified with the following command.

HOST：

Command format	Description
AA 55 F0 00 count 00 00 b3	count： Times the wiper wipes

Device：

Command response	Description
AA 55 F0 00 count 00 00 B3	Succeeded
AA 55 F0 03 count 00 00 B3	Failed: parameter error

Note: The number of wiping times cannot be less than 1.

2. 2. 5. Modify Wiping Speed

The wiping speed of the wiper is controlled by the step-delay. Increasing step-delay will slow the wiper's speed and vice versa.

HOST：

Command format	Description
AA 55 F0 00 step_dalay_H step_dalay_L 00 B5	step_dalay_H：High 8-bit of Step-delay step_dalay_L：Low 8-bit of Step-delay

Device：

Command response	Description
AA 55 F0 00 step_dalay_H step_dalay_L 00 B5	Succeeded
AA 55 F0 03 step_dalay_H step_dalay_L 00 B5	Failed: parameter error

Note:

- *Unit of step-delay is μs*
- *Maximum value of step-delay is 1000 μs and minimum value is 500 μs*
- *Default value is 600 μs.*

2.2.6. Modify round-trip delay

Round-trip delay is the time, the wiper, reached 130° , waits for before it moves back. Round-trip delay(rt_delay) can be modified with the following command.

HOST：

Command format	Description
AA 55 F0 00 rt_dalay_H rt_dalay_L 00 B6	rt_dalay_H：High 8-bit of rt-delay rt_dalay_L：Low 8-bit of rt-delay

Device：

Command response	Description
AA 55 F0 00 rt_dalay_H rt_dalay_L 00 B6	Succeeded
AA 55 F0 03 rt_dalay_H rt_dalay_L 00 B6	Failed: parameter error

Note:

- *Unit of rt-delay is ms*
- *Maximum value of step-delay is 1000ms and minimum value is 250ms*
- *Default value is 250ms.*

2.2.7. Restore settings

All the parameters can be restored with the following command.

HOST：

Command format	Description
AA 55 F0 00 00 00 00 B7	Restore all the parameters of the wiper

Device：

Command response	Description
AA 55 F0 00 00 00 00 B7	Succeeded

2.3. Read Wiper Parameters

All the parameters — working angle, time interval and wiping times, can be read from TF02-W with the following command. *wait_minute* is the working interval — unit:

minutes

HOST：

Command format	Description
AA 55 F0 00 00 00 00 b4	

Device：

Command response	Description
Demmy1 **Demmy2** **count** **wait_minute_L** **wait_minute_H** **step_dalay_L** **step_dalay_H** **rt_delay_L** **rt_delay_H**	Demmy1：Reserved byte 1 Demmy1：Reserved byte 2 count：The wiping times wait_min_L：Low 8-bit of working interval wait_min_H：High 8-bit of working interval step_dalay_L：Low 8-bit of step-delay step_dalay_H：High 8-bit of step-delay rt_dalay_L：Low 8-bit of round-trip delay rt_dalay_H：High 8-bit of round-trip delay