VMxxx Firmware program difference comparison_SF3.33_SF3.50 2021/05

BUGs

SF3.33	SF3.50	Usage Suggestions
Error frequency is read within 2 seconds after power-on	Fixed	Nothing
Cannot output sweep signal less than 500Hz	Fixed	Nothing
MODBUS 0x10 Function code must start in register 0	Fixed	Nothing
There may be no response when wake up after sleep	Fixed	Nothing
SIG and DAO pins may have output exceptions	Fixed	Nothing
There may be no response in a single measurement mode	Fixed	Nothing
The coil resistance value is incorrect when the VSEN is not connected	Fixed	Nothing
The filtered data cannot be greater than 19	Fixed	Nothing
The frequency register is not updated when the measurement fails	The update frequency register value is 0 when the measurement fails.	Nothing
	Do not measure when VSEN voltage is abnormal.	Nothing

Function optimization and adjustment

Object	SF3.33	SF3.50	Usage Suggestions
Coil resistance range	50Ω~10kΩ	50Ω~5kΩ	Nothing
voltage of the high voltage pulse	Limit high voltage excitation voltage up to 200V.	The maximum excitation voltage value is dynamically limited according to the coil resistance. Add sensor coil resistance abnormal detection function, resistance abnormal pause 2~10 seconds. Limit high voltage excitation voltage up to 180V.	Nothing
Digital temperature sensor 18B20	Must be three-wire, a few meters	Two-wire long-distance temperature measurement (>500 meters) and unique SN code.	Connect two wires to 18B20
Frequency measurement technique		Add SFC technical support, signal analysis and computing capability	Nothing

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Registers definition modification

Object	SF3.33	SF3.50	Usage Suggestions
MM_INTE	The value ranges from 0 to 65535, in milliseconds	The value ranges from 0 to 65535.When the value ranges from 0 to 60000, the unit is ms. When the value is greater than 60000, the delay duration is (value -60000) minutes.	Setting the register value within 60000 has no impact
REG49	Reserved (ADC4, meaningless)	Multichannel frequency status bit[15:8]: Whether coils are detected, each representing 1 channel bit[7:0]: Whether the frequency value of each channel is derived from SFC calculation results	Nothing
REG50	bit[15]: All channels have been measured at least once. bit[14]: Reserved bit[13:12]: Reserved bit[11:8]: Reserved bit[7:0]: The channel number that was just measured	bit[15]: All channels have been measured at least once. bit[14]: All channels have been measured and the signal quality has reached or exceeded the predetermined value. bit[13:12]: Reserved bit[11:8]: Number of coils detected (number of sensors). bit[3:0]: The channel number that was just measured	Nothing
SYS_STA	bit[8]: Reserved bit[9]: Reserved All status bits must be cleared by sending instructions	bit[8]: VSEN Low voltage bit[9]: Current signal quality is poor, SFC frequency has been filled to S_FRQ register Some status bits are cleared automatically: sampling timeout, signal quality is low, frequency value overflow, coil not detected, temperature sensor exception	Some status bits do not need to be cleared by sending instructions
TEMP_EX	bit[7]: Whether to automatically detect the temperature sensor type bit[6:0]: The value ranges from 0 to 3	bit[7]: Reserved (" automatic detection "deleted) bit[6:0]: Value range: 0 to 2 (Indirect connection NTC is deleted.)	Do not use automatic Detection Do not use indirect connection NTC
SMP_QUA	bit[15:8]: Reserved bit[7:0]: signal quality	bit[15:8]: The estimated error of THE SFC FRQ, 0.1Hz bit[7:0]: signal quality	Nothing
EX_MODTH	6: Reserved 7: Reserved	6: SFC_H, High voltage frequency measurement method based on SFC technology	Nothing

		7: SFC_L, Low voltage frequency measurement method based on SFC technology	
AUX	bit[5]: Reserved	bit[5]: Whether it is allowed to use SFC assist when measuring frequency	Nothing
WKMOD	bit[13]: Reserved	bit[13]: Whether to respond (send back) real-time data in channel order	Nothing, Only for multi-channel products
REG23	bit[15]: Whether to use dynamic amplification function bit[11:8]: Reserved	bit[15]: Reserved(Deleted the signal dynamic amplification function) bit[11:8]: Over Sample. Additional acquisition n times the number of signals. excess sampling	Nothing
REG38	Reserved	SFC_FRQ: Frequency values obtained using SFC	Nothing
REG46	Reserved	V_POW, The VDD voltage	Nothing

Register defaults

Object	SF3.33	SF3.50	Usage Suggestions
FS_FMIN	1000	300	The value needs to be modified as required
FS_FMAX	3000	5000	
HP_DUR	bit[15]: 0, Use fixed pump voltage duration	bit[15]: 0, Stop pump voltage as soon as voltage is reached	Nothing

Newly added register

Object	SF3.33	SF3.50	Usage Suggestions
REG59~62		The 18B20 unique ID of channel 1	Nothing
REG63~66		The 18B20 unique ID of channel 2	Nothing
REG67~70		The 18B20 unique ID of channel 3	Nothing
REG71~74		The 18B20 unique ID of channel 4	Nothing
REG81~88		Quality sample percentage and signal evaluation quality percentage for each channel	Nothing