STM32 PLC – OpenSourceLogger Protocol

Innehållsförteckning

Introduction

STM32 PLC is the USB slave unit and OpenSourceLogger is the logging software.

Protocol

TX CAN Bus message OpenSourceLogger → STM32 PLC

Transmitted on GUI event:

Byte 0	Byte 1	Byte 2	to	Byte 5	Byte 6	Byte 7	to	Byte 15
Message type	IDE	ID MSB		ID LSB	DLC	Data MSB		Data LSB

Byte	Value	Comment
Message type	0x1	For STM32 PLC
IDE	0x0 or 0x4	0x0 = Standard ID, 0x4 = Extended ID
ID	0x0 to 0xFFFFFFFF	For both standard ID and extended ID
DLC	0x0 to 0x8	Length of data
Data	0x0 to 0xFF	Message data

Receive: No response back

RX CAN Bus message STM32 PLC → OpenSourceLogger

Transmitted when STM32 PLC got a CAN message:

Byte 0	Byte 1	Byte 2	to	Byte 5	Byte 6	Byte 7	to	Byte 15
Message type	IDE	ID MSB		ID LSB	DLC	Data MSB		Data LSB

Byte	Value	Comment
Message type	0x0	For OpenSourceLogger
IDE	0x0 or 0x4	0x0 = Standard ID, 0x4 = Extended ID
ID	0x0 to 0xFFFFFFFF	For both standard ID and extended ID
DLC	0x8	Length of data.
Data	0x0 to 0xFF	Message data

Receive: No response back

Control message OpenSourceLogger → STM32 PLC

Transmitted every 1 millisecond:

Byte 0 Message type	Byte 1 PWM0 MSB	Byte 1 PWM0 LSB	Byte 2 PWM1 MSB	Byte 3 PWM1 LSB	Byte 4 PWM2 MSB	Byte 5 PWM2 LSB

Byte 6 PWM3 MSB	Byte 7 PWM3 LSB	Byte 8 PWM4 MSB	Byte 9 PWM4 LSB	Byte 10 PWM5 MSB	Byte 11 PWM5 LSB

Byte 12 PWM6 MSB	Byte 13 PWM6 LSB	Byte 14 PWM7 MSB	Byte 15 PWM7 LSB	Byte 16 AO0 MSB	Byte 17 AO0 LSB

Byte 18 AO1 MSB	Byte 19 AO1 LSB	Byte 20 AO2 MSB	Byte 21 AO2 LSB

Byte	Value	Comment
Message type	0x3	For STM32 PLC
PWMx	0x0 to 0xFFFF	16-bit PWM control period
AOx	0x0 to 0xFFF	12-bit Analog output

Receive measurements back:

Byte 0 Message type	Byte 1 DI0	Byte 1 DI1	Byte 2 DI2	Byte 3 DI3	Byte 4 DI4	Byte 5 DI5

Byte 6 DI6	Byte 7 DI7	Byte 8 DI8	Byte 9 DI9	Byte 10 ADC0 MSB	Byte 11 ADC0 LSB	Byte 12 ADC1 MSB	Byte 13 ADC1 LSB

Byte 14	Byte 15	Byte 16	Byte 17	Byte 18	Byte 19	Byte 20
ADC2 MSB	ADC2 LSB	ADC3 MSB	ADC3 LSB	ADC4 MSB	ADC4 LSB	ADC5 MSB

Byte 21	Byte 22	Byte 23	Byte 24	Byte 25	Byte 26	Byte 27
ADC5 LSB	ADC6 MSB	ADC6 LSB	ADC7 MSB	ADC7 LSB	ADC8 MSB	ADC8 LSB

Byte 28	Byte 29	Byte 30	Byte 31	Byte 32	Byte 33	Byte 34
ADC9 MSB	ADC9 LSB	ADC10 MSB	ADC10 LSB	ADC11 MSB	ADC11 LSB	DADC0 MSB

Byte 35	Byte 36	Byte 37	Byte 38	Byte 39	Byte 40	Byte 41
DADC0 LSB	DADC1 MSB	DADC1 LSB	DADC2 MSB	DADC2 LSB	DADC3 MSB	DADC3 LSB

Byte 42	Byte 43	Byte 44	Byte 45	Byte 46	Byte 47	Byte 48
DADC4 MSB	DADC4 LSB	ENCODER0 MSB	ENCODER0 LSB	ENCODER1 MSB	ENCODER1 LSB	ENCODER2 MSB

Byte 49	Byte 50	Byte 51	Byte 52	Byte 53	Byte 54	Byte 55	Byte 56	Byte 57
ENCODER2 LSB	IC0 MSB	IC0 LSB	IC1 MSB	IC1 LSB	IC2 MSB	IC2 LSB	IC2 MSB	IC2 LSB

Byte	Value	Comment
Message type	0x2	For OpenSourceLogger
ADCx	0x0 to 0xFFFF	16-bit ADC measurement
DADCx	0x0 to 0xFFFF	16-bit Differential ADC measurement
ENCODERx	0x0 to 0xFFFF	16-bit Encoder measurement
ICx	0x0 to 0xFFFF	16-bit Input Capture measurement

Sigma Delta ADC gain set OpenSourceLogger → STM32 PLC

Transmitted on GUI event:

Byte 0	Byte 1	Byte 1	Byte 2
Message type	SDADC	Configuration index	Gain

Receive: No response back

Byte	Value	Comment
Message type	0x4	For STM32 PLC
SDADC	0x1, 0x2 or 0x3	What type of Sigma Delta peripheral

Configuration index	0x0 to 0x2	Type of configuration index for Sigma Delta
Gain	0x0 to 0x7	Type of gain

Sigma Delta ADC gains request OpenSourceLogger → STM32 PLC

Transmitted on GUI event:

Byte 0 Message type	Byte 1 SDADC

Byte	Value	Comment
Message type	0x7	For STM32 PLC
SDADC	0x1, 0x2 or 0x3	What type of Sigma Delta peripheral

Receive three gains:

Byte 0 Message type	Byte 1 Gain 0	Byte 2 Gain 1	Byte 3 Gain 2

Byte	Value	Comment
Message type	0x7	For OpenSourceLogger
Gain 0	0x0 to 0x7	Gain for configuration index 0
Gain 1	0x0 to 0x7	Gain for configuration index 1
Gain 2	0x0 to 0x7	Gain for configuration index 2

PWM prescaler set OpenSourceLogger → STM32 PLC

Transmitted on GUI event:

Byte 0 Message type	Byte 1 Peripherial	Byte 1 Prescaler MSB	Byte 2 Prescaler LSB

Receive: No response back

Byte	Value	Comment
Message type	0x5	For STM32 PLC
Peripherial	0x0 or 0x1	0x0 = PWM 0 to 3, 0x1 = PWM 4 to 7
Prescaler	0x0 to 0xFFFF	16-bit PWM prescaler

PWM prescalers request OpenSourceLogger → STM32 PLC

Transmitted on GUI event:

Byte 0
Message type

Byte	Value	Comment
Message type	0x6	For STM32 PLC

Receive two prescalers:

Byte 0	Byte 1	Byte 2
Message type	Prescaler 0	Prescaler 1

Byte	Value	Comment
Message type	0x6	For OpenSourceLogger
Prescaler 0	0x0 to 0xFFFF	Prescaler for PWM 0 to PWM 3
Gain 1	0x0 to 0xFFFF	Prescaler for PWM 4 to PWM 7