CAN-BUS communication type motor controller instruction manual

note: the system will be changed without notice

ATTENTION!!

Please read this installation manual carefully

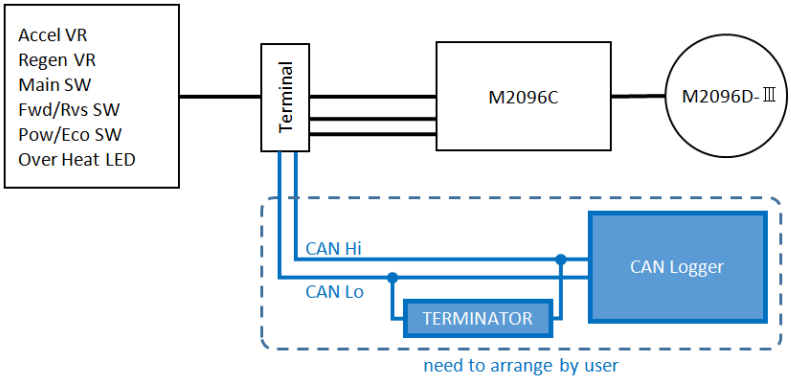
and understand it fully without fail

before you start the installation and use it.

Tel：+81 90 1586 7484　Fax：+81 6 6453 0635
1-18, Koshien-Abiki, Nishinomiya, Hyogo 663-8156, Japan
e-mail: nomnom13@yahoo.co.jp / skype: nomnom13

1) Main Features

The new controller is added CAN-BUS communication.
This CAN-BUS is not purpose for control motor controller,
It is several data monitoring purpose such like voltage and current, etc.
You can get CAN-BUS communication via CAN-HI and CAN-LO.
CAN logger, terminator, cables are not included motor kit.
thus you need prepare by yourselves.



2) Terminal for CAN-BUS

You need connect accordingly.

CAN High = termina16 and CAN Low = terminal17

description of electric terminals

controller - terminal

description	parts terminal of number and position	wire color	terminal bar terminal number	note
main switch	center	white	01	
	side	black	20	
acceleration volume	2	white	02	
	1	black	21	
	3	red	03	
generating brake volume	2	white	22	
	1	black	04	
	3	red	23	
power / eco mode switch	center	white	05	
		—	24	prohibit to connect
	side	black	06	
forward / reverse switch	center	white	25	
	side	black	07	
			26	prohibit to connect
			08	prohibit to connect
			27	motor rotation pulse out put signal (0-5V)
			09	prohibit to connect
			28	GND
			10	prohibit to connect
			29	prohibit to connect
			11	Map_GND
			30	prohibit to connect
digital switch		red	12	Map_Bit0
		White	31	Map_Bit1
		green	13	Map_Bit2
		yellow	32	Map_Bit3
LED	K (-) :3	black / (brown)	14	LED_GND-0V
			33	prohibit to connect
LED	A (+) :1	white	15	LED_+
			34	prohibit to connect
			16	**CAN High**
			35	prohibit to connect
			17	**CAN Low**
			36	prohibit to connect
			18	prohibit to connect
			37	prohibit to connect
			19	prohibit to connect

motor sensor signal cable - controller

sensor circuit board	wire color	panel connector positions of R05-PB6M	
CON01	yellow	A	power input (+)
CON02	black	B	GND (0V)
CON03	red	C	A line
CON04	white	D	B line
CON05	green	E	C line
—	sealed	F	sealed

motor - controller

motor	controller
red	A
white	B
black	C

battery - controller

battery	controller
positive +	+
negative −	−

If make mistake connection which will be make damage or broken this kit.

【signals for speed】
①pulse out put signal
・you will have 0/5V (off/on) at terminal 27 - 28(GND(0V))
・16pulse/1rotation
【acceleration volume】
Mitsuba recommend volume switch 5kΩ～10kΩ and at full acceleration you will have 4.7V～4.8V at 02 - 21GND(0V)which are correct voltage.

NOMURA CO. 野村商会
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1-18, Koshien-Abiki, Nishinomiya, Hyogo 663-8156, Japan
e-mail: nomnom13@yahoo.co.jp / skype: nomnom13

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3) CAN communication type

Baud rate:

500kbps or 250kbps or 125kbps.

You need set up which type you use by software "MitsubaConfigTool".

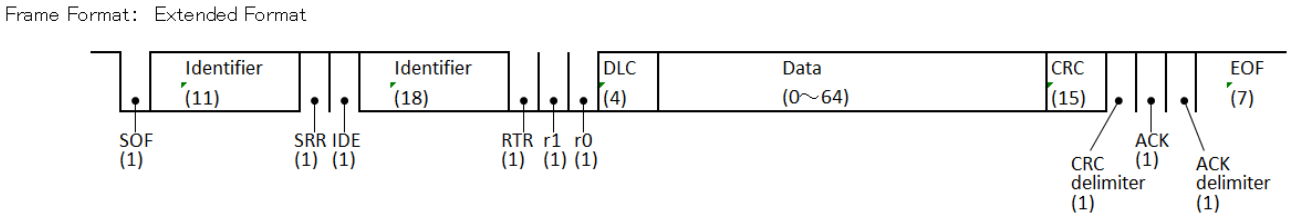
The frame format:

Use extended format.

The ID:

base ID total bit is 29bit. = (ID28-ID18) 11bit, and extended ID (ID17-ID0) 18bit

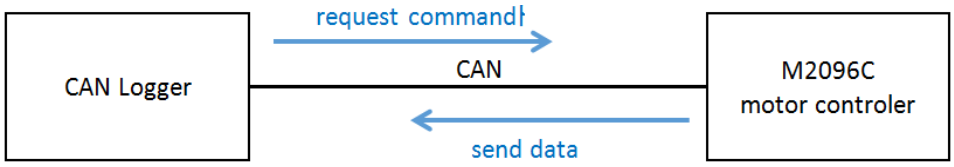
the communication sequence is MSB-first.



4) Data request command and reaction time

the motor controller will send data to CAN logger, once CAN-logger send request command.

the reaction time cycle is 100ms = 10Hz.



5) reaction data list

	Item	Size(bit)	Description
Frame0	Battery Voltage	10	0.5V/LSB
	Battery Current	9	1A/LSB
	Battery Current Direction	1	0:Plus 1:Minus
	Motor Current	10	1A/LSB
	FET Temperature	5	5℃/LSB
	MotorRotating Speed	12	1rpm/LSB
	DUTY(at PWM Mode)	10	0.5%/LSB
	Advanced Lead Angle	7	0.5Deg_e/LSB

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	Item	Size(bit)	Description
Frame1	Pow/Eco	1	0:Eco Mode 1:Power Mode
	Control Mode	1	Current Control Mode PWM Mode
	Acceleration VR Position	10	0.5%/LSB
	Regeneration VR Position	10	0.5%/LSB
	Digi SW Number	4	Digi SW Number
	Target Value	10	at Current Control Mode:0.5A/LSB at PWM Mode:0.5%/LSB
	Motor Status	2	Wait Forward Reverse
	Drive/Regen	1	0:Drive 1:Regen

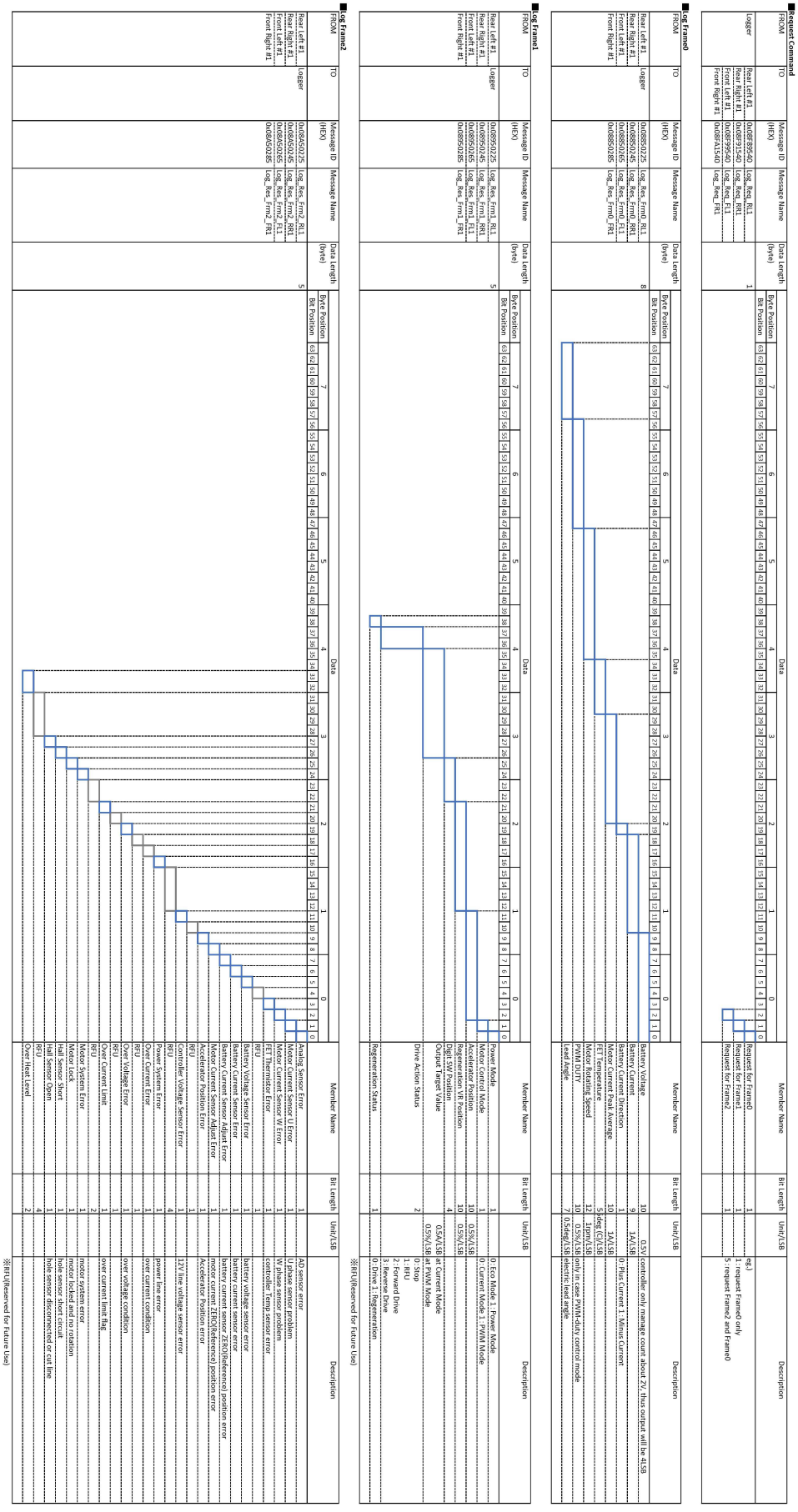
	Item	Size(bit)	Description
Frame2	AD Sensor Error	16	AD Sensor Error Motor Current Sensor U Error Motor Current Sensor W Error FET Temperature Sensor Error Battery Voltage Sensor Error Battery Current Sensor Error Battery Current Sensor Adjust Error Motor Current Sensor Adjust Error Acceleration Sensor Error 12V Sensor Error
	Power System Error	8	Power System Error Over Current Over Voltage Current Limit
	Motor System Error	8	Motor System Error Motor Lock Hall Sensor Short Hall Sensor Open
	FET Over Heat Level	2	0:Normal 1:Level 1 2:Level 2 3:Level 3 (Over Heat)

Note:
The sending data is always sending ONE unit of frame.
You can not select individual data which you need.
you can see details of request command and sending data at {message list].

6) controller discrimination number

before shipment, controller is set upped rear left (CCW) motor controller which "#1".
in case 2WD, please set up each motor controller left (CCW) = #1, and right (CW) = #2 by software "MitsubaConfigTool". And do not make duplication setting such like #1 and #1.

7) Details message list



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