Connector Bridge RS485 Interface

Summary

Connector Bridge RS485 interface is used for the local integration of 3rd party system, one Bridge control up to 30 motors. The 3rd party system could freely control all of the one-way and bi-directional devices via Bridge via RS485.

Please kindly notice that RS485 interface only provide Bridge&device discover and control commands. The device configuration process must be completed by Connector APP or the local integration configuration APP.

The recommend interval between two commands > 100ms.

The set up sequence
1, Configure Bridge by Connector APP or the local integration configuration APP
2, Establish the Server-Client RS485 connection.
3, Discover Bridge (Server must get Bridge address before use)
4, Discover Device (Server must get device address before use)

Nouns
Server: The 3rd party control unit, which could control Bridge via RS485
Client: Connector Bridge
Bridge: Connector Bridge
Motor: Dooya motor
Device: Dooya motor
One way motor: 'UP/STOP/DOWN'
Bi-directional motor: 'UP/STOP/DOWN' + Percentage control + Position feedback

Connection Parameters:

Baud Rate: 9600 bps
Parity: N
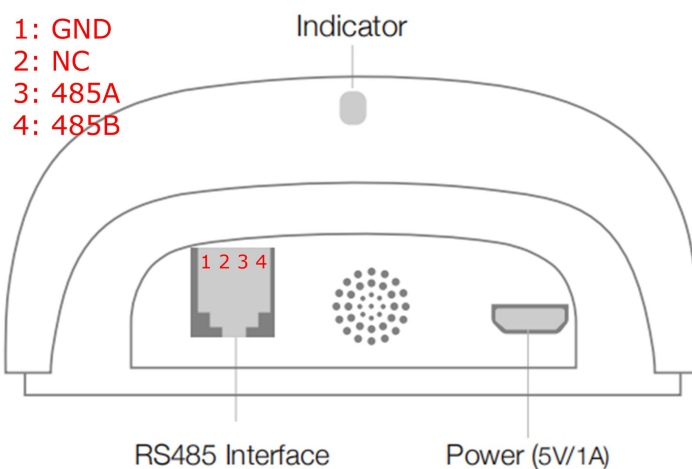Data Bits: 8
Stop Bits: 1

Bridge firmware required:

Firmware 0.6.6 or above.
Please update your previous Bridge by using Connector APP.
'Setting' ---> 'Location' ---> 'All Bridges' ---> 'Firmware Setting'

Wiring

Data cable: RJ9

1: GND
2: NC
3: 485A
4: 485B

Indicator

1 2 3 4

RS485 Interface   Power (5V/1A)

Message Frame:

Bridge control

Start Character	Address	Command	Data	End Character
!	3 Byte ASCII	1 Byte ASCII	(Optional)	;

Motor control

Start Character	Bridge Address	Delimiter Character	Motor Address	Command	Data	End Character
!	3 Byte ASCII	D	3 Byte ASCII	1 Byte ASCII	(Optional)	;

0-9, broadcast address 000 for query, range 001- 999

non- numerical ASCII

"?" for inquiry of motor status

Message details

1, Bridge address query , Bridge reboot and DEVICE 'Status update'(1) query & set

Command Keyword	Keyword Remark	Example massage Server(Downlink)	Example message Client(Uplink)	Command Remark
V	Bridge address query	!000V?;	!123V0.4.9;	Bridge address: 123 Bridge firmware version: 0.4.9
G	Bridge address	!123G456;	!123G456;	Update Bridge address

	edit			from 123 to 456
R	Reboot Bridge	!123**R**;	!123**R**;	Reboot Bridge
C	'Status update mode' query	!123**C**?;	!111**C**0; !123**C**1;	C0: Non-auto update mode C1: Auto update mode
	'Status update mode' set	!123**C**0; !123**C**1;	!111**C**0; !111**C**1;	C0: Set to non-auto update C1: Set to auto update

(1): Bridge will upload bi-directional motor's position to the 3rd party system via RS485 when motor stop running if the DEVICE 'Status update' mode is enabled.

The server needs to query the Bridge address before use. If multiple Bridges used on the system, please install and query sequentially, otherwise all the Bridges will acknowledge query command at the same time.

    Example messages

        Server: !000**V**?;   // Address 000 for query

        Client: !123V0.4.9;   // Bridge address: 123, Bridge firmware version: 0.4.9

```
[send]      [15:17:59 419]   !000V?;
[receive]   [15:17:59 621]   !123V0.4.9;
```

2, Motor address query

Command Keyword	Keyword Remark	Example massage Server(Downlink)	Example message Client(Uplink)	Command Remark
D	Motor address query	!111**D**000v?;	!111**D123**vD10; !111**D124**vD10;	Bridge report its device list Device: D123 and D124

The server needs to query motor address before use. Bridge will report its motor device list. Take care of that there are two kinds of motor type, one way motor and bi-directional motor.

    Example messages

      Server: !123**D**000v?;   // Address 000 for query

      Client: !123**D002**vZ10;   // Motor type: One way motor, motor address **D002**, firmware version:S10

              !123**D003**vD10; // Motor type: Two way DC tubular motor, motor address **D003**, firmware version:D10

3, Motor control

The example Bridge address is 123, the example motor address is D001

Command Keyword	Keyword Remark	Example massage Server(Downlink)	Example message Client(Uplink)	Command Remark
o	UP/Open	!123D001o;	!123D001o;	Motor receives Open message
			!123D001Enl;	No response, Motor is offline
s	Stop	!123D001s;	!123D001s;	Motor receives Stop message
			!123D001Enl;	No response, Motor is offline
c	DOWN/Close	!123D001c;	!123D001c;	Motor receives Close message
			!123D001Enl;	No response, Motor is offline
m	Lift percentage control	!123D001m080;	!123D001m080;	Motor receives 'run to 80%' message.
			!123D001Enc;	Motor does not set limit position
			!123D001Enl;	No response, Motor is offline
			!123D001r080b180;	Motor upload its position(80%,180°) when it stops.
b	Tilt/rotate control	!123D001b070;	!123D001b070;	Motor receives 'run to 70%' message.
			!123D001Enl;	No response, Motor is offline
			!123D001Enc;	Motor does not set limit position
			!123D001r023b070;	Motor upload its position(23%,70°) when it stops.
m+b	Lift+tilt control	!123D001m050b150;	!123D001m050b150;	Motor receives 'run to 50%150°' message.
			!123D001Enc;	Motor does not set limit position
			!123D001Enl;	No response, Motor is offline
			!123D001r050b150;	Motor reports its position(50%,150°) when it stops.

f	Run to the 3rd position	**!123D001f1;**	**!123D001f1;**	Motor receives message.
r	Motor position query	**!123D001r?;**	**!123D001Enc;**	Motor does not set limit
			!123D001r084b 000;	Current position is 84%0°
			!123D001Enl;	No response, Motor is offline
p	Motor voltage query	**!123D001pVc?;**	**!123D001pVc01 054;**	Current voltage is 10.54V
			!123D001Enl;	No response, Motor is offline
N	Alias setting	**!111D001NDM25LE/ S;**	**!111D001NDM25 LE/S;**	Set alias for device (Alias <16 Characters)
N	Alias query	**!111D001N?;**	**!111D001NDM25 LE/S;**	Alias query
E	Error	**!123D001o;** **!123D001c;** **!123D001s;** **!123D001m080;** ...	**!123D001Eee;**	**E**(error)**ee**(error code) **ee** = bz (Motor is busy) = df (Reach the added device amount limits) = np (device is not existing) = nc (no position limits) = mh (Master hall sensor error) = sh (Slave hall sensor error) = or (upper obstacle) = cr (lower obstacle) = pl (Low supply power) = ph (High supply power) = nl (Device offline) = ec (Undefined error)

Notes:

E(Error) is the device information feedback from Bridge when the Server makes controls.

ee is the detail error code. Please kindly take care 'One way' device has not feedback, so only the code np is available for 'One way' device.

bz : Device is busy and can not execute Bridge commands, Bridge could sent commands later.

df : Max. paring device amounts reached, totally 30 devices can be paired to Bridge. If the Server want to pair the 31th Device, Bridge will feedback code df. This code is not used for

Control4 sever.

np : Device is not existing. If the Device is not existing, Bridge returns np after Server makes any controls.

nc : Device does have position limits. When Server use the percentage control commands (**m**,**b**,**m+b**),

mh, sh : Hall sensor error

or, cr : Device meets obstacles in the running. Not all Devices have obstacles function, it's based on Device type.

pl, ph : Device power supply status indicator. Not all Devices have obstacles function, it's based on Device type.

nl : Device is offline which means no feedback/ACK/NACK from Device side, and Bridge returns nl to Server

ec : Undefined error.