

Classification	☐ tDS ☐ tGW ☑ PETL/tET/tPET ☐ DS/PDS/PPDS ☐ tM-752N ☐ I/O Card ☐ VXC Card ☐ VxComm ☑ Other				
Author	Mike Chou	Date	2020-06-16	NO.	FAQ052

Q: How can I use the multiple ET-2200 / t(P)ET modules to implement the Pair-connection ?

A: **(Note: This FAQ apply to ET-2200 and t(P)ET series, the following content using the ET-2200 as the representative)**

The Pair-connection technology of the ET-2200 module based on the TCP/IP or UDP/IP protocol mirrors the DIO port of the ET-2200 module to the DIO port of the remote ET-2200 module through the Ethernet to achieve the remoting-control application.

Next, this FAQ will introduce how the Pair-connection works and how to configure the ET-2200 module in the "**One-to-Many**" and "**Many-to-One**" architecture.

Mode/Application	One-to-Many	Many-to-One
PUSH	Example 1	Example 2
PULL	Example 3	Example 4

Pair-connection Mode (PUSH / PULL / Disable)

Based on the Modbus TCP/UDP protocol, the mode of the Pair-connection can be divided to 3 types:

Push

This ET-2200 module is a Master. The module reads the **Local DI** and transmits the DI-state to the **Remote DO** (Slave).

This mode supports the TCP and UDP protocol. (Modbus TCP/UDP)

Pull

This ET-2200 module is a Master. The module reads the **Remote DI** and updates the **Local DO** with the DI-state of the **Remote DI** (Slave).

This mode only supports the TCP protocol. (Modbus TCP)

Disable

Disable this Pair-connection setting row.

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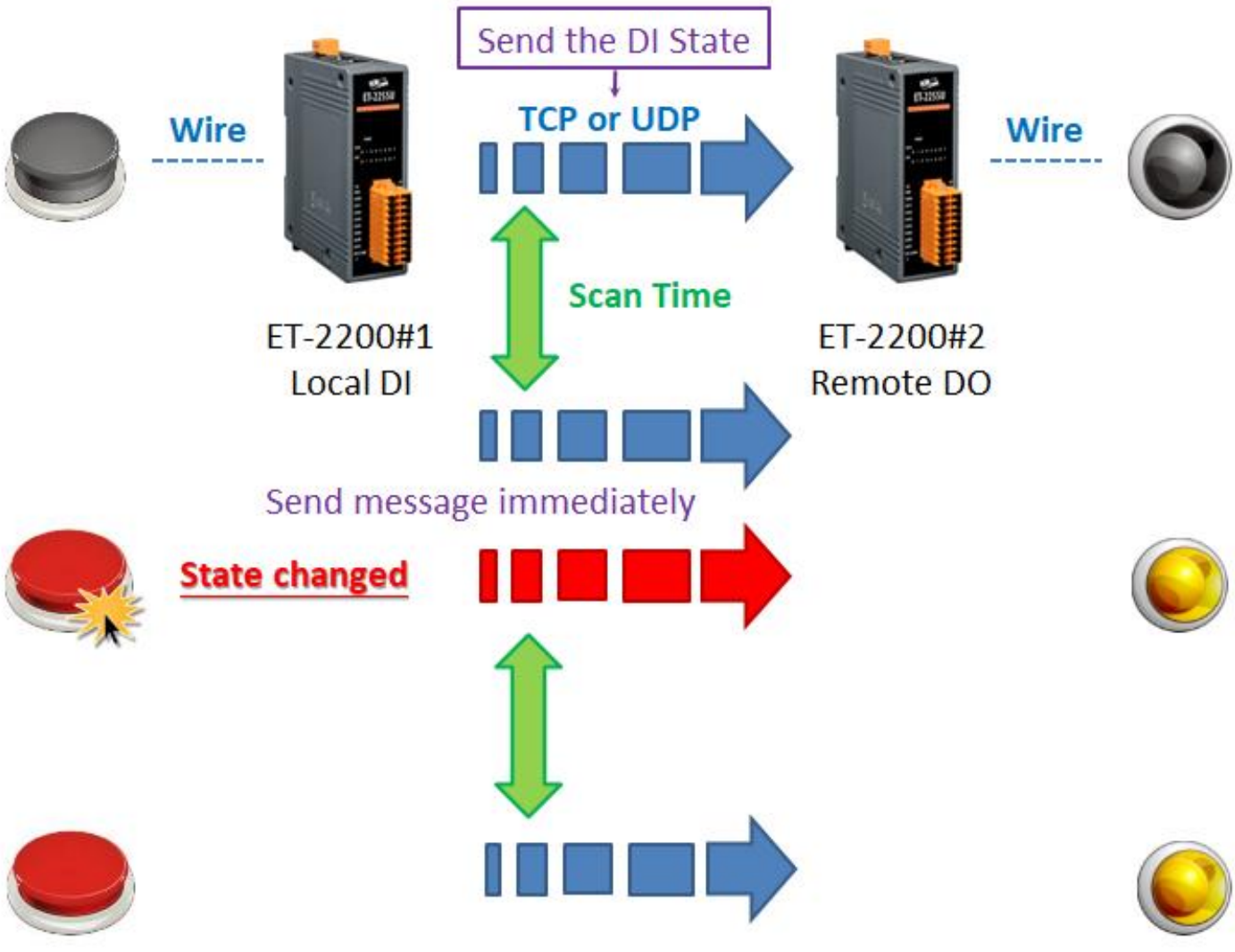
PUSH Mode (Local DI → Remote DO)

The **ET-2200#1** will be Client mode (Modbus Master) when setting to **PUSH** mode. The **ET-2200#1** will read the **Local DI** and transmit the DI-state to the **Remote DO.**

The updating method of the PUSH mode can be divided into two ways:

1. If the state of the **Local DI** is changed, the **ET-2200#1** will transmit the updating packet immediately.
2. If the state of the **Local DI** is unchanged, the **ET-2200#1** will transmit the updating packet periodically according the setting of the **Scan Time**.

Note: The Remote DO (ET-2200#2) can be replaced by the Modbus Slave DO device which supports the Modbus TCP/UDP protocol.



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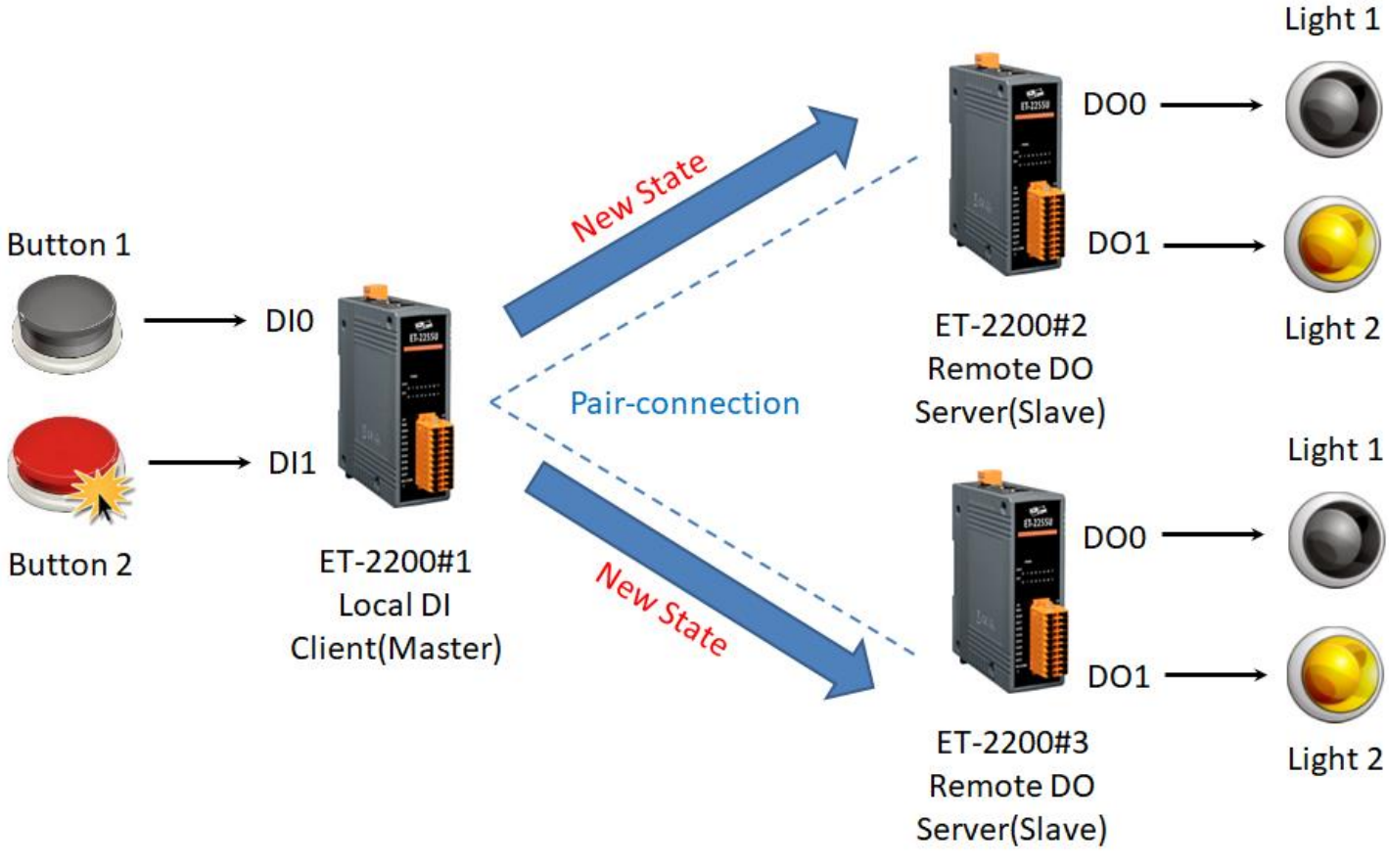
Example 1 (PUSH Mode/One-to-Many) back

The **ET-2200#1** is a **Local DI** module (Client/Master) in this example. The **ET-2200#1** transmits the **Local DI** state to two **Remote DO** modules (Server/Slave), i.e., **ET-2200#2** and **ET-2200#3**. This is an implement of the One-to-Many for controlling the **Remote DO**.

This example uses a single DI group to correspond multiple DO groups. The general application mostly uses a single DI group to correspond a single DO group. Please adjust the architecture according to actual requirement.

The following figure shows the situation of **Local DI** changes, the **ET-2200#1** module will transmit the updating packet to all **Remote DO** modules immediately when the button is pressed.

If the state of the **Local DI** is unchanged, the **ET-2200#1** will transmit the updating packet periodically according the setting of the **Scan Time**.



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module	Module specification							
	Modbus	IP	Port	Net ID	DI Number	DI Addr	DO Number	DO Addr
ET-2200#1	Master	10.0.8.101	502	1	2	0	-	-
ET-2200#2	Slave	10.0.8.102	502	2	-	-	2	0
ET-2200#3	Slave	10.0.8.103	502	3	-	-	2	0

Note: The module specification is the assumed value. Please adjust the Pair-connection settings according to your module model when testing.

Pair-connection settings (PUSH)

Step 1 Enter the Pair-connection page of the **ET-2200#1**.



Step 2 On the **ET-2200#1** page, add the **ET-2200#2** module to the Pair-connection list #01 and click the **Submit** button.

In the PUSH mode:

DI represents the Local DI. Please enter the ET-2200#1 module specification;

DO represents the Remote DO. Please enter the ET-2200#2 module specification.

Step 3 On the **ET-2200#1** page, add the **ET-2200#3** module to the Pair-connection list #02 and click the **Submit** button.

In the PUSH mode:

DI represents the Local DI. Please enter the ET-2200#1 module specification;

DO represents the Remote DO. Please enter the ET-2200#3 module specification.

#	Mode	Remote IP	Remote Port	Net ID	Scan Time	DI Count	DI Addr	DO Addr	TCP/UDP	Update
01	PUSH	10 . 0 . 8 . 102	502	2	1000 ms	2	0	0	TCP	Submit
02	PUSH	10 . 0 . 8 . 103	502	3	1000 ms	2	0	0	TCP	Submit

Step 4 Reboot the **ET-2200#1** module and test the Pair-connection function.

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Example 2 (PUSH Mode/Many-to-One)

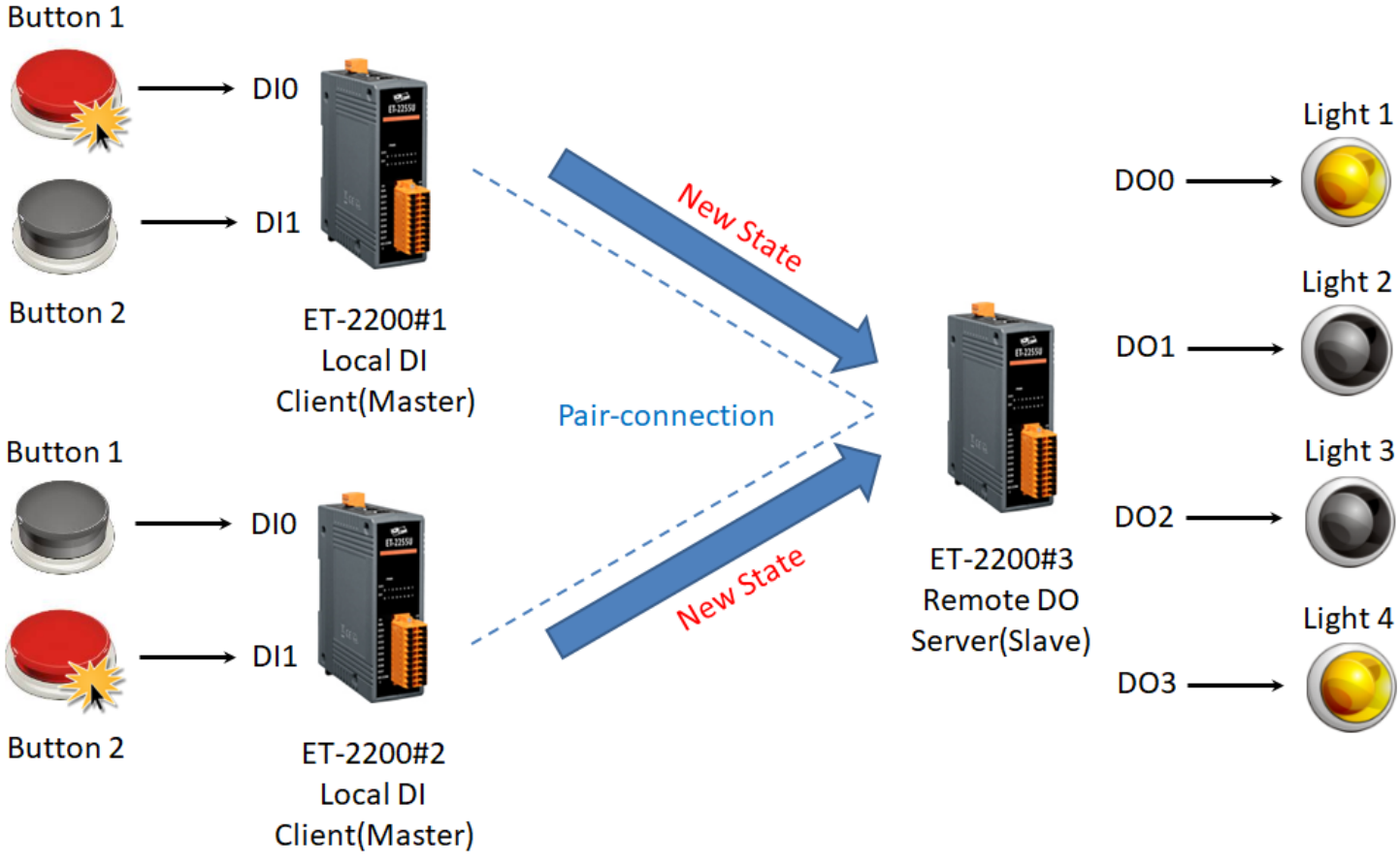
back

The **ET-2200#1** and **ET-2200#2** are two **Local DI** modules (Client/Master) in this example. The **ET-2200#1** and **ET-2200#2** transmit the **Local DI** states to the same **Remote DO** module (Server/Slave), i.e., **ET-2200#3**. This is an implement of the Many-to-One for controlling the **Remote DO**.

Note: The ET-2200#3 DO addresses which are mirrored by ET-2200#1 and ET-2200#2 can't overlap. In general, one DO point should be controlled by only one DI point.

The following figure shows the situation of **Local DI** changes, the **ET-2200#1** and **ET-2200#2** modules will transmit the updating packet to the same **Remote DO** module immediately when the button is pressed.

If the state of the **Local DI** is unchanged, the **ET-2200#1** and **ET-2200#2** will transmit the updating packet periodically according the setting of the **Scan Time**.



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module	Module specification							
	Modbus	IP	Port	Net ID	DI Number	DI Addr	DO Number	DO Addr
ET-2200#1	Master	10.0.8.101	502	1	2	0	-	-
ET-2200#2	Slave	10.0.8.102	502	2	2	0	-	-
ET-2200#3	Slave	10.0.8.103	502	3	-	-	4	0

Note: The module specification is the assumed value. Please adjust the Pair-connection settings according to your module model when testing.

Pair-connection settings (PUSH)

Step 1 Enter the Pair-connection pages of the **ET-2200#1** and **ET-2200#2** individually.



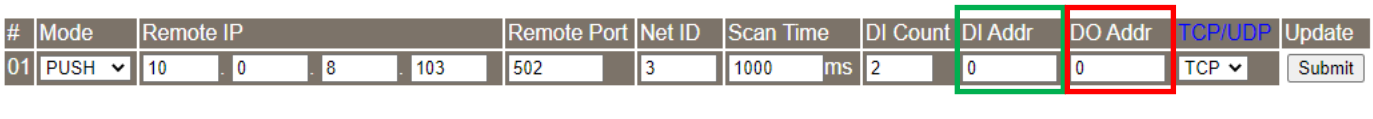
Step 2 On the **ET-2200#1** page, add the **ET-2200#3** module to the Pair-connection list #01 and click the **Submit** button.

In the PUSH mode:

DI represents the Local DI. Please enter the ET-2200#1 module specification;

DO represents the Remote DO. Please enter the ET-2200#3 module specification.

ET-2200#1 DI0、DI1 ←→ ET-2200#3 DO0、DO1



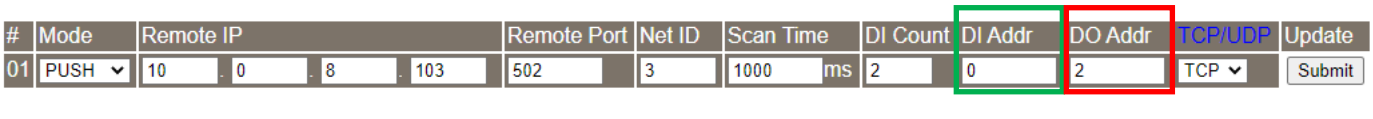
Step 3 On the **ET-2200#2** page, add the **ET-2200#3** module to the Pair-connection list #01 and click the **Submit** button.

In the PUSH mode:

DI represents the Local DI. Please enter the ET-2200#2 module specification;

DO represents the Remote DO. Please enter the ET-2200#3 module specification.

ET-2200#2 DI0、DI1 ←→ ET-2200#3 DO2、DO3



Step 4 Reboot the **ET-2200#1** and **ET-2200#2** modules and test the Pair-connection function.

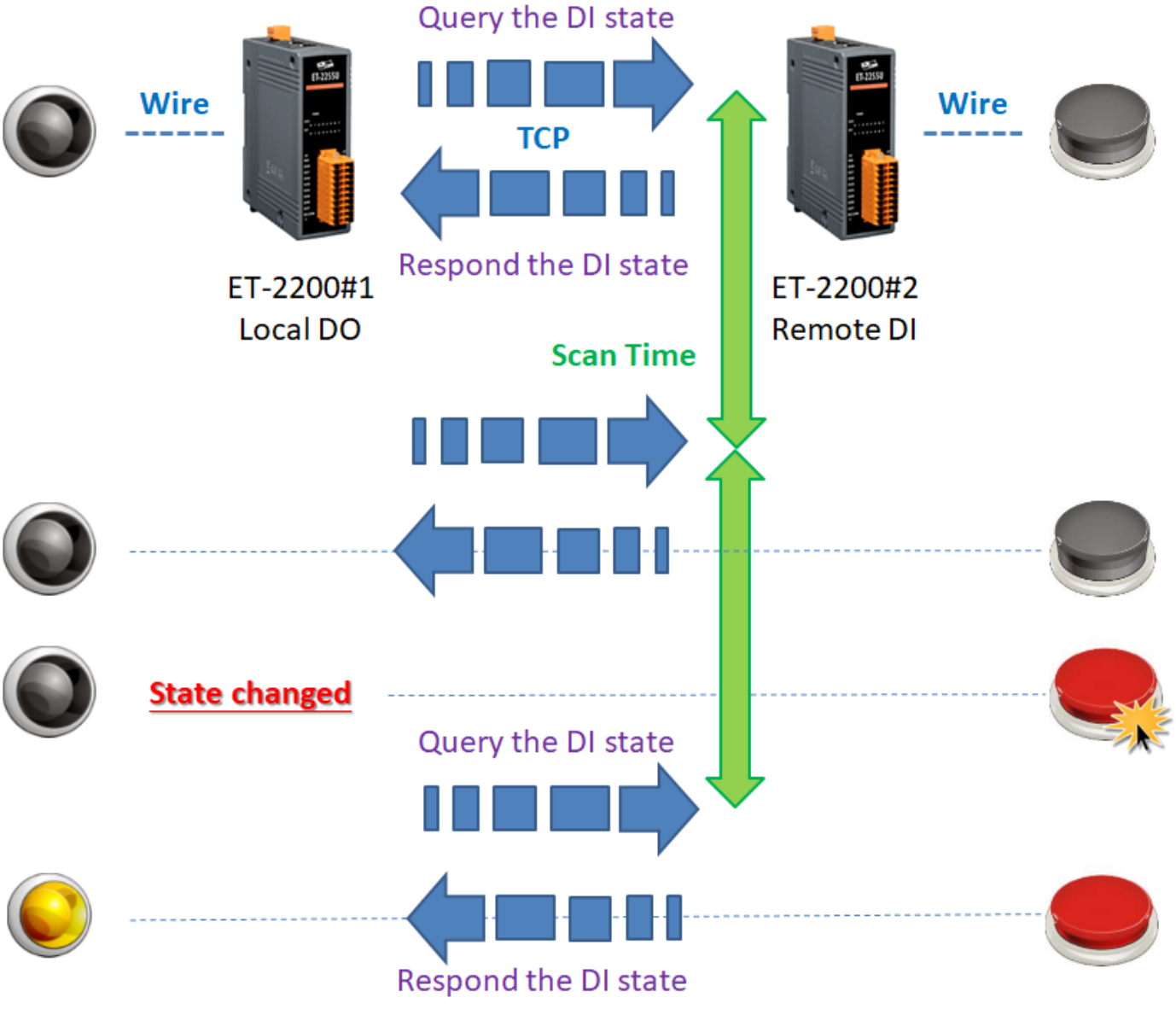
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PULL Mode (Remote DI → Local DO)

The **ET-2200#1** will be Client mode (Modbus Master) when setting to **PULL** mode. The **ET-2200#1** will query the DI state of the **Remote DI** device and then update the **Local DO** according to the response.

Note: The Remote DI (ET-2200#2) can be replaced by the Modbus Slave DI device which supports the Modbus TCP protocol.



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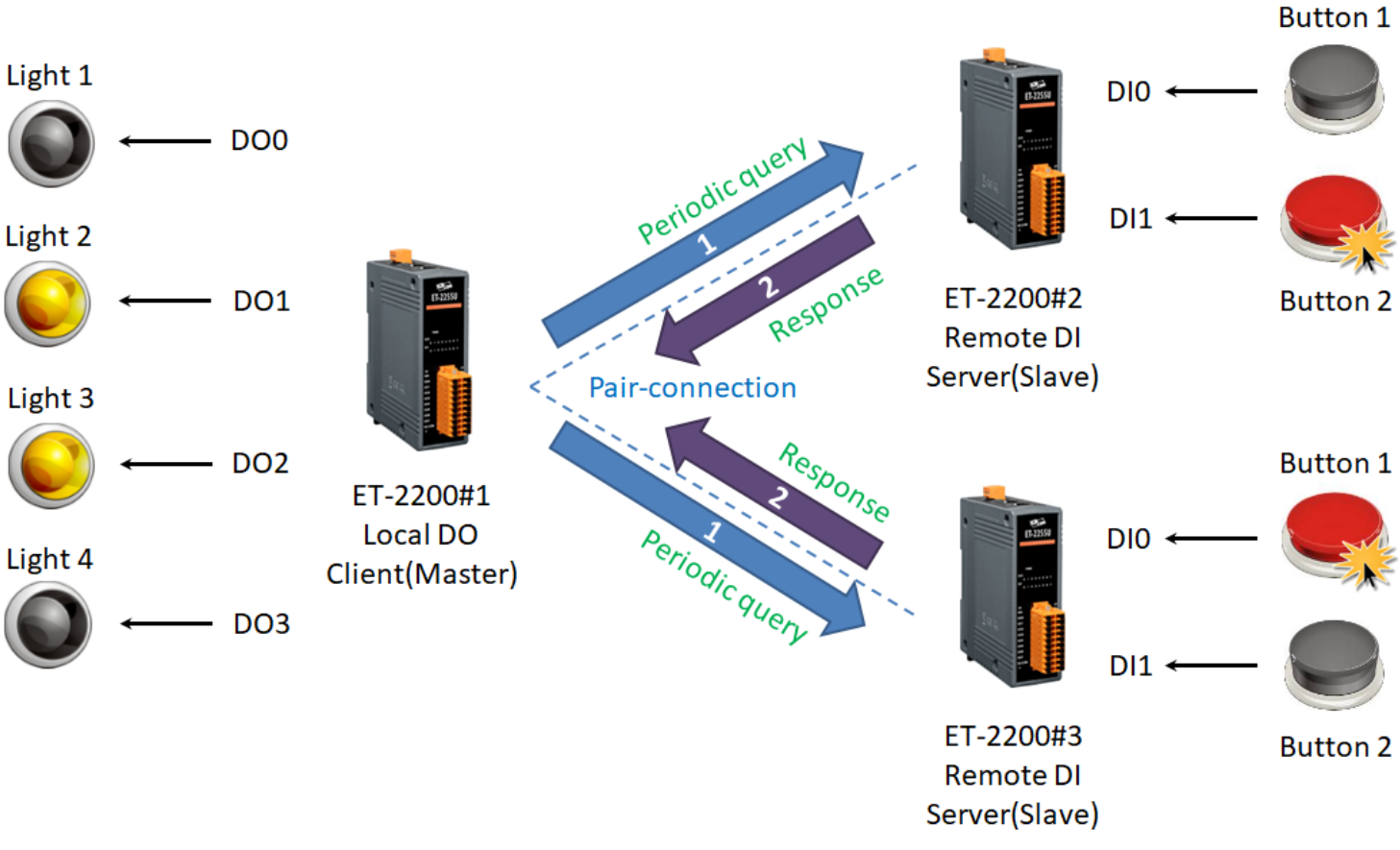
Example 3 (PULL Mode/ One-to-Many)

back

The **ET-2200#1** is a **Local DO** module (Client/Master) in this example. The **ET-2200#1** queries two DI states of **Remote DI** modules (Server/Slave), i.e., **ET-2200#2** and **ET-2200#3**, individually by Pair-connection function, and updates the **Local DO** state according to the responses of **Remote DI** modules. This is an implement of the One-to-Many for reading the **Remote DI**.

Note: The ET-2200#1 DO addresses which are mirrored by ET-2200#2 and ET-2200#3 can't overlap. In general, one DO point should be controlled by only one DI point.

Regardless of whether the Button is pressed, the **ET-2200#1** always queries the newest DI states periodically according the setting of the **Scan Time**, and then updating the **Local DO** state.



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module	Module specification							
	Modbus	IP	Port	Net ID	DI Number	DI Addr	DO Number	DO Addr
ET-2200#1	Master	10.0.8.101	502	1	-	-	4	0
ET-2200#2	Slave	10.0.8.102	502	2	2	0	-	-
ET-2200#3	Slave	10.0.8.103	502	3	2	0	-	-

Note: The module specification is the assumed value. Please adjust the Pair-connection settings according to your module model when testing.

Pair-connection settings (PULL)

Step 1 Enter the Pair-connection page of the **ET-2200#1**.



Step 2 On the **ET-2200#1** page, add the **ET-2200#2** module to the Pair-connection list #01 and click the **Submit** button.

In the PULL mode:

DI represents the Remote DI. Please enter the ET-2200#2 module specification;

DO represents the Local DO. Please enter the ET-2200#1 module specification.

ET-2200#1 DO0、DO1 ←→ ET-2200#2 DI0、DI1

Step 3 On the **ET-2200#1** page, add the **ET-2200#3** module to the Pair-connection list #02 and click the **Submit** button.

In the PULL mode:

DI represents the Remote DI. Please enter the ET-2200#3 module specification;

DO represents the Local DO. Please enter the ET-2200#1 module specification.

ET-2200#1 DO2、DO3 ←→ ET-2200#3 DI0、DI1

#	Mode	Remote IP	Remote Port	Net ID	Scan Time	DI Count	DI Addr	DO Addr	TCP/UDP	Update
01	PULL	10 . 0 . 8 . 102	502	2	1000 ms	2	0	0	TCP	Submit
02	PULL	10 . 0 . 8 . 103	502	3	1000 ms	2	0	2	TCP	Submit

Step 4 Reboot the **ET-2200#1** module and test the Pair-connection function.

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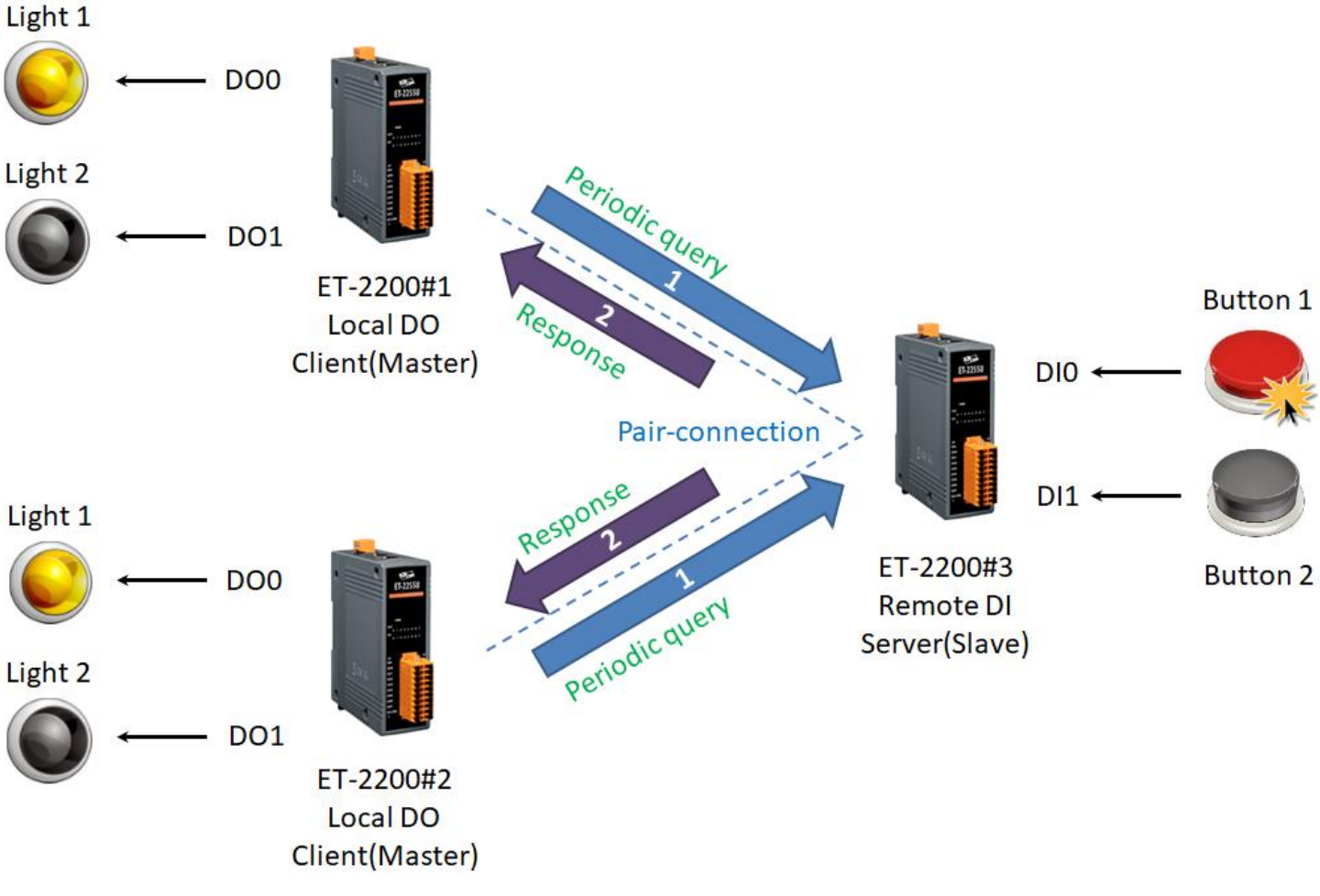
Example 4 (PULL Mode/ Many-to-One)

back

The **ET-2200#1** and **ET-2200#2** are two **Local DO** modules (Client/Master) in this example. The **ET-2200#1** and **ET-2200#2** query the same DI state of **Remote DI** module (Server/Slave), i.e., **ET-2200#3**, by Pair-connection function, and update the **Local DO** states individually according to the response of **Remote DI** module. This is an implement of the Many-to-One for reading the **Remote DI**.

This example uses a single DI group to correspond multiple DO groups. The general application mostly uses a single DI group to correspond a single DO group. Please adjust the architecture according to actual requirement.

Regardless of whether the Button is pressed, the **ET-2200#1** and **ET-2200#2** always query the newest DI state periodically according the settings of the **Scan Time**, and then updating the **Local DO** states.



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module	Module specification							
	Modbus	IP	Port	Net ID	DI Number	DI Addr	DO Number	DO Addr
ET-2200#1	Master	10.0.8.101	502	1	-	-	2	0
ET-2200#2	Slave	10.0.8.102	502	2	-	-	2	0
ET-2200#3	Slave	10.0.8.103	502	3	2	0	-	-

Note: The module specification is the assumed value. Please adjust the Pair-connection settings according to your module model when testing.

Pair-connection settings (PULL)

Step 1 Enter the Pair-connection pages of the **ET-2200#1** and **ET-2200#2** individually.

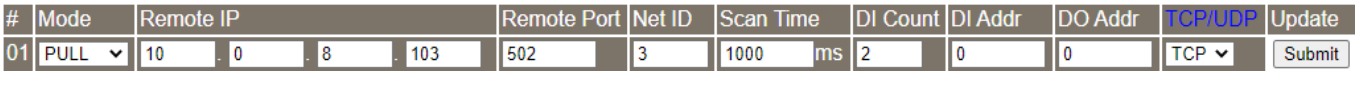


Step 2 On the **ET-2200#1** page, add the **ET-2200#3** module to the Pair-connection list #01 and click the **Submit** button.

In the PULL mode:

DI represents the Remote DI. Please enter the ET-2200#3 module specification;

DO represents the Local DO. Please enter the ET-2200#1 module specification.

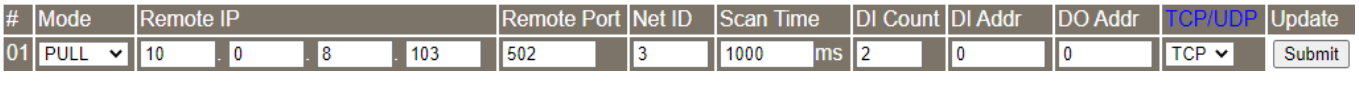


Step 3 On the **ET-2200#2** page, add the **ET-2200#3** module to the Pair-connection list #01 and click the **Submit** button.

In the PULL mode:

DI represents the Remote DI. Please enter the ET-2200#3 module specification;

DO represents the Local DO. Please enter the ET-2200#2 module specification.



Step 4 Reboot the **ET-2200#1** and **ET-2200#2** modules and test the Pair-connection function.

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Disable Mode

The ET-2200 module is the **Disable** mode in default setting. If the list adopts the **Disable** mode, it only represents this Pair-connection setting row is not enabled.

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