1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103465

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103466

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103467

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
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- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103468

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) + 5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

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- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103469

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- Computer running Windows Hyperterm
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- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103470

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103471

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. 5 11.054 12

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

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- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103473

TP8 (+12V) +12

TP3 (–12V) -12

TP6 (+ 5V) +5

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103474

TP8 (+12V) +12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103475

TP8 (+12V) +12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103476

TP8 (+12V) +12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S1103477

TP8 (+12V) +12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S/N 0347-8

TP8 (+12V) +12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	Configuration	Pass/Fail
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass

1 Overview

Eight serial ports can be connected to the concentrator and will be connected to the EtherCAT system with a single cable. The concentrator supports RS232, RS422 and RS485 serial communications. There are jumpers on the concentrator boards that select which signals are connected to which pins on the connector. The serial connectors are 9-pin D-sub male. The EtherCAT uplink is connected through a single DB37 cable. The corresponding interface board for EtherCAT system is part of the serial concentrator and is tested together.

2 Test Equipment

- Computer running Windows Hyperterm
- A serial port running RS232, e.g, XS880 from usconverters.com (USB Serial Adapter – Professional)
- A serial port running RS422, e.g, USUT890 from usconverters.com (USB to RS485 / RS422 - Professional)
- Serial loopback cables D1100872-v1 for RS232 and RS422
- Serial adapter cables D1100874-v1 for RS232 and RS422
- DC power supplies

3 Documentation

- Concentrator schematic—D1100632-v1
- EtherCAT interface schematics— D1100638-v1

4 Tests

Power up the measurement equipment and connect the EtherCAT interface board to the serial concentrator with a DB37 cable. Follow the instruction below for testing. After finishing the test leave the concentrator and EtherCAT interface in their final configuration.

4.1 Power

Check the P12, N12 and VCC voltage on the concentrator port. The voltage should be within 5% of nominal. S110347

TP8 (+12V) T12V

TP3 (–12V) -12V

TP6 (+ 5V) +5V

4.2 Ports

Set the jumpers on the serial concentrator to support RS422. Leave the jumpers in the EtherCAT interface board in standard settings. Now connect the RS422 loopback connector to the first port of the serial concentrator. Connect the RS422 adapter cable between the first port of the EtherCAT interface and the RS422 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. Open the Hyperterminal application, turn the echo off and send a couple of characters !"$(09@}~aAzZ (space before the 0) to the serial port. Watch for the echo characters and make sure they are identical without errors. Repeat the procedure for all 8 ports.

Set the jumpers on the serial concentrator to support RS232: standard RS232 on port 1, 3, 5 and 7; 3-wire RS232 on ports 2, 4, 6, and 8. Also, wire ports 2, 4, 6 and 8 for 3-wire RS232 by adding a jumper between pin 4 and 9 on S2, S4, S6 and S8 of the EtherCAT interface board. Now connect the RS232 loopback connector to the first port of the serial concentrator. Connect the RS232 adapter cable between the first port of the EtherCAT interface and the RS232 of the computer. Set the serial speed on the computer to 115200 baud, 8 bits, no parity, and 1 stop bit. For ports 1, 3, 5 and 7 select hardware handshaking during the test, for ports 2, 4, 6, and 8 do not. Open the Hyperterminal application, echo off and send !"$(09@}~aAzZ to the serial port. Make sure the return characters are identical. Repeat the procedure for all 8 ports.

Port	**Configuration**	**Pass/Fail**
1	RS422	Pass
	RS232 standard	Pass
2	RS422	Pass
	RS232 3-wire	Pass
3	RS422	Pass
	RS232 standard	Pass
4	RS422	Pass
	RS232 3-wire	Pass
5	RS422	Pass
	RS232 standard	Pass
6	RS422	Pass
	RS232 3-wire	Pass
7	RS422	Pass
	RS232 standard	Pass
8	RS422	Pass
	RS232 3-wire	Pass