

Quick Reference Guide

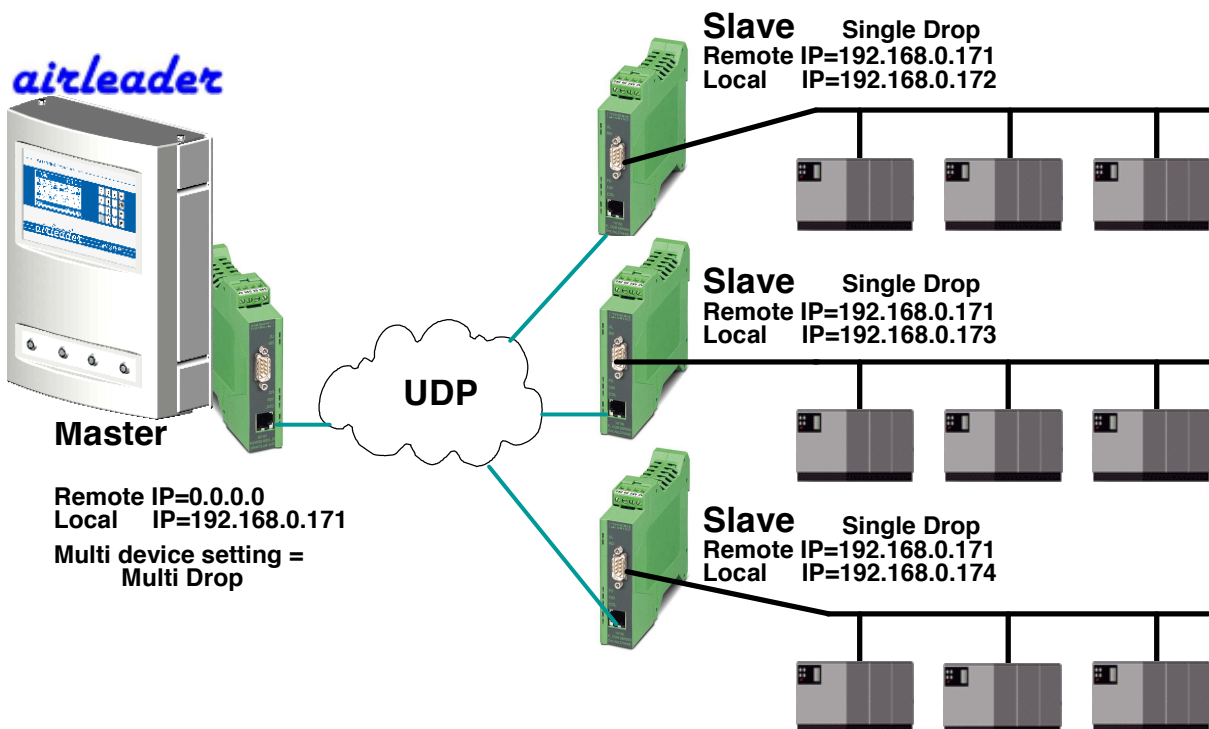
For technical questions contact us:
TEL: +49-(0) 5235-3-19890
FAX: +49-(0) 5235-3-19899
e-mail: interface-service@phoenixcontact.com

AIRLEADER Master over FL COM SERVER RS485

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1. Introduction

For the communication between the AIRLEADER MASTER and the compressors this document describes the startup of an intelligent RS485 network replacement by some FL COM SERVER RS485 and an Ethernet network.



The FL COM SERVER capsulate the RS485 packets in UDP packets and carry they over Ethernet. The FL COM SERVER realizes the IP address handling by broadcast addresses in the direction

master to slave at the first step. In the direction slave to master the FL COM SERVER realizes the IP address handling by the single cast address of the master. The master FL COM SERVER gets the Ethernet packet back and learns the slave position. It knows the address position in the RS485 packet too, reads it out and build-up the address lookup table. Each group of slave devices is represented by one FL COM SERVER and its IP address.

At the second step the master FL CON SERVER use the IP address according the address inside the RS485 packet.

For the bus master and each cooper RS485 segment is necessary one FL COM SERVER.

This example is for the following field bus and network features.

Field bus RS485	
Baud Rate	= 9600
Data Bits	= 8
Parity	= No
Stop	= 2
Slave address offset	= 1
Slave address length	= 2
Slave address mask	= none (equal to 255.255.255.0)
Minimum message length	= 5 (equal to 5, every packet)
Keep alive	= 30 s
Ethernet network	
Protocol	= UDP/IP
IP of the master	= 192.168.0.171
UDP port oh the master	= 3001
IP of the slaves	= 192.168.0.172 to 174
UDP port of the slave	= 3001
Subnet	= 255.255.255.0
Default Gateway	= 0.0.0.0
IP addressing type	= Static

It's recommended don't use the IP addresses x.x.x.0 or x.x.x.1 because they are reserved.

This solution is known for its self learning of the slave position and the lowers network load with targeted data traffic.

The following devices are used in this example.

Configuration of the Master FL COM SERVER

The user-friendly web-based management interface can be used to manage the FL COM SERVER RS485 from anywhere in the network using a standard browser.

The web-based management can only be accessed using a valid IP address. By default upon delivery, the IP address of the FL COM SERVER RS485 is 192.168.0.254.

1. Start the browser and enter the default IP address.
2. In the site map select the option 'General Configuration'.
3. Enter the default password '**private**'. Don't enter an user name.
4. In the site map select the option 'IP'.
5. Enter the values into the mask as you see below.
6. Press the 'Confirm' button.

IP Configuration - Static Assignment				
Current configured addresses				
IP Address	192	168	0	171
Subnet Mask	255	255	255	0
<i>If Subnet Mask is 0.0.0.0 the standard netmask for class A, B, C is used.</i>				
Default Gateway	0	0	0	0
<i>If Default-Gateway is 0.0.0.0 no gateway is used.</i>				
IP Address Assignment				
Type	<input checked="" type="radio"/> Static		<input type="radio"/> Automatic	
<input type="button" value="Confirm"/>				
<i>Note: You have to save and reboot to activate the new configuration.</i>				

7. In the site map select the option 'Serial'.
8. Enter the values into the mask as you see below.
9. Press the 'Confirm' button.

Serial Configuration	
Interface Type	RS-485
Baud Rate	9600
Data Bits	8
Parity	none
Stop Bits	2
Flow Control	selfcontrolled
<input type="button" value="Confirm"/>	
<i>Note: You have to save and reboot to activate the new configuration.</i>	
Typical settings:	3964 R, Phoenix Contact: 9600; 8; Even; 1; none S7-PC Adapter: 19200; 8; Odd; 1; RTS/CTS S7-TS-Adapter: 19200; 8; None; 1; RTS/CTS Modbus RTU: xxx; 8; Even; 1; none Modbus ASCII: xxx; 7; Even; 1; none

10. In the site map select the option 'Application'.
11. Enter the values into the mask as you see below.
12. Press the 'Confirm' button.

Application Settings for UDP	
Protocol settings	
Operation Mode	<input checked="" type="radio"/> UDP <input type="radio"/> TCP <input type="radio"/> MODBUS/TCP <input type="radio"/> PPP
IP and port address	
Own UDP port	<input type="text" value="3001"/>
Remote UDP port	<input type="text" value="3001"/>
Remote IP address	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Channel settings	
Device type	<input type="radio"/> Server(Responder) <input checked="" type="radio"/> Client(Initiator)
Multi device setting	<input type="radio"/> Single Drop <input checked="" type="radio"/> Multi Drop
Modem DTR Control	<input checked="" type="radio"/> Off <input type="radio"/> On
Idle Force Timeout Characters	<input type="text" value="10"/>
Multidrop settings	
Multidrop keep alive	<input type="text" value="30"/> seconds
Multidrop slave address Offset	<input type="text" value="1"/>
Multidrop slave address Length	<input type="text" value="2"/>
Multidrop slave address Mask	<input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>
Multidrop minimum message Length	<input type="text" value="5"/>
<input type="button" value="Confirm"/>	
<p><i>Note: To switch operation modes press the button and then Confirm. You have to save and reboot to activate the new configuration (and Firmware). Current Firmware Image loaded: PC PC=UDP and TCP, PM=MODBUS/TCP, PP=PPP.</i></p>	

13. In the site map select the option 'Save and Reboot'.
14. Enter the values into the mask as you see below.
15. Enter the default password '**private**'.
16. Press the 'Confirm' button.

Save and Reboot

Save current configuration for next Reboot

The confirmed configuration settings will be saved. The device starts with the new configuration after a reboot. Save

The device executes a reboot. Only confirmed configuration settings will be included. The device starts with the last saved configuration. Reboot

Enter password

Warning! The configuration values have been changed

Security Flags: TFTP enabled

2. Configuration of the Slave FL COM SERVER

17. Start the browser and enter the default IP address.
18. In the site map select the option 'General Configuration'.
19. Enter the default password '**private**'. Don't enter an user name.
20. In the site map select the option 'IP'.
21. Enter the values into the mask as you see below.
22. Press the 'Confirm' button.

IP Configuration - Static Assignment				
Current configured addresses				
IP Address	192	168	0	172
Subnet Mask	255	255	255	0
<i>If Subnet Mask is 0.0.0.0 the standard netmask for class A, B, C is used.</i>				
Default Gateway	0	0	0	0
<i>If Default-Gateway is 0.0.0.0 no gateway is used.</i>				
IP Address Assignment				
Type	<input checked="" type="radio"/> Static <input type="radio"/> Automatic			
<input type="button" value="Confirm"/>				
<i>Note: You have to save and reboot to activate the new configuration.</i>				

23. In the site map select the option 'Serial'.
24. Enter the values into the mask as you see below.
25. Press the 'Confirm' button.

Serial Configuration	
Interface Type	RS-485
Baud Rate	9600 ▾
Data Bits	8 ▾
Parity	none ▾
Stop Bits	2 ▾
Flow Control	selfcontrolled
<input type="button" value="Confirm"/>	
<i>Note: You have to save and reboot to activate the new configuration.</i>	
Typical settings:	3964 R, Phoenix Contact: 9600; 8; Even; 1; none S7-PC Adapter: 19200; 8; Odd; 1; RTS/CTS S7-TS-Adapter: 19200; 8; None; 1; RTS/CTS Modbus RTU: xxx; 8; Even; 1; none Modbus ASCII: xxx; 7; Even; 1; none

26. In the site map select the option 'Application'.
27. Enter the values into the mask as you see below.
28. Press the 'Confirm' button.

Application Settings for UDP	
Protocol settings	
Operation Mode	<input checked="" type="radio"/> UDP <input type="radio"/> TCP <input type="radio"/> MODBUS/TCP <input type="radio"/> PPP
IP and port address	
Own UDP port	<input type="text" value="3001"/>
Remote UDP port	<input type="text" value="3001"/>
Remote IP address	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="0"/> . <input type="text" value="171"/>
Channel settings	
Device type	<input checked="" type="radio"/> Server(Responder) <input type="radio"/> Client(Initiator)
Multi device setting	<input checked="" type="radio"/> Single Drop <input type="radio"/> Multi Drop
Modem DTR Control	<input checked="" type="radio"/> Off <input type="radio"/> On
Idle Force Timeout Characters	<input type="text" value="10"/>
<input type="button" value="Confirm"/>	
<i>Note: To switch operation modes press the button and then Confirm. You have to save and reboot to activate the new configuration (and Firmware). Current Firmware Image loaded: PC PC=UDP and TCP, PM=MODBUS/TCP, PP=PPP.</i>	

29. In the site map select the option 'Save and Reboot'.
30. Enter the values into the mask as you see below.
31. Enter the default password '**private**'.
32. Press the 'Confirm' button.

Save and Reboot

Save current configuration for next Reboot

The confirmed configuration settings will be saved. The device starts with the new configuration after a reboot. Save

The device executes a reboot. Only confirmed configuration settings will be included. The device starts with the last saved configuration. Reboot

Enter password

Warning! The configuration values have been changed

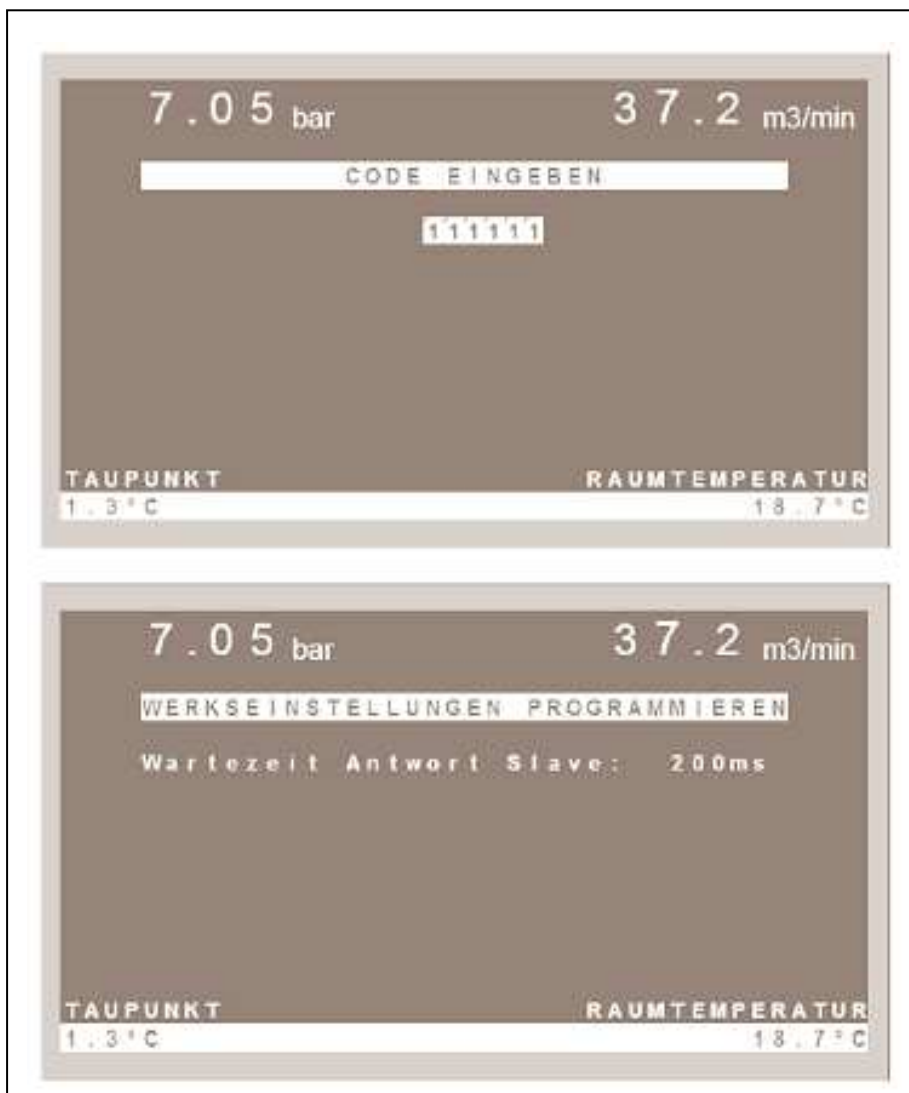
Security Flags: TFTP enabled

3. Configuration of the following Slaves

33. To configure the following slaves increase the 4th number at the value 'Local IP address'.
34. To configure the other values of the following slaves, please adopt it from the previous slaves.

4. Configuration of the Field Bus Master

35. Please increase the timeout time in the hardware configuration of the field bus master of the AIRLEADER master. Begin with **100** ms and increase it in steps by **10** ms until the field bus is running error free.



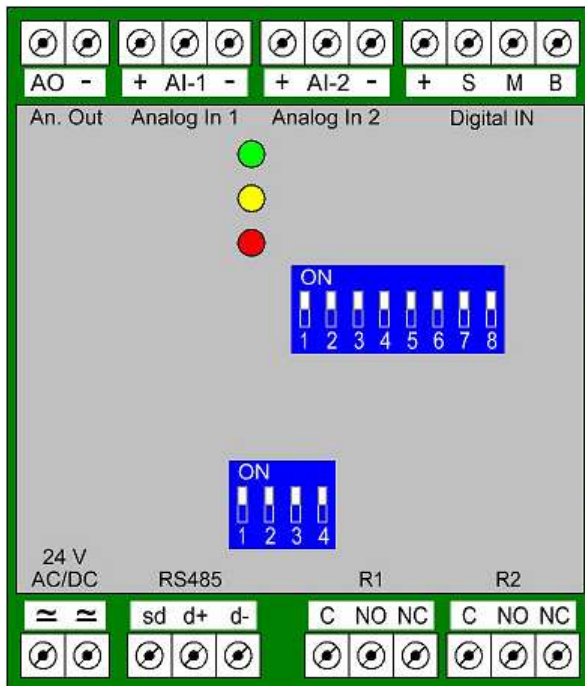
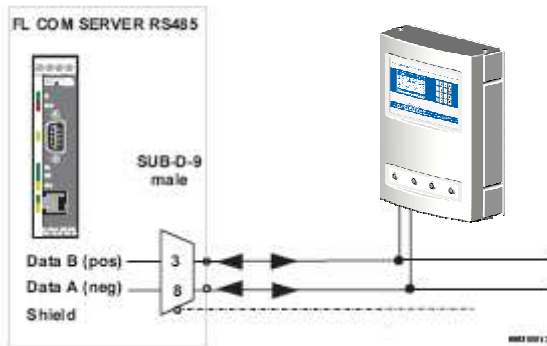
5. Final Wiring

36. Connect the FL COM SERVER RS485 and the RS485 connector of the AIRLEADER master with a RS485 cable.

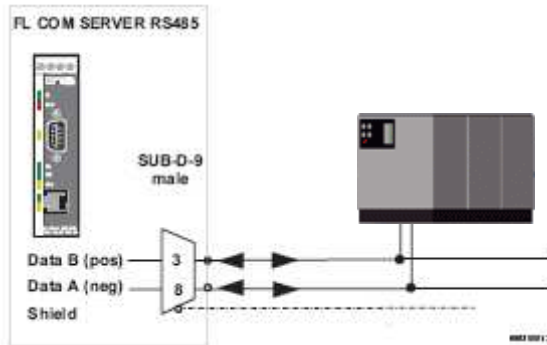
Connect the **wire (-)** to pin 3 (Data A) of the SUB-D 9 pole plug of the FL COM SERVER and to the data - pin of the AIRLEADER communication module.

Connect the **wire (+)** to pin 8 (Data B) of the SUB-D 9 pole plug of the FL COM SERVER and to the data + pin of the AIRLEADER communication module.

Connect the cable shield to the plug housing 6 and to the sd pin of the AIRLEADER communication module.



37. For each slave device segment connect the FL COM SERVER RS485 and the RS485 segment.



38. If the FL COM SERVER is located at the beginning or end of an electrical RS485 segment, activate the bus termination at the top of the FL COM SERVER.
39. Activate the bus termination at each device at the beginning or end of an electrical RS485 segment. For more details please see the manual of that device.
40. Connect the RJ 45 socket of each FL COM SERVER RS485 to the switch of the local Ethernet. Push the Ethernet cable with the crimped RJ45 connector into the RJ45 socket until it engages with a click.
- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
41. Connect the 24 V power supply to the FL COM SERVER RS485 (US1 and GND).