ARF868 Radio Modems

Application note : «Legacy X3-PRO» mode
Version V1.0

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Information

Document information	
Title	ARF868 Radio Modems - Application note : Legacy X3-PRO mode
Sub title	Version 1.0
Document type	Implementation

This document applies to the following products :

Name	Reference	Firmware version
Modem Radio ARF868 ULR 500mW	ARF7940	V1.0
Modem Radio ARF868 LR 500mW	ARF7941	V1.0
Modem Radio ARF868 MR 25mW	ARF7942	V1.0
Modem Radio ARF868 LP 25mW	ARF7943	V1.0

Disclaimer

Technical support

Website

Our website contains a lot of useful information: information on the modules and radio modems, operating guides, configuration software and technical documents that are accessible round-the-clock.

Email

If you have technical problems or if you cannot find the required information in the documents provided, contact our technical support team by e-mail. Use our dedicated e-mail address (arf@adeunis-rf.com) rather than a personal e-mail address. This will ensure that your question will be handled as quickly as possible.

Useful information when contacting our technical support team

When contacting the technical support department please have the following information available:

- Type of product (e.g. ARF868 radio modem LR)
- Firmware version (e.g. V1.0)
- A clear description of your question or your problem
- A brief description of the application
- Your complete contact details

1. Compatibility mode with ARFx3-PRO radio madems

For many years, Adeunis RF manufactures and markets a range of radio modems named ARF33Pro, ARF43Pro, ARF53 and ARF53Pro.
The new range of ARF868 radio modem embeds all the features to ensure an «Air» compatibility with ARFx3Pro and ARF53 radio modems.

Accordingly, ARF868 modem can operate vis-a-vis a X3Pro modem (ARF33Pro, ARF43Pro, ARF53pro) and a ARF53 radio modem by selecting the continuous asynchronous protocol «Legacy X3Pro» :

- Register S222 = 4
- Please refer to § 5.3 «Register Description» in the ARF868 radio modems user guide, available on the Adeunis RF website.

Following, a table of channels correspondences between ARFX3Pro (and ARF53) and ARF868 radio modems

Frequency (MHz)	X3Pro radio modems			ARF868 radio modems			Comments
	Channel (S200)	Data rate (kbps)	Pmax (dBm)	**Channel (S200)**	Data rate (kbps)	Pmax (dBm)	
869,55	**18**	10	20	**536**	10	25	The narrower spectral width of the ARF868 increases the maximum power on the frequencies 869.45 & 869.55 MHz compared to the ARF53-Pro
869,45	**19**	10	20	**528**	10	23	
869,15	**22**	10	14	**504**	10	14	
869,05	**23**	10	14	**496**	10	14	
868,95	**24**	10	14	**488**	10	14	
868,85	**25**	10	14	**480**	10	14	
868,75	**26**	10	14	**472**	10	14	
868,65	**28**	10	14	**456**	10	14	
868,55	**29**	10	14	**448**	10	14	
868,35	**30**	10	14	**440**	10	14	
868,25	**31**	10	14	**432**	10	14	For the ARF868 radio modem, you must also choose the RF data rate
	3	57.6	14		57.6	14	
868,15	**32**	10	14	**424**	10	14	
868,05	**33**	10	14	**416**	10	14	
867,95	**34**	10	14	**408**	10	14	
867,85	**35**	10	14	**400**	10	14	
867,75	**36**	10	14	**392**	10	14	
867,65	**37**	10	14	**384**	10	14	
867,55	**38**	10	14	**376**	10	14	
867,45	**39**	10	14	**368**	10	14	
867,35	**40**	10	14	**360**	10	14	
867,25	**41**	10	14	**352**	10	14	
867,15	**42**	10	14	**344**	10	14	
867,05	**43**	10	14	**336**	10	14	
866,95	**44**	10	14	**328**	10	14	
866,85	**45**	10	14	**320**	10	14	
866,75	**46**	10	14	**312**	10	14	
866,65	**47**	10	14	**304**	10	14	
866,55	**48**	10	14	**296**	10	14	
866,45	**49**	10	14	**288**	10	14	
866,35	**50**	10	14	**280**	10	14	
866,25	**51**	10	14	**272**	10	14	
866,15	**52**	10	14	**264**	10	14	
866,05	**53**	10	14	**256**	10	14	

865,95	**54**	10	14	**248**	10	14	
865,85	**55**	10	14	**240**	10	14	
865,75	**56**	10	14	**232**	10	14	
865,65	**57**	10	14	**224**	10	14	
865,55	**58**	10	14	**216**	10	14	
865,45	**59**	10	14	**208**	10	14	
865,35	**60**	10	14	**200**	10	14	
865,25	**61**	10	14	**192**	10	14	
865,15	**62**	10	14	**184**	10	14	
865,05	**63**	10	14	**176**	10	14	
864,95	**64**	10	14	**168**	10	14	
864,85	**65**	10	14	**160**	10	14	
864,75	**66**	10	14	**152**	10	14	
864,65	**67**	10	14	**144**	10	14	
864,55	**68**	10	14	**136**	10	14	
864,45	**69**	10	14	**128**	10	14	
864,35	**70**	10	14	**120**	10	14	
864,25	**71**	10	14	**112**	10	14	
864,15	**72**	10	14	**104**	10	14	
864,05	**73**	10	14	**96**	10	14	
863,95	**74**	10	14	**88**	10	14	
863,85	**75**	10	14	**80**	10	14	
863,75	**76**	10	14	**72**	10	14	
863,65	**77**	10	14	**64**	10	14	
863,55	**78**	10	14	**56**	10	14	
863,45	**79**	10	14	**48**	10	14	
863,35	**80**	10	14	**40**	10	14	
863,25	**81**	10	14	**32**	10	14	
863,15	**82**	10	14	**24**	10	14	
863,05	**83**	10	14	**16**	10	14	
869,525	**84**	10	27	**534**	10	27	For the ARF868 radio modem, you must also choose the RF data rate
	1	57,6	27		57,6		
869,60	**85**	10	17	**540**	10	17	

Exemple 1 : to allow communication between an ARF868 and a X3Pro modem at 869,525Mhz with a data rate of 57.6Kbps, each S200 register must be set to :

- Value **1** on the X3Pro side.
- Value **534** on the ARF868 side AND choose data rate at 57.6Kbps in the S254 register.

Exemple 2 : to allow communication between an ARF868 and a X3Pro modem at 869,525Mhz with a data rate of 10Kbps, each S200 register must be set to :

- Value **84** on the X3Pro side
- Value **534** on the ARF868 side AND choose data rate at 10Kbps in the S254 register.

In the Legacy X3PRO mode, the addressing of the ARF868 modem is identical to ARFX3-PRO modes:

By default, the ARFx3-PRO works in addressed mode with source and destination addresses set to 0.

- S220=1 for addressed mode S220=0 for transparent mode
- S252= product source address (filtering in reception)
- S256=destination address (address transmitted in the frame and filtered by the receiver)