

Setting Up EX-RC1 - Remote IO (CANbus)

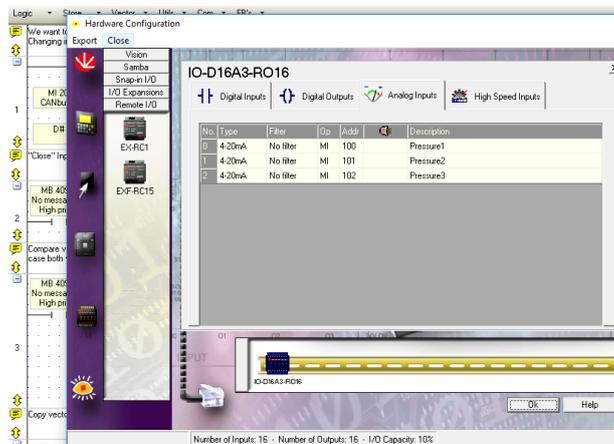
Setting Up EX-RC1

Remote IO can be connected to your PLC using an EX-RC1 module over CANbus via UniCAN (Unitronics CANbus protocol). 8 EX-RC1 adapters are allowed per project and each EX-RC1 will allow up to 8 IO modules to be connected via ribbon cable. The EX-RC1 is programmed using VisiLogic then files created in VisiLogic are ported between VisiLogic & UniLogic.

Step 1- Set Up EX-RC1 & export Operand files from VisiLogic

1. Open VisiLogic (Version 5.0.0 or later)
2. Power up the EX-RC1 and make a serial connection between the module and the computer.
3. Check the connection as you would with a PLC in VisiLogic and upload the project from within the EX-RC1 to VisiLogic. (This will be the project you edit to suit your application so save this uploaded project with a unique file name.)
4. Add the IO unit/s you plan to connect to the EX-RC1 and set the Hardware configuration on these IO Module/s to how you want them.

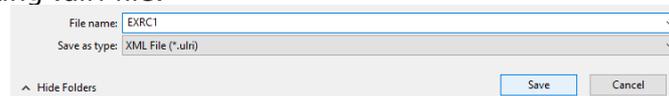
NOTE: Ensure you add a description to ALL I/O variables you wish to use otherwise they will not appear within the UniStream STRUCT.



5. Once the Hardware configuration is set, right click where it says 'EX-RC1' and select 'Export to File' or select 'Export' from the top left of the HW Configuration window.



6. Save the resulting .ulri file.



Setting Up EX-RC1 - Remote IO (CANbus)

Step 2- Create UniLogic Project

1. Open UniLogic
2. In the solution explorer go to 'Remote I/O' within 'Hardware Configuration'
3. Click the 'Add new RIO-RC' '+' symbol
4. A 'Properties Window for the 'EX-RC1' will appear
5. The UniCAN ID is set to 2 by default, please ensure it matches the dipswitch settings on the EX-RC1.
6. Where it says 'VisiLogic File' there is a '...' button. Click on this and locate the .ulri file you created in VisiLogic previously
7. UniLogic will import the EX-RC1 hardware configuration that you set in VisiLogic including the operand names and descriptions.

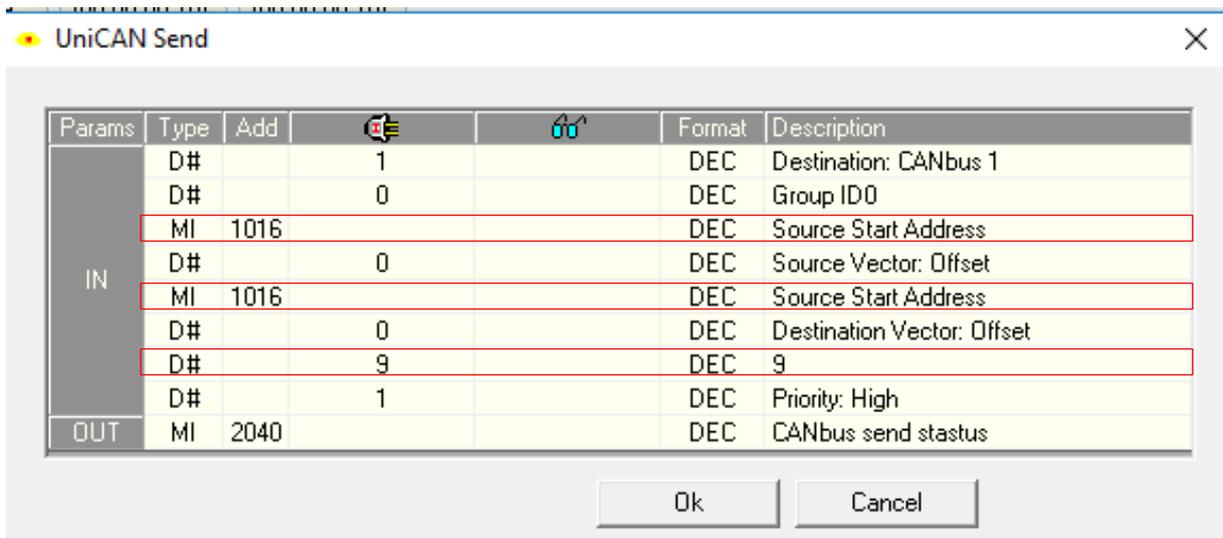
Step 3- Mapping Data Structs in VisiLogic

1. You now need to export the data structs from UniLogic so they can be loaded into VisiLogic and downloaded into the EX-RC1.
2. In the EX-RC1 'Properties Window' click the 'Export' button next to 'Export Structs VisiLogic'
3. Save the .ulri file. (This export will create 2 folders, 1 for Input .ulri files and 1 for Output .ulri files.
4. Go back to your VisiLogic project
5. In the VisiLogic project ladder go to the 'IN' Subroutine net 2.
6. Here you will find the 'STRUCT (collect)' function, double click this to open it up.
7. In the bottom left of the new window click 'Import', navigate to the inputs folder and locate the .ulri file within this folder.
8. After you import the .ulri file, you can see the data addresses. Note that you must compile the function in order to activate the 'OK' button. Press 'OK'.
9. Go to the 'Out' subroutine and locate the 'STRUCT (extract)' function in net 2. Open it.
10. Repeat the process from before but locate the 'Output' folder created by UniLogic and load this .ulri file. Click 'Compile' then press 'OK' as before.
11. Go to the '! Main Routine' net 1 and you will see a 'UniCAN' com initialize function. Open this and check the com settings match those within UniLogic. The CANbus ID of the EX-RC1 itself is set via the dip switches on the adapter itself. (Settings found within Manual)
12. Ensure the UniCAN ID in UniStream matches that in the PLC

Setting Up EX-RC1 - Remote IO (CANbus)

13. Locate the 'UniCAN Send' function within the 'IN' Subroutine (net 6) and check that-

- A) The 'Source Start Address' matches the Start Address in the STRUCT function found within the 'IN' Subroutine, Net2).
- B) The Destination Start Address matches the Start Address in the STRUCT function. Since both of these parameters must be addressed to the same MI, they will have the same description; however Parameter #5 is indeed Destination Start Address. This is shown in the following image, where both Source Start (EX-RC1) and Destination Start (PLC) are addressed to MI1016.
- C) Length is the number of MIs in the vector; make sure that the vector length is long enough to take all of the required data from the EXRC1 to the UniStream.
- D) The 'Source Vector: Offset' & the 'Destination Vector: Offset' are set to zero.



- 14. You will need to add a normally closed SB201 or SB202 contact at the start of net 6 to avoid compilation errors. (Use SB201 for High priority, SB202 for low priority.)
- 15. Download the VisiLogic project to the EX-RC1 via serial cable
- 16. Download the UniLogic project to your UniStream PLC via Ethernet or USB.
- 17. Connect PLC to EX-RC1 via CANbus cable (**POWERED**) The CANbus cable requires that proper CANbus cable is used and that the EX-RC1 side of the cable is powered.
- 18. Connect EX-RC1 to DIN-Rail mounted IO Modules via attached ribbon cable. (Once powered up all lights should turn steady green and UniStream PLC will detect the inputs on the attached remote IO modules.

Tom Johnson