Protocol

Application Note

Communication C080, MAXM2000

Content

1 Introduction

1.1 Purpose

This document describes the communication between GALAXY Dimension v7.03 control panel and card readers C080 (DCM), MAXM2000 via the IP protocol.

1.2 Scope

This document contains:

- Control panel and card readers C080 (DCM) communication without METEL switches
- Control panel and card readers C080 (DCM) communication via METEL switches
- Control panel and card readers MAXM2000 communication via METEL switches
- Result

2 GALAXY Dimension v7.03 + C080 without METEL switches

Galaxy Dimension communication at the bus RS485 and connected modules for example RIO, MK7 keypad, and other devices beyond the card readers C080 is in sequence request-response.

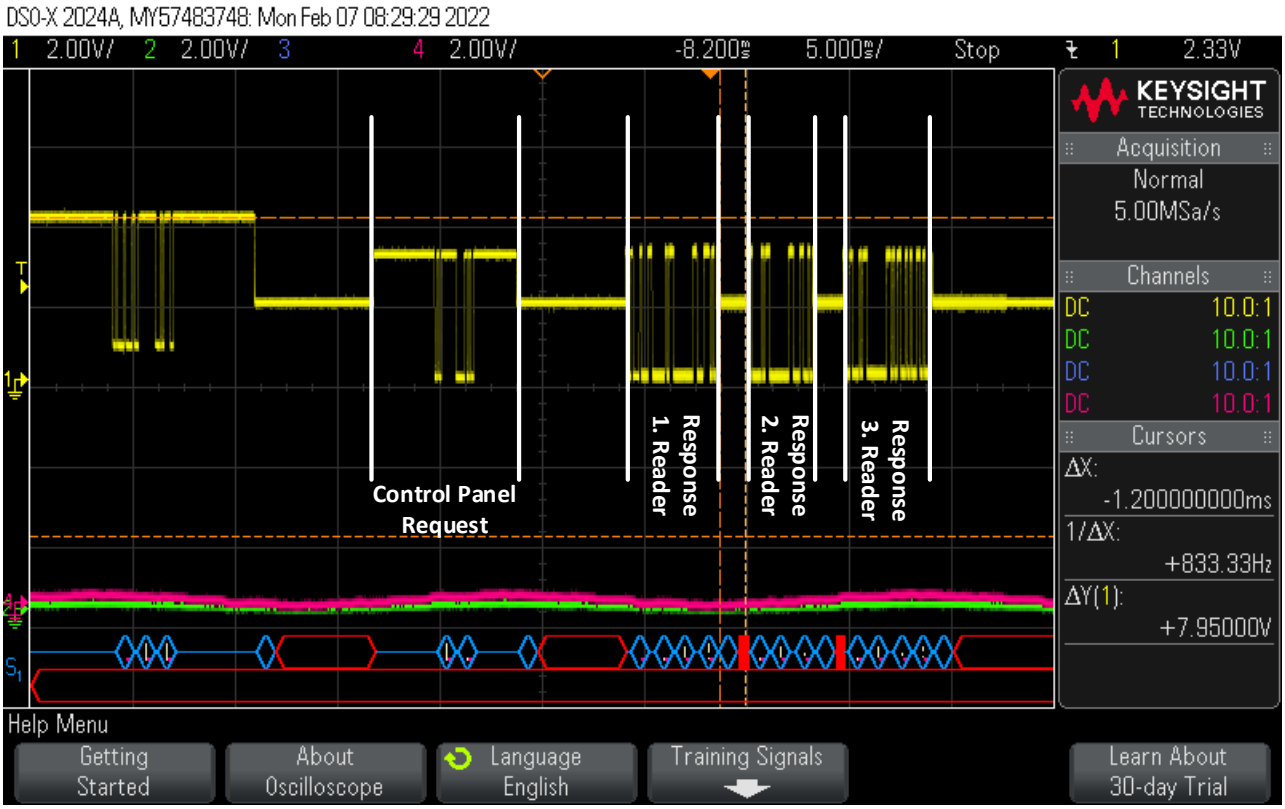
At regular interval, the control panel polls individual module, after a module status query, it waits for its response, or for the time reserved for the response to expire before a new query for next module begins.

Assembly on the bus:

- 3x module C080 (DCM) / 3x module MAXM2000
- keypad MK7
- control panel Galaxy Dimension v7.03

2.1 Communication between control panel and card readers C080 (DCM)

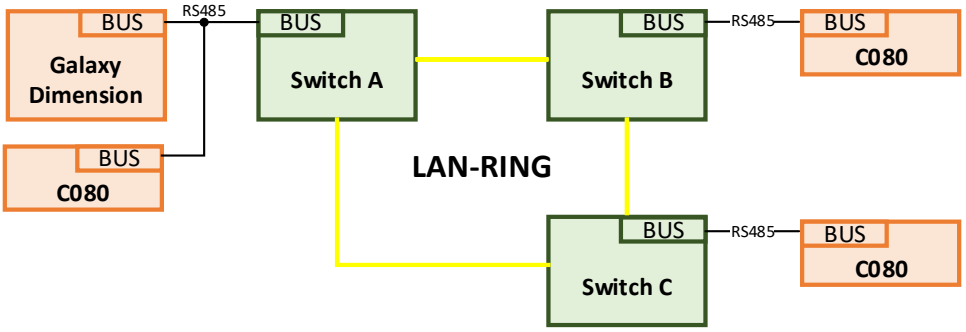
In the picture is record of oscilloscope measurement. The control panel sends a query for the status of the module (s), all three modules respond in turn.



3 GALAXY Dimension v7.03 + C080 via METEL switches

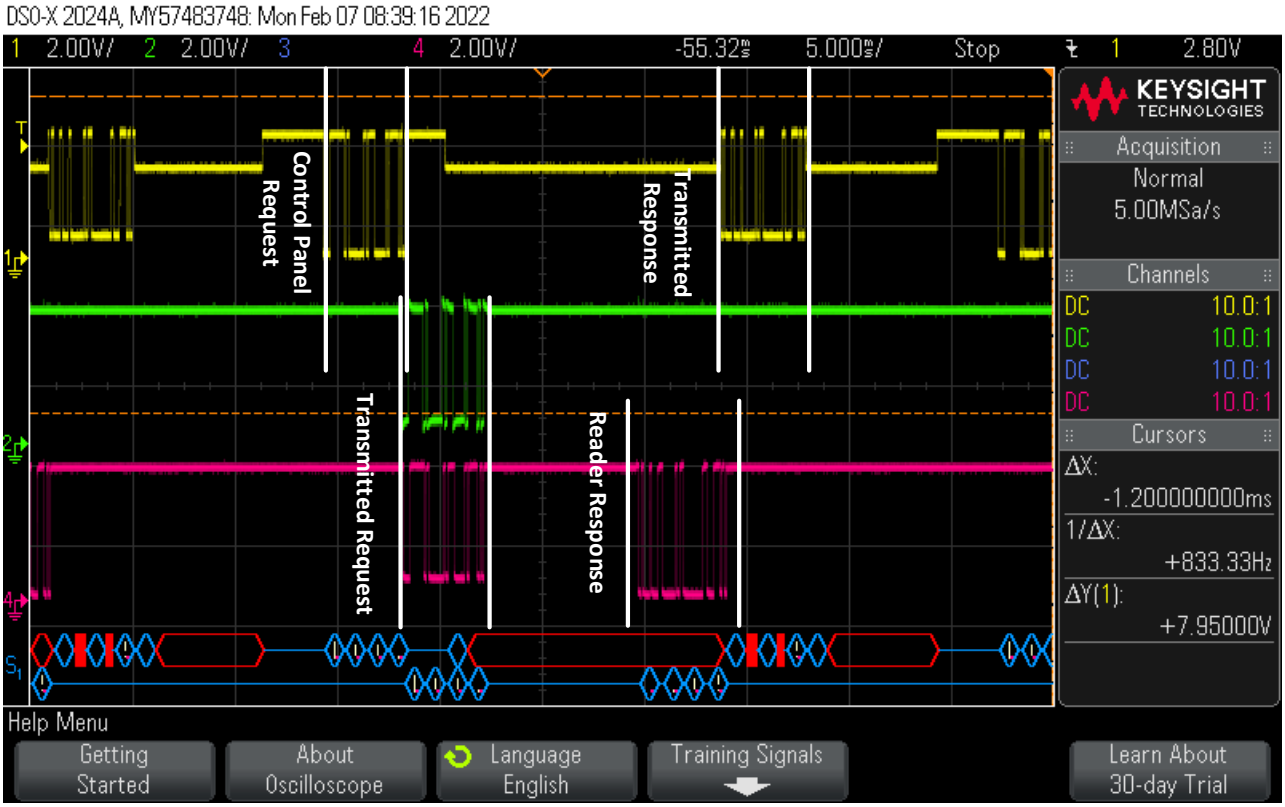
Communication takes place via transmission at the IP layer (UDP / multicast packets). As a result of the conversion between the physical layer of the RS485 bus and the IP layer, there is a delay between request and response of approx. 7.2 - 8 ms.

3.1 Topology A



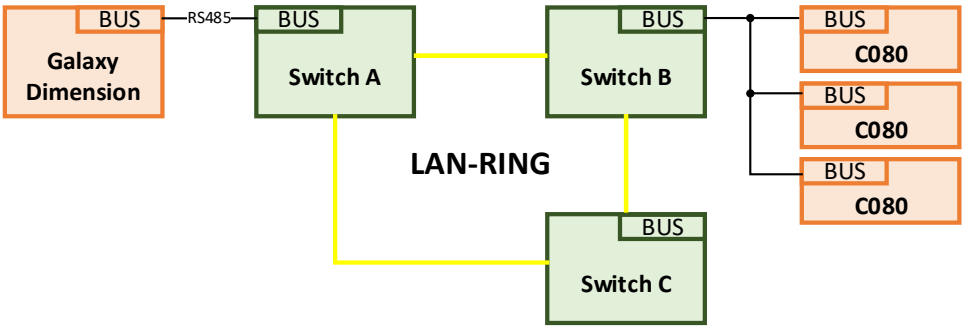
The request from the control panel is processed and sent by switch A. Switches B and C receive the request and exposes it on their buses (Transmitted Request). Due to the conversion, the transmitted request is delayed by 3.6 - 4ms from to the beginning of the conrol panel transmission.

One of the readers responds (Reader Response), switch C sends data to the network. Switch A receives the data and exposes it on the control panel bus (Transmitted Response), again with a delay. The following is a request for the next module. **The response from two readers is missing!**



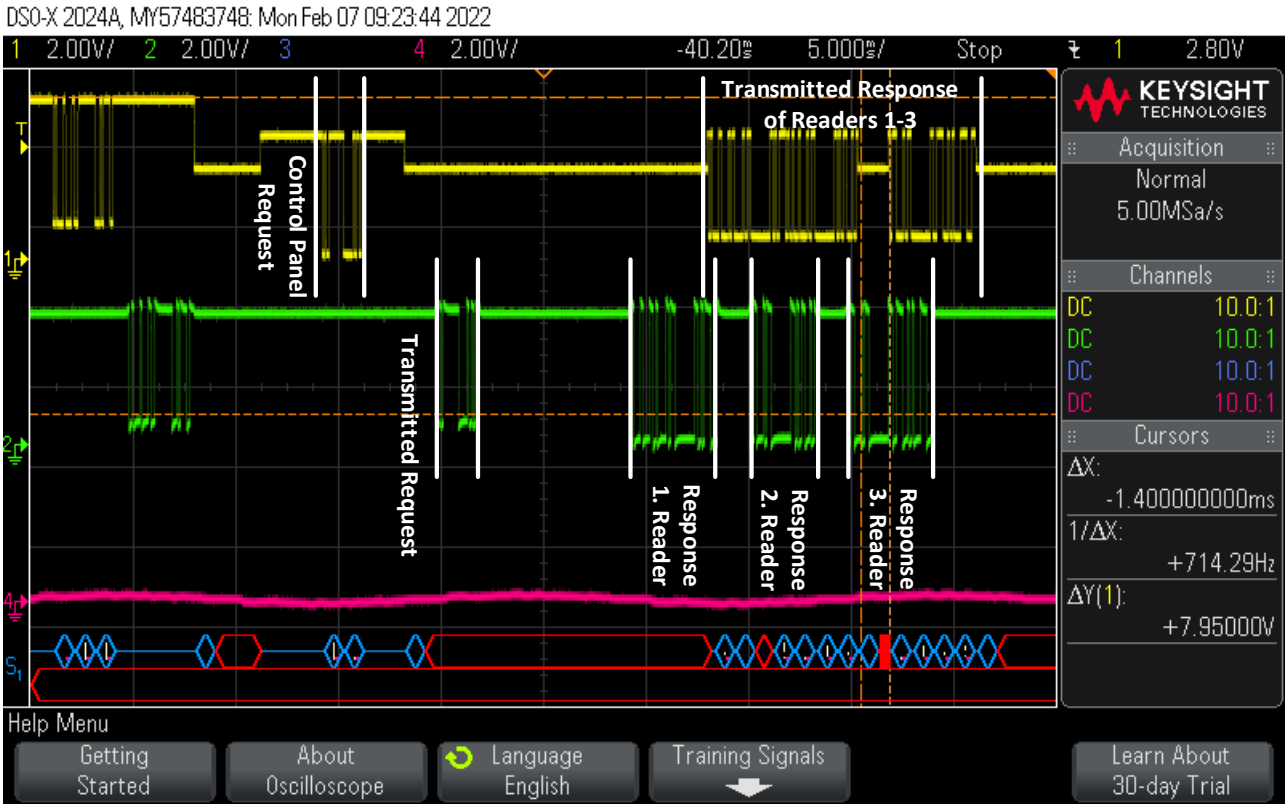
3.2 Topology B

All card readers in one point.



The request from the control panel is processed and sent by switch A. Switch B receives the request and exposes it on the bus (Transmitted Request). Due to the conversion, the transmitted query is delayed by 3.6 - 4ms from to the beginning of the control panel transmission.

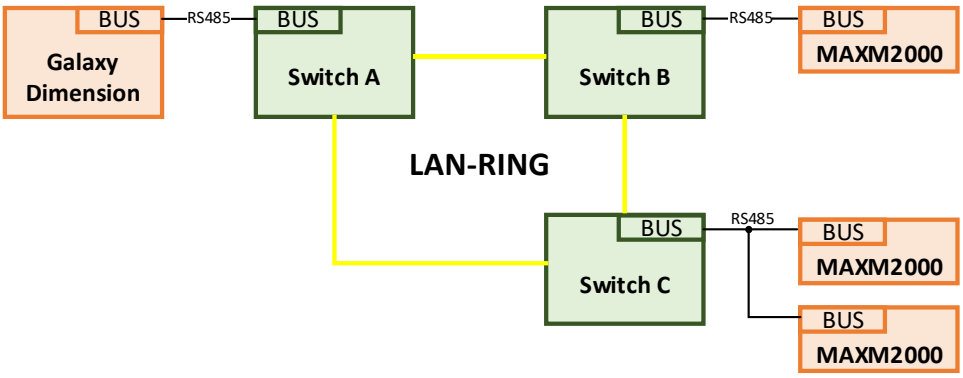
The readers respond sequentially (Response 1. Reader, 2. Reader, 3. Reader), switch B sends data to the network. Switch A receives the data and exposes it on the control panel bus (Transmitted Response), again with a delay. **The answer is complete!**



4 GALAXY Dimension v7.03 + MAXM2000 via METEL switches

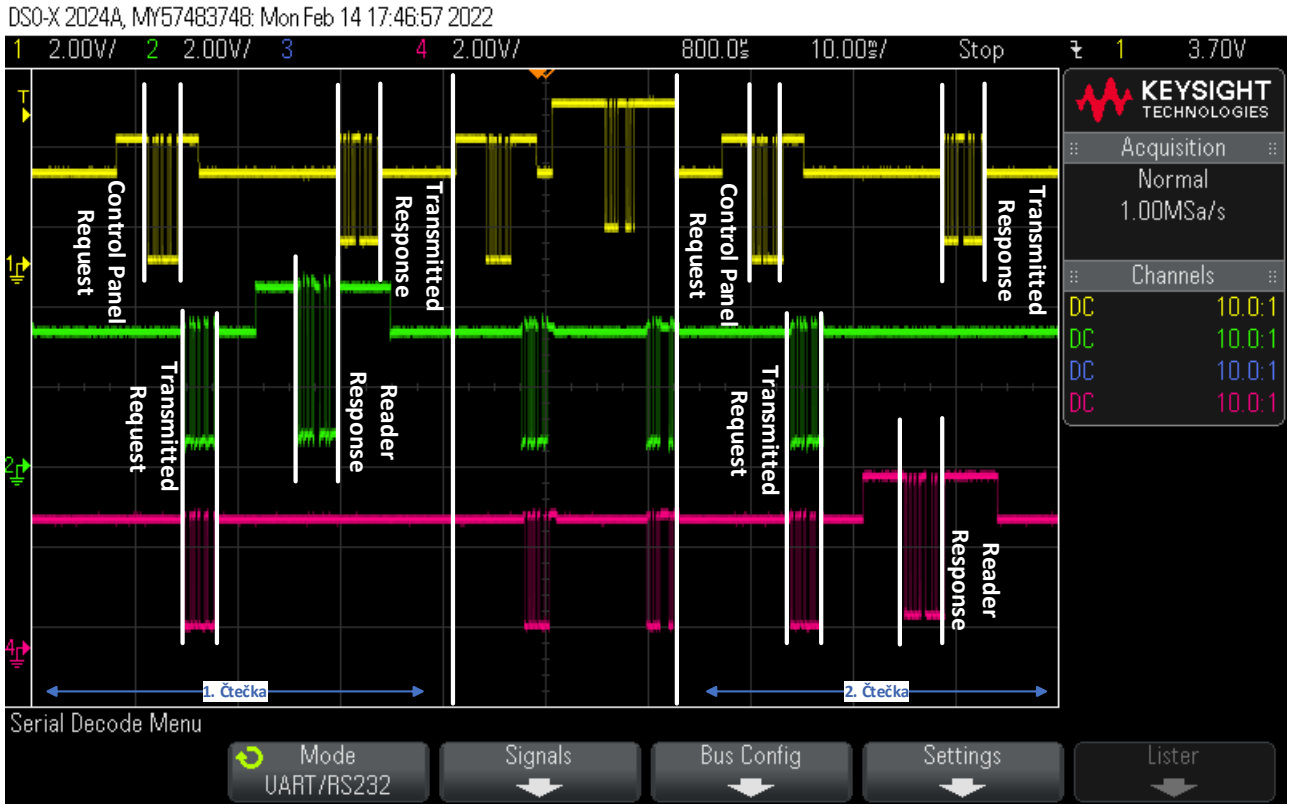
Communication takes place via transmission at the IP layer (UDP / multicast packets). As a result of the conversion between the physical layer of the RS485 bus and the IP layer, there is a delay between request and response of approx. 7.2 - 8 ms.

4.1 Topology



The request from the control panel is processed and sent by switch A. Switches B and C receive the request and exposes it on their buses (Transmitted Request). Due to the conversion, the transmitted request is delayed by 3.6 - 4ms from to the beginning of the control panel transmission.

The reader to which the request was routed starts to respond (Reader Response), the relevant switch sends a response to the network. Switch A receives the data and displays it on the control panel bus (Transmitted Response), again with a delay. The following is a request for the next module. **The response is complete, the control panel will gradually query all connected readers!**



5 Result

During the diagnostic measurement of the Galaxy Dimension v7.03 data bus and the readers C080 (DCM) a different behavior was found on the data bus compared to other devices connected to the bus Galaxy.

The standard communication between the modules and the control panel is of the request / response type. The control panel queries a specific module and it answers, followed by a query for another module and its answer. In this way, the control panel gradually queries all modules in the system.

The communication of the C080 readers is different, multiple devices respond to one query from the control panel in an unspecified order without the need for a query from the control panel.

Upon closer examination and observation of the behavior, it is probably necessary for the modules to "hear" each other without the delay caused by the conversion to the IP layer. It is therefore necessary to follow the connection, where on one bus all C080 modules are connected at one point (in one switch).

MAXM2000 can be used as a replacement for C080 readers. From the diagnostic measurement of communication, it is evident that the control panel queries the individual MAXM2000 readers one by one. Thus, there are no communication problems as with the C080.

MAXM2000 readers are fully compatible with xDW-S-4C optical converters and LAN-RING system.

C080 readers are fully compatible with xDW-S-4C optical converters.

When connected to the LAN-RING system, all C080 readers on one bus must be connected at one point (to one switch)!