Pluto Gateway GATE-D1/2 and ABB robotic integration
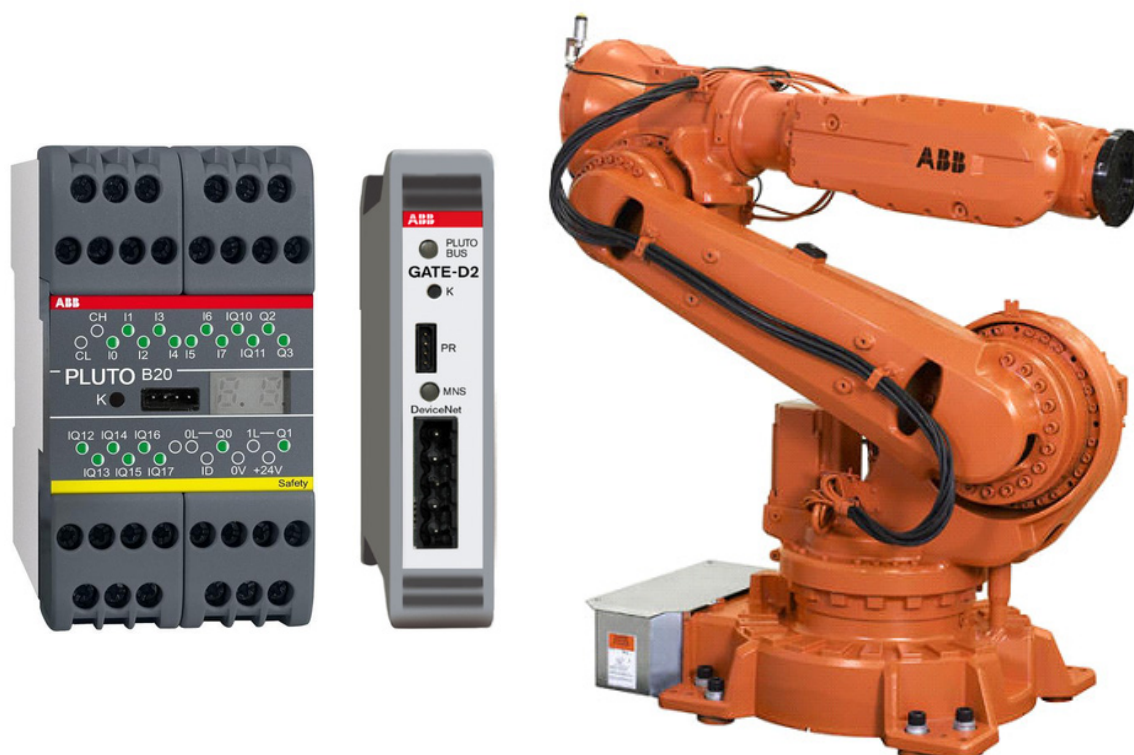
Integration Description

Revision history:

Version	Date	Change
1A	2007-02-01	First release.
2A	2007-05-25	Major rewrite.
3A	2008-10-08	Update information regarding additional data.
4A	2008-08-27	Update with parameter "Gateway Node Number".
5A	2011-11-26	Update of configuration of additional data. Change to ABB style.

Reference:

REF	Document
A	Pluto Gateway User Manual 2TLC172009M0206_A.
B	Pluto Manager program (terminal).

Table of contents:

1 Important Notes

1.1 Gateway GATE-D1 and GATE-D2

There is today **no difference** how to integrate with GATE-D1 or GATE-D2.
Regarding other difference see (**REF A)**.

1.2 Size limitations

Currently the ABB robotic system has a size limitation 64 bytes for in and out data. This size limitation will give that a ABB robotic system connected to a Pluto system with **more then 16 Pluto units (or additional data areas)** there is a needs to have two (2) Pluto gateways to be able to read data from all connected Pluto units, see chapter 2.1.

1.3 Terminal Setting

For terminal connection to the Pluto gateway, connect a terminal program to the gateway PR port on the front panel of the unit. The connector is the same as for connection to the Pluto units and as terminal program the Pluto Manager (**REF B**) terminal tool will work fine.

Terminal cable	Pluto programming cable ABB 2TLA020070R5600 or Pluto USB cable ABB 2TLA020070R5800.
Terminal program	Pluto Manager terminal tool.

The following terminal setting shall be used if not using Pluto Manager terminal tool.

Baudrate	57.6 kbits
Bits	8
Stopbits	1
Parity	None

1.4 Additional data

Later Pluto OS support sending additional data to the gateway. For general information about how the additional data works read the main gateway manual (REF A). In this manual some section with the chapters/text marked with "**Additional Data**" give some extra information.

2 Introduction

This document will give information how to integrate Pluto DeviceNet Gateway GATE-D1/2 with an ABB robotic system. The integration are described in following steps,

- Gateway device integration.

  This part will describe how to add the gateway into the ABB robotic system, see chapter 3.

- Gateway device configuration.

  This part will describe ho to configure the gateway for correct input and output of data to and from the ABB robotic system. This configuration can be done in following ways.

  - DIP switch configuration (*simple system*).

    On the gateway, by DIP-switch setting, there are four possible default configurations. If one of these configurations suite the applications needs this is the easiest and most simple way to configure the gateway for the application. See chapter 4.

  - ABB robotic system configuration (*preferred solution*).

    In the ABB robotic system it's possible to setup configuration data which will be sent down to the gateway at system start. This configuration is the preferred way to do the integration because the gateway configuration is saved and documented within the ABB robotic system. See chapter 5.

  - Terminal configuration (*backup solution*).

    By connecting a terminal (see chapter 1.3) to the gateway the configuration can be done local in the gateway. This is a backup solution if the ABB robotic system configuration doesn't work. The disadvantage with this solution is separate documentations and the need to do unit configuration at gateway replacement. See chapter 6.

- ABB robotic I/O configuration.

  This part will describe how to add input and output data into the ABB robotic system for easy communication with Pluto I/O area. See chapter 7.

2.1 Examples

- Want *read data from only Pluto 0*.

  Use **DIP switch configuration**.
  Easy configuration for read data from one or several Pluto unit with station number 0 – 15.

- Want *read data from Pluto 0 and 14*.

  Use **DIP switch configuration**.
  Easy configuration for read data from one or several Pluto unit with station number 0 – 15.

- Want *read data from only Pluto 24*.

  Use **ABB robotic system configuration**.
  As soon data from a Pluto above station number 15 then use **ABB robotic system configuration**.

- Want *read data from Pluto 16 and 24*.

  Use **ABB robotic system configuration**.
  As soon data from a Pluto above station number 15 then use **ABB robotic system configuration**.

- Want *read data from Pluto 5 and 24*.

  Use **ABB robotic system configuration**.
  As soon data from a Pluto above station number 15 then use **ABB robotic system configuration**.

- Want *read data from Pluto 0* and also *send data to Pluto 0*.

  Use **ABB robotic system configuration**.
  As soon send data to Pluto then use **ABB robotic system configuration**.

- If want to *read data from Pluto 0 – 24*.

  Use **ABB robotic system configuration**.
  There are a need to read data from more then 16 Pluto then use **ABB robotic system configuration** and also **use two Pluto gateway**.

  Configure one Pluto gateway to read data from Pluto 0-11.
  Configure the other Pluto gateway to read data from Pluto 12-24.

- If want to *read data from Pluto 0 – 24* and also *send data down* to the Pluto system.

  Use **ABB robotic system configuration**.
  There are a need to read data from more then 16 Pluto then use **ABB robotic system configuration** and also **use two Pluto gateway**.

  Configure one gateway to read for example data from Pluto 0-11.
  Configure the other gateway to read for example data from Pluto 12-24.
  Configure **only one of the gateways** to handle data sent to the Pluto system.

3 Gateway Device Integration

3.1 DeviceNet address etc

Before adding the Pluto gateway to the ABB robotic system the gateway need to be given a DeviceNet MAC address and also set to the current DeviceNet bus speed. These settings are done on the gateway DIP switch SW1. For more detail information read the label on the gateway and also the gateway manual (**REF A**) or the label on the gateway.

3.2 Adding gateway in the ABB robotic system

The Pluto gateway GATE-D1/2 can be integrated with the ABB robotic system by adding following text lines into the configuration file of the robotic system. The example below will add the gateway named "**plutoGateway**" to the ABB robotic systems DeviceNet interface "**DNET**" at MAC address **20**.

```
#
EIO_UNIT_TYPE:

     -Name "plutoGateway" -BusType "DNET" -VendorName "ABB" -ProductName "Pluto"\
     -DN_VendorId 950 -DN_ProductCode 1000 -DN_MajorRev 2 -DN_MinorRev 3\
     -DN_C1OutputSize -1 -DN_C1InputSize -1
#
EIO_UNIT:

     -Name "ioPluto" -UnitType "plutoGateway" -Bus "DeviceNet1" -DN_Address 20
```

By setting the DN_ClOutputSize and DN_ClInputSize to -1 the ABB Robotic system will read this size information from the gateway. This will in most case help the integration of the unit into the ABB robotic system.

ABB

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4 Gateway Default Configuration

4.1 Gateway Configuration

The Pluto gateway default configuration is very limited. The configuration is done on the gateway by setting switch 1-2 of the DIP switch SW2. When this can be used is listed in the table below.

DIP-switch		Description
1	2	
0	0	Only to read status from Pluto station 0 and 1.
0	1	Only to read status from Pluto station 0 – 7.
1	0	Only to read status from Pluto station 0 – 15.
1	1	Only to read status from Pluto station 0 – 31. This configuration is current **not possible** to use because of limitations in the I/O size in the ABB robotic system.

Note:

- The ABB robotic system can with the "default" configuration mode only read data from the connected Pluto system.

- To be able to write data to the Pluto system you **can't** use the "default" configuration mode.

- If the Pluto system has any Pluto with station number above 15 the "default" configuration mode **can't** be used.

4.2 Commissioning

During commissioning;

- At ABB robotic system start it will do a DeviceNet IO connection with the gateway.

- If the MNS LED is steady green the gateway is connected and normal operation.

5 Gateway Configuration by ABB Robotic System

This part of the configuration description will describe how to enable configuration setting of the gateway from the ABB robotic system.

5.1 Precondition

The DeviceNet gateway software version needs to be at higher then version 1.2. The software version is printed to the terminal at gateway startup and when pressing the "v" command. The example below show that the gateway have software version 1.2, this software don't support the ABB robotic configuration mode.

Update of the software can be downloaded from our web site under support. If you don't want to update the software you can do the configuration via the terminal configuration mode (not recommended).

```
************************************
 DeviceNet gateway
************************************
 Name        : GATE-D2
 Vendor id   : 950
 Device type : 0
 Product code : 1000
 Serial number: 1065
************************************
 Software ver : 3.4
 Software date: 2010-11-26
************************************
dnet_gw>
```

5.1.1 Additional Data

To use the additional data the DeviceNet gateway software version needs to be at version 2.1 or higher.

5.1.2 Gateway Node Number

To use the Gateway Node Number setting the DeviceNet gateway software version needs to be at version 3.0 or higher.

5.2 Settings in configuration file

This text below is a part of the ABB robotic system configuration file for the DeviceNet configuration. By adding the below text into the configuration file the ABB robotic system will send down these 5 commands to the gateway and set the gateway configuration.

The example below will set following configuration in the gateway,

- Input assembly "plutoInput" value of 1 (DefValue) give "Data Only" as input data, see page 16.

- Output assembly "plutoOutput" value of 1 (DefValue) give "To Pluto Data" as output data, see page 16.

- Expected Pluto nodes "plutoExpected" value of 3221225487 (DefValue) (equal to hexadecimal value of 0xC000000F) give that Pluto node 0, 1, 2, 3, 30 and 31 will be enabled in "Input assembly", see page 16.

- Enable data to Pluto "plutoNetEnb" value of 3 (DefValue) equal to bits 0011 give that the gateway will retransmit package area 0 and 1 from ABB robotic output data to the Pluto network, see page 18.

- Data to Pluto timeout "plutoTimeout" value of 1000 ms (DefValue) give that the gateway will use a timeout of 1000 ms for receiving updates of output data from ABB robotic system, see page 18.

- Data to Pluto update time "plutoCycleTime" value of 100 ms give that the gateway will send all data to Pluto within this time, see page 18.

- Gateway node number "plutoGatewayNode" value of 0 will tell the gateway to read it's node number from DIP-switch, see page 19.

```
#
EIO_COMMAND_TYPE:

     -Name "plutoInput" -UnitType "plutoGateway" -DefValue "1" -OrderNr 1\
     -DN_Path "6,20 64 24 00 30 14,C6,1" -DN_Service 16

     -Name "plutoOutput" -UnitType "plutoGateway" -DefValue "1" -OrderNr 2\
     -DN_Path "6,20 64 24 00 30 15,C6,1" -DN_Service 16

     -Name "plutoExpected" -UnitType "plutoGateway" -DefValue "3221225487" -OrderNr 3\
     -DN_Path "6,20 64 24 00 30 0A,C8,4" -DN_Service 16

     -Name "plutoNetEnb" -UnitType "plutoGateway" -DefValue "3" -OrderNr 4\
     -DN_Path "6,20 64 24 00 30 10,D1,1" -DN_Service 16

     -Name "plutoTimeout" -UnitType "plutoGateway" -DefValue "1000" -OrderNr 5\
     -DN_Path "6,20 64 24 00 30 11,C7,2" -DN_Service 16

     -Name "plutoCycleTime" -UnitType "plutoGateway" -DefValue "100" -OrderNr 6\
     -DN_Path "6,20 64 24 00 30 12,D1,1" -DN_Service 16

     -Name "plutoGatewayNode" -UnitType "plutoGateway" -DefValue "0" -OrderNr 7\
     -DN_Path "6,20 64 24 00 30 13,D1,1" -DN_Service 16
```

5.2.1 Additional Data

The example below will use additional data configuration of the gateway,

- Input assembly "plutoInput" value of 1 (DefValue) give "Data Only" as input data, see page 16.

- Output assembly "plutoOutput" value of 1 (DefValue) give "To Pluto Data" as output data, see page 16.

- Enable data to Pluto "plutoNetEnb" value of 3 (DefValue) equal to bits 0011 give that the gateway will retransmit package area 0 and 1 from ABB robotic output data to the Pluto network, see page 18.

- Data to Pluto timeout "plutoTimeout" value of 1000 ms (DefValue) give that the gateway will use a timeout of 1000 ms for receiving updates of output data from ABB robotic system, see page 18.

- Data to Pluto cycle time "plutoCycleTime" value of 100 ms (DefValue) give that the gateway will send data to Pluto every 100 ms, see page 18.

- Gateway node number "plutoGatewayNode" value of 0 will tell the gateway to read it's node number from DIP-switch, see page 19.

- Additional data configuration of area 00 to get additional data from node 10 (e.g. Pluto 10) with IO-type 111 (e.g. global data), note DN_Path see 19.

- Additional data configuration of area 01 to get additional data from node 0 (e.g. Pluto 0) with IO-type 100 (e.g. ToGateway_ErrorCode), note DN_Path see 19.

- All other additional data is configured as not used e.g. default value of the IO-type is zero.

It's good practice to add all additional data setup commands into the configuration file with default values data area disabled. This will insure that previously used data areas are disabled in the new configuration, for example insetting old gateway with completely different setup. This also makes it easier to enable next additional data area if the commands are already there and you only need too change the default (DefValue) of the new areas.

```
#
EIO_COMMAND_TYPE:

     -Name "plutoInput" -UnitType "plutoGateway" -DefValue "1" -OrderNr 1\
     -DN_Path "6,20 64 24 00 30 14,C6,1" -DN_Service 16

     -Name "plutoOutput" -UnitType "plutoGateway" -DefValue "1" -OrderNr 2\
     -DN_Path "6,20 64 24 00 30 15,C6,1" -DN_Service 16

     -Name "plutoNetEnb" -UnitType "plutoGateway" -DefValue "3" -OrderNr 3\
     -DN_Path "6,20 64 24 00 30 10,D1,1" -DN_Service 16

     -Name "plutoTimeout" -UnitType "plutoGateway" -DefValue "1000" -OrderNr 4\
     -DN_Path "6,20 64 24 00 30 11,C7,2" -DN_Service 16

     -Name "plutoCycleTime" -UnitType "plutoGateway" -DefValue "100" -OrderNr 5\
     -DN_Path "6,20 64 24 00 30 12,D1,1" -DN_Service 16

     -Name "plutoGatewayNode" -UnitType "plutoGateway" -DefValue "0" -OrderNr 6\
     -DN_Path "6,20 64 24 00 30 13,D1,1" -DN_Service 16

     -Name "plutoAddData_Node00" -UnitType "plutoGateway" -DefValue "10" -OrderNr 7\
     -DN_Path "6,20 64 24 00 30 1E,D1,1" -DN_Service 16

     -Name "plutoAddData_IO00" -UnitType "plutoGateway" -DefValue "111" -OrderNr 8\
     -DN_Path "6,20 64 24 00 30 1F,D1,1" -DN_Service 16

     -Name "plutoAddData_Node01" -UnitType "plutoGateway" -DefValue "0" -OrderNr 9\
     -DN_Path "6,20 64 24 00 30 20,D1,1" -DN_Service 16

     -Name "plutoAddData_IO01" -UnitType "plutoGateway" -DefValue "100" -OrderNr 10\
     -DN_Path "6,20 64 24 00 30 21,D1,1" -DN_Service 16

     -Name "plutoAddData_Node02" -UnitType "plutoGateway" -DefValue "0" -OrderNr 11\
     -DN_Path "6,20 64 24 00 30 22,D1,1" -DN_Service 16

     -Name "plutoAddData_IO02" -UnitType "plutoGateway" -DefValue "0" -OrderNr 12\
     -DN_Path "6,20 64 24 00 30 23,D1,1" -DN_Service 16

     -Name "plutoAddData_Node03" -UnitType "plutoGateway" -DefValue "0" -OrderNr 13\
     -DN_Path "6,20 64 24 00 30 24,D1,1" -DN_Service 16

     -Name "plutoAddData_IO03" -UnitType "plutoGateway" -DefValue "0" -OrderNr 14\
     -DN_Path "6,20 64 24 00 30 25,D1,1" -DN_Service 16
```

```
-Name "plutoAddData_Node04" -UnitType "plutoGateway" -DefValue "0" -OrderNr 15\
-DN_Path "6,20 64 24 00 30 26,D1,1" -DN_Service 16

-Name "plutoAddData_IO04" -UnitType "plutoGateway" -DefValue "0" -OrderNr 16\
-DN_Path "6,20 64 24 00 30 27,D1,1" -DN_Service 16

-Name "plutoAddData_Node05" -UnitType "plutoGateway" -DefValue "0" -OrderNr 17\
-DN_Path "6,20 64 24 00 30 28,D1,1" -DN_Service 16

-Name "plutoAddData_IO05" -UnitType "plutoGateway" -DefValue "0" -OrderNr 18\
-DN_Path "6,20 64 24 00 30 29,D1,1" -DN_Service 16

-Name "plutoAddData_Node06" -UnitType "plutoGateway" -DefValue "0" -OrderNr 19\
-DN_Path "6,20 64 24 00 30 2A,D1,1" -DN_Service 16

-Name "plutoAddData_IO06" -UnitType "plutoGateway" -DefValue "0" -OrderNr 20\
-DN_Path "6,20 64 24 00 30 2B,D1,1" -DN_Service 16

-Name "plutoAddData_Node07" -UnitType "plutoGateway" -DefValue "0" -OrderNr 21\
-DN_Path "6,20 64 24 00 30 2C,D1,1" -DN_Service 16

-Name "plutoAddData_IO07" -UnitType "plutoGateway" -DefValue "0" -OrderNr 22\
-DN_Path "6,20 64 24 00 30 2D,D1,1" -DN_Service 16

-Name "plutoAddData_Node08" -UnitType "plutoGateway" -DefValue "0" -OrderNr 23\
-DN_Path "6,20 64 24 00 30 2E,D1,1" -DN_Service 16

-Name "plutoAddData_IO08" -UnitType "plutoGateway" -DefValue "0" -OrderNr 24\
-DN_Path "6,20 64 24 00 30 2F,D1,1" -DN_Service 16

-Name "plutoAddData_Node09" -UnitType "plutoGateway" -DefValue "0" -OrderNr 25\
-DN_Path "6,20 64 24 00 30 30,D1,1" -DN_Service 16

-Name "plutoAddData_IO09" -UnitType "plutoGateway" -DefValue "0" -OrderNr 26\
-DN_Path "6,20 64 24 00 30 31,D1,1" -DN_Service 16

-Name "plutoAddData_Node10" -UnitType "plutoGateway" -DefValue "0" -OrderNr 27\
-DN_Path "6,20 64 24 00 30 32,D1,1" -DN_Service 16

-Name "plutoAddData_IO10" -UnitType "plutoGateway" -DefValue "0" -OrderNr 28\
-DN_Path "6,20 64 24 00 30 33,D1,1" -DN_Service 16

-Name "plutoAddData_Node11" -UnitType "plutoGateway" -DefValue "0" -OrderNr 29\
-DN_Path "6,20 64 24 00 30 34,D1,1" -DN_Service 16

-Name "plutoAddData_IO11" -UnitType "plutoGateway" -DefValue "0" -OrderNr 30\
-DN_Path "6,20 64 24 00 30 35,D1,1" -DN_Service 16

-Name "plutoAddData_Node12" -UnitType "plutoGateway" -DefValue "0" -OrderNr 31\
-DN_Path "6,20 64 24 00 30 36,D1,1" -DN_Service 16

-Name "plutoAddData_IO12" -UnitType "plutoGateway" -DefValue "0" -OrderNr 32\
-DN_Path "6,20 64 24 00 30 37,D1,1" -DN_Service 16

-Name "plutoAddData_Node13" -UnitType "plutoGateway" -DefValue "0" -OrderNr 33\
-DN_Path "6,20 64 24 00 30 38,D1,1" -DN_Service 16

-Name "plutoAddData_IO13" -UnitType "plutoGateway" -DefValue "0" -OrderNr 34\
-DN_Path "6,20 64 24 00 30 39,D1,1" -DN_Service 16

-Name "plutoAddData_Node14" -UnitType "plutoGateway" -DefValue "0" -OrderNr 35\
```

```
       -DN_Path "6,20 64 24 00 30 3A,D1,1" -DN_Service 16

       -Name "plutoAddData_IO14" -UnitType "plutoGateway" -DefValue "0" -OrderNr 36\
       -DN_Path "6,20 64 24 00 30 3B,D1,1" -DN_Service 16

       -Name "plutoAddData_Node15" -UnitType "plutoGateway" -DefValue "0" -OrderNr 37\
       -DN_Path "6,20 64 24 00 30 3C,D1,1" -DN_Service 16

       -Name "plutoAddData_IO15" -UnitType "plutoGateway" -DefValue "0" -OrderNr 38\
       -DN_Path "6,20 64 24 00 30 3D,D1,1" -DN_Service 16
```

Normally a gateway connected to ABB robotic system can't access data areas above this lines, see size limitations page 4. But it's still a good behavior to add these lines to insure that these areas are disabled by setting default value (node 0 and type 0).

```
       -Name "plutoAddData_Node16" -UnitType "plutoGateway" -DefValue "0" -OrderNr 39\
       -DN_Path "6,20 64 24 00 30 3E,D1,1" -DN_Service 16

       -Name "plutoAddData_IO16" -UnitType "plutoGateway" -DefValue "0" -OrderNr 40\
       -DN_Path "6,20 64 24 00 30 3F,D1,1" -DN_Service 16

       -Name "plutoAddData_Node17" -UnitType "plutoGateway" -DefValue "0" -OrderNr 41\
       -DN_Path "6,20 64 24 00 30 40,D1,1" -DN_Service 16

       -Name "plutoAddData_IO17" -UnitType "plutoGateway" -DefValue "0" -OrderNr 42\
       -DN_Path "6,20 64 24 00 30 41,D1,1" -DN_Service 16

       -Name "plutoAddData_Node18" -UnitType "plutoGateway" -DefValue "0" -OrderNr 43\
       -DN_Path "6,20 64 24 00 30 42,D1,1" -DN_Service 16

       -Name "plutoAddData_IO18" -UnitType "plutoGateway" -DefValue "0" -OrderNr 44\
       -DN_Path "6,20 64 24 00 30 43,D1,1" -DN_Service 16

       -Name "plutoAddData_Node19" -UnitType "plutoGateway" -DefValue "0" -OrderNr 45\
       -DN_Path "6,20 64 24 00 30 44,D1,1" -DN_Service 16

       -Name "plutoAddData_IO19" -UnitType "plutoGateway" -DefValue "0" -OrderNr 46\
       -DN_Path "6,20 64 24 00 30 45,D1,1" -DN_Service 16

       -Name "plutoAddData_Node20" -UnitType "plutoGateway" -DefValue "0" -OrderNr 47\
       -DN_Path "6,20 64 24 00 30 46,D1,1" -DN_Service 16

       -Name "plutoAddData_IO20" -UnitType "plutoGateway" -DefValue "0" -OrderNr 48\
       -DN_Path "6,20 64 24 00 30 47,D1,1" -DN_Service 16

       -Name "plutoAddData_Node21" -UnitType "plutoGateway" -DefValue "0" -OrderNr 49\
       -DN_Path "6,20 64 24 00 30 48,D1,1" -DN_Service 16

       -Name "plutoAddData_IO21" -UnitType "plutoGateway" -DefValue "0" -OrderNr 50\
       -DN_Path "6,20 64 24 00 30 49,D1,1" -DN_Service 16

       -Name "plutoAddData_Node22" -UnitType "plutoGateway" -DefValue "0" -OrderNr 51\
       -DN_Path "6,20 64 24 00 30 4A,D1,1" -DN_Service 16

       -Name "plutoAddData_IO22" -UnitType "plutoGateway" -DefValue "0" -OrderNr 52\
       -DN_Path "6,20 64 24 00 30 4B,D1,1" -DN_Service 16

       -Name "plutoAddData_Node23" -UnitType "plutoGateway" -DefValue "0" -OrderNr 53\
       -DN_Path "6,20 64 24 00 30 4C,D1,1" -DN_Service 16

       -Name "plutoAddData_IO23" -UnitType "plutoGateway" -DefValue "0" -OrderNr 54\
       -DN_Path "6,20 64 24 00 30 4D,D1,1" -DN_Service 16
```

```
-Name "plutoAddData_Node24" -UnitType "plutoGateway" -DefValue "0" -OrderNr 55\
-DN_Path "6,20 64 24 00 30 4E,D1,1" -DN_Service 16

-Name "plutoAddData_IO24" -UnitType "plutoGateway" -DefValue "0" -OrderNr 56\
-DN_Path "6,20 64 24 00 30 4F,D1,1" -DN_Service 16

-Name "plutoAddData_Node25" -UnitType "plutoGateway" -DefValue "0" -OrderNr 57\
-DN_Path "6,20 64 24 00 30 50,D1,1" -DN_Service 16

-Name "plutoAddData_IO25" -UnitType "plutoGateway" -DefValue "0" -OrderNr 58\
-DN_Path "6,20 64 24 00 30 51,D1,1" -DN_Service 16

-Name "plutoAddData_Node26" -UnitType "plutoGateway" -DefValue "0" -OrderNr 59\
-DN_Path "6,20 64 24 00 30 52,D1,1" -DN_Service 16

-Name "plutoAddData_IO26" -UnitType "plutoGateway" -DefValue "0" -OrderNr 60\
-DN_Path "6,20 64 24 00 30 53,D1,1" -DN_Service 16

-Name "plutoAddData_Node27" -UnitType "plutoGateway" -DefValue "0" -OrderNr 61\
-DN_Path "6,20 64 24 00 30 54,D1,1" -DN_Service 16

-Name "plutoAddData_IO27" -UnitType "plutoGateway" -DefValue "0" -OrderNr 62\
-DN_Path "6,20 64 24 00 30 55,D1,1" -DN_Service 16

-Name "plutoAddData_Node28" -UnitType "plutoGateway" -DefValue "0" -OrderNr 63\
-DN_Path "6,20 64 24 00 30 56,D1,1" -DN_Service 16

-Name "plutoAddData_IO28" -UnitType "plutoGateway" -DefValue "0" -OrderNr 64\
-DN_Path "6,20 64 24 00 30 57,D1,1" -DN_Service 16

-Name "plutoAddData_Node29" -UnitType "plutoGateway" -DefValue "0" -OrderNr 65\
-DN_Path "6,20 64 24 00 30 58,D1,1" -DN_Service 16

-Name "plutoAddData_IO29" -UnitType "plutoGateway" -DefValue "0" -OrderNr 66\
-DN_Path "6,20 64 24 00 30 59,D1,1" -DN_Service 16

-Name "plutoAddData_Node30" -UnitType "plutoGateway" -DefValue "0" -OrderNr 67\
-DN_Path "6,20 64 24 00 30 5A,D1,1" -DN_Service 16

-Name "plutoAddData_IO30" -UnitType "plutoGateway" -DefValue "0" -OrderNr 68\
-DN_Path "6,20 64 24 00 30 5B,D1,1" -DN_Service 16

-Name "plutoAddData_Node31" -UnitType "plutoGateway" -DefValue "0" -OrderNr 69\
-DN_Path "6,20 64 24 00 30 5C,D1,1" -DN_Service 16

-Name "plutoAddData_IO31" -UnitType "plutoGateway" -DefValue "0" -OrderNr 70\
-DN_Path "6,20 64 24 00 30 5D,D1,1" -DN_Service 16
```

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5.3   Commissioning

During commissioning;

- At ABB robotic system start it will do a DeviceNet IO connection with the gateway and also send down the configuration data set above.

- If the MNS LED is steady green the gateway is connected and normal operation.

- If the MNS LED is flashing red then the gateway have received a new configuration from the ABB robotic system which differ from the gateway startup configuration. In this case **restart both the ABB robotic system and the gateway**.

5.4   Configuration Verification

The configuration can be verified with the "bw" command with Pluto Manager terminal program (see chapter 1.3) connected to the gateway terminal connector, see below.

```
dnet_gw> bw
----------------------------
DeviceNet bus status.
----------------------------
Node number : 3 [0x3]
Bus speed   : 250 kbits
Bus power   : VALID
Bus status  : OFFLINE
----------------------------
Current setup done by PLC system.
Input  assembly 1 = PLUTO Data Only  [102]
Output assembly 1 = To PLUTO Data    [113]
Expected PLUTO 00-15 : 00 01 02 03 -- -- -- -- -- -- -- -- -- -- -- --
Expected PLUTO 16-31 : -- -- -- -- -- -- -- -- -- -- -- -- -- -- 30 31
Enabled To PLUTO package 0-3 : 0 1 2 3 , Timeout 1000 ms .
----------------------------
dnet_gw>
```

5.4.1   Additional Data

```
dnet_gw> bw
----------------------------
DeviceNet bus status.
----------------------------
Node number : 3 [0x3]
Bus speed   : 250 kbits
Bus power   : VALID
Bus status  : OFFLINE
----------------------------
Input  assembly 1 = PLUTO Data Only [102]
 Area Pluto IO-type | Area Pluto IO-type | Area Pluto IO-type | Area Pluto IO-type
  00   *10  GLOBAL  |  01   *00  ErrCode |
Output assembly 1 = To PLUTO Data   [113]
 Enabled To PLUTO package 0-3 : 0 1 2 3, Timeout 1000 ms, Update 100 ms.
----------------------------
dnet_gw>
```

5.5 Input assembly type

The "plutoInput" command will select input data type of data from gateway to ABB robotic system.

- **Value 0 [Status Only]**, input data will only be 4 byte data as a 32 bit value indicating which Pluto are present on the Pluto network.

- **Value 1 [Data Only]**, input data will be only Pluto global data and the size is depending on the following "Expected data from PLUTO". Each expected Pluto will add 4 byte of data on the input IO data. Total size n x 4 byte, there n is the number of Pluto units.

- **Value 2 [Status/Data]**, input data will be first the status information followed by the expected Pluto data. The size will be (4 + n x 4) byte, there n is the number of Pluto units.

Name	plutoInput
Type	plutoGateway
Value	0-2
Order	1
Path	6,20 64 24 00 30 13,C6,1
Service	Set_Attribute_Single (0x10)

5.6 Output assembly type

The "plutoOutput" command will select output data type of data to gateway from ABB robotic system.

- **Value 0 [No data]**, no output data from ABB robotic system to the gateway.

- **Value 1 [To Pluto Data]**, output data to the gateway is used.

Name	plutoOutput
Type	plutoGateway
Value	0-1
Order	2
Path	6,20 64 24 00 30 14,C6,1
Service	Set_Attribute_Single (0x10)

5.7 Expected Pluto Nodes

The "plutoExpected" command will enable transfer of Pluto global data from the Pluto network to DeviceNet input data for selected Pluto's. The value number is a bit masked value there enable of Pluto 0 is done by setting bit 0 high. Bit 1 is then Pluto 1; bit 2 is Pluto 2 up to bit 31 which is Pluto 31. The Pluto data will be included into the input data in this order!

Note that for each Pluto gateway the ABB robotic system can only read data from 16 selected Pluto units. If more than 16 Pluto units must be read by the ABB robotic system there need to be two (2) gateways in the system.

Name	plutoExpected
Type	plutoGateway
Value	1 – 4294967295
Order	3
Path	6,20 64 24 00 30 0A,C8,4
Service	Set_Attribute_Single (0x10)

Bit mask table for "plutoExpected" value.

Enable Pluto	Bit	Hexadecimal value	Decimal value
0	0	0x00000001	1
1	1	0x00000002	2
2	2	0x00000004	4
3	3	0x00000008	8
4	4	0x00000010	16
5	5	0x00000020	32
6	6	0x00000040	64
7	7	0x00000080	128
8	8	0x00000100	254
9	9	0x00000200	512
10	10	0x00000400	1024
11	11	0x00000800	2048
12	12	0x00001000	4096
13	13	0x00002000	8192
14	14	0x00004000	16384
15	15	0x00008000	32768
16	16	0x00010000	65536
17	17	0x00020000	131072
18	18	0x00040000	262144
19	19	0x00080000	524288
20	20	0x00100000	1048576
21	21	0x00200000	2097152
22	22	0x00400000	4194304
23	23	0x00800000	8388608
24	24	0x01000000	16777216
25	25	0x02000000	33554432
26	26	0x04000000	67108864
27	27	0x08000000	134217728
28	28	0x10000000	268435456
29	29	0x20000000	536870912
30	30	0x40000000	1073741824
31	31	0x80000000	2147483648

Example of enable Pluto node 0, 1, 2, 3, 30 and 31:

- Hexadecimal calculation.
  Pluto 0 add 0x00000001
  Pluto 1 add 0x00000002
  Pluto 2 add 0x00000004
  Pluto 3 add 0x00000008
  Pluto 30 add 0x40000000
  Pluto 31 add 0x80000000
  Give the value 0xC000000F
  Convert this value to decimal value 3221225487 (DefValue).

- Decimal calculation (value from table above).
  Pluto 0 add 1
  Pluto 1 add 2
  Pluto 2 add 4
  Pluto 3 add 8
  Pluto 30 add 1073741824

Pluto 31 add 2147483648
Give the value of 3221225487 (DefValue).

5.8   Enable data to PLUTO

The "plutoNetEnb" command will enable the transmission of output data to the Pluto network from the gateway. Note the output data from ABB robotic system to gateway will have data for all package 0 to 3. This configuration will enable the gateway will retransmit the selected output package part received from ABB robotic system to Pluto network. The value is a bit mask there bit 0 corresponded package 0 and bit 1 to package 1.

Name	plutoNetEnb
Type	plutoGateway
Value	0 – 15
Order	4
Path	6,20 64 24 00 30 10,D1,1
Service	Set_Attribute_Single (0x10)

Bit mask table for "plutoNetEnb" value.

Enable Package	Bit	Decimal value
0	0	1
1	1	2
2	2	4
3	3	8

To enable output package 0 and 2 add the value 1 and 4 equal 5 (DefValue).

5.9   Data to PLUTO timeout

The "plutoTimeout" command will set a timeout [ms] regarding minimum update time of data from ABB robotic system to the gateway. It the gateway is not receiving new data within this timeout from the ABB robotic system the output data sent to the Pluto network will be cleared.

Name	plutoTimeout
Type	plutoGateway
Value	0 – 65535 ms
Order	5
Path	6,20 64 24 00 30 11,C7,2
Service	Set_Attribute_Single (0x10)

5.10   Data to PLUTO Cycle Time

The "plutoCycleTime" command will set a cycle time [ms] regarding how often data to Pluto is send on the Pluto bus to connected Pluto units. Default time is 100 ms and setting a lower value will increase the bus traffic on the Pluto bus.

Name	plutoCycleTime
Type	plutoGateway
Value	0 – 255 ms
Order	6
Path	6,20 64 24 00 30 12,D1,1
Service	Set_Attribute_Single (0x10)

5.11 Gateway Node Number

To use this function the gateway need software version 3.0 or higher.

The "plutoGatewayNode" command will set the gateway node number on Pluto bus. Normal this node number is read from DIP-switch in the range of 0 – 3. With this parameter it's possible to set the node number from ABB robotic system in the
range of 0 – 16.

Note that node gateway node number above 7 maybe will need update of Pluto OS.

Name	plutoGatewayNode	
Type	plutoGateway	
Value	0 – 16	
	Value	Gateway Node Number
	0	Read from DIP-switch
	1	Node Number 0
	2	Node Number 1
	3	Node Number 2
	4	Node Number 3
	5	Node Number 4
	6	Node Number 5
	7	Node Number 6
	8	Node Number 7
	9	Node Number 8
	10	Node Number 9
	11	Node Number 10
	12	Node Number 11
	13	Node Number 12
	14	Node Number 13
	15	Node Number 14
	16	Node Number 15
Order	7	
Path	6,20 64 24 00 30 13,D1,1	
Service	Set_Attribute_Single (0x10)	

5.12 Additional Data configuration

5.12.1 Additional Data

To use this function the gateway need software version 2.0 or higher.

The "plutoAddData_Nodexx" and "plutoAddData_IOxx" command will set configuration of additional data area xx there the area can be 0-31.

Note these shall be written in pair!
Note don't use "plutoExpected" when configuration of additional data!

Name	plutoAddData_Node**xx**
Type	plutoGateway
Value	0 – 31 (Pluto node)
Order	6
Path	6,20 64 24 00 30 **yy**,D1,1
Service	Set_Attribute_Single (0x10)

Name	plutoAddData_IO**xx**
Type	plutoGateway
Value	0 – 255 (111 global data)
Order	6
Path	6,20 64 24 00 30 **zz**,D1,1
Service	Set_Attribute_Single (0x10)

Value for **yy** and **zz** is given from table below depending on additional data area **xx**.

Additional Data Area **xx**	Node id (0-31) **yy**	IO-type (0-255) **zz**
00	1E	1F
01	20	21
02	22	23
03	24	25
04	26	27
05	28	29
06	2A	2B
07	2C	2D
08	2E	2F
09	30	31
10	32	33
11	34	35
12	36	37
13	38	39
14	3A	3B
15	3C	3D
16	3E	3F
17	40	41
18	42	43
19	44	45
20	46	47
21	48	49
22	4A	4B
23	4C	4D
24	4E	4F
25	50	51
26	52	53
27	54	55
28	56	57
29	58	59
30	5A	5B
31	5C	5D

5.13 Path description

This chapter only briefly will describe the cryptically path description "6,20 64 24 00 30 14,C6,1",

6,20 64 24 00 30 14	The path according to the EDS file. For more information read DeviceNet specification.
C6	The value type code. For more information read DeviceNet specification.
1	The ending value is the size of the data. Connected to the value type code in some way.

6 Gateway Terminal Configuration

The terminal configuration is a way to set and store a configuration within the gateway. **One major drawback** is that this configuration is stored locally in the gateway and when replacing the unit the new unit needs to be configured via terminal in the same way as the old.

Therefore this is way of configure the gateway is **not recommended** because there maybe problems regarding documentation of the gateway setting and the problem related to gateway replacement.

For terminal connection with the Pluto gateway see chapter 1.3.

6.1.1 Additional Data

See main manual for terminal configuration!

6.2 DIP-switch Setting

To enable terminal configuration the DIP-switch SW1 need to be set in PROG mode. This is done by switch SW1:1 and SW1:2 to ON. This will disable the reset of the SW1 function e.g. the MAC address setting. **The switch shall then not be changed**!

Both the DeviceNet MAC address and baudrate setting shall be done via the terminal setup commands, see next chapter.

6.3 View Help

After connection to the gateway and power up the unit the terminal will give something like this on the screen.

```
************************************
 DeviceNet gateway
************************************
 Name        : GATE-D2
 Vendor id   : 950
 Device type : 0
 Product code : 1000
 Serial number: 1065
************************************
 Software ver : 3.4
 Software date: 2010-11-26
************************************
dnet_gw>
```

By pressing 'h' the help command list will be printed.

```
dnet_gw> h

gw  <a>     Read gateway SysRegister value
i   <p.a>   Read Input status
q   <p.a>   Read Output status
g   <p.a>   Read Globle mem status
m   <p.a>   Read Memory bit status
sm  <p.a>   Read SysMem bit status
r   <p.a>   Read Register value
sr  <p.a>   Read SysRegister value
s   <p.a>   Read Sequence step
t   <p.a>   Read Timer value
sp  <p.a>   Read SysParameter value
to  <a.r>   Read <To PLUTO> data <area.reg>

<p.a> : [pluto[.address]]

boot   Reboot all PLUTO units
reset  Restart gateway unit
rp     Restart PLUTO bus
rw     Restart DeviceNet
bs     Bus status PLUTO bus
bw     Bus status gateway bus

gs     Gateway MACID/baudrate setup (PROG MODE)
cs     Configuration setup (PROG MODE)
fs     Filter setup (BRIDGE MODE)
def    Restore factory setting

time   Gateway run time [sec]
v      Gateway version
h      Help text
dnet_gw>
```

In the following chapter the commands gs and cs will be explained in more detailed way for a complete terminal configuration of the gateway.

6.4 Set MAC address and baudrate

With the gs command the MAC address and the baudrate is configured the gateway regarding connection to the DeviceNet network.

Note that this command is only valid in PROG mode. If the gateway gives a response as below the gateway is not in PROG mode. For details about PROG mode setting see chapter 6.2.

```
dnet_gw> gs
DIP-switch not in PROG mode!
dnet_gw>
```

Below show a configuration of baudrate to 500 kbits by selecting number 3 and MAC address setting to number 20.

```
dnet_gw> gs

Gateway interface baudrate :
 1 :   125 kbits
 2 :   250 kbits
 3 :   500 kbits
Select [2] : 3
MACID [3] : 20

dnet_gw>
```

6.5 Set Device Configuration

IO configuration will set type of data in and out of the gateway and also how much data. The IO configuration is done with the cs command. The cs command is only valid in PROG mode therefore the following text will be printed if not in PROG mode.

```
dnet_gw> cs
DIP-switch not in PROG mode!
dnet_gw>
```

Below follow a list of a complete IO configuration of the gateway.

Input assembly instance will configure the input data to the ABB robotic system from the gateway. Normal operation will probably have the "Data only" selection as set in this example.

- **Status Only**, input data will only be 4 time 8 bit data as a 32 bit value indicating which Pluto are present on the Pluto network.

- **Data Only**, input data will be only Pluto global data and the size is depending on the following "Expected data from PLUTO". Each expected Pluto will add 4 times 8 byte of data.

- **Status/Data**, input data will be first the status information followed by the expected Pluto data.

Output Assembly Instance will configure output data from the ABB robotic system to the gateway. In this example the output is set tot "To Pluto Data".

- **No data**, no output data from ABB robotic system to the gateway.

- **To Pluto Data**, output data to the gateway is used.

Expected data from PLUTO will enable transfer of Pluto global data from the Pluto network to DeviceNet input data for selected Pluto's. In the example below expected Pluto units will be the number 0, 1, 2, 3, 30 and 31. The Pluto data will be included into the input data in this order!

Enable To PLUTO package will enable the transmission of output data to the Pluto network from the gateway. Note the output data from ABB robotic system to gateway will have data for all package 0 to 3. By the "Enable To PLUTO package" the gateway will retransmit this output data from ABB robotic system to Pluto network.

To PLUTO timeout will set a timeout regarding minimum update time of data from ABB robotic system to the gateway. It the gateway is not receiving new data within this timeout from the ABB robotic system the output data sent to the Pluto network will be cleared.

Save the new configuration will save into EEPROM in answered with yes.

For more information about the configuration data see the gateway manual.

```
dnet_gw> cs

Input Assembly Instance :
0 : Status Only  [100]
1 : Data   Only  [101]
2 : Status/Data  [102]
Select [1] : 1
Output Assembly Instance :
0 : No Data       [112]
1 : To Pluto Data [113]
Select [1] : 1
Expected data from PLUTO 00  [Y] ?  YES
Expected data from PLUTO 01  [N] ?  YES
Expected data from PLUTO 02  [N] ?  YES
Expected data from PLUTO 03  [N] ?  YES
Expected data from PLUTO 04  [N] ?  NO
Expected data from PLUTO 05  [N] ?  NO
Expected data from PLUTO 06  [N] ?  NO
Expected data from PLUTO 07  [N] ?  NO
Expected data from PLUTO 08  [N] ?  NO
Expected data from PLUTO 09  [N] ?  NO
Expected data from PLUTO 10  [N] ?  NO
Expected data from PLUTO 11  [N] ?  NO
Expected data from PLUTO 12  [N] ?  NO
Expected data from PLUTO 13  [N] ?  NO
Expected data from PLUTO 14  [N] ?  NO
Expected data from PLUTO 15  [N] ?  NO
Expected data from PLUTO 16  [N] ?  NO
Expected data from PLUTO 17  [N] ?  NO
Expected data from PLUTO 18  [N] ?  NO
Expected data from PLUTO 19  [N] ?  NO
Expected data from PLUTO 20  [N] ?  NO
Expected data from PLUTO 21  [N] ?  NO
Expected data from PLUTO 22  [N] ?  NO
Expected data from PLUTO 23  [N] ?  NO
Expected data from PLUTO 24  [N] ?  NO
Expected data from PLUTO 25  [N] ?  NO
Expected data from PLUTO 26  [N] ?  NO
Expected data from PLUTO 27  [N] ?  NO
Expected data from PLUTO 28  [N] ?  NO
Expected data from PLUTO 29  [N] ?  NO
Expected data from PLUTO 30  [N] ?  YES
Expected data from PLUTO 31  [N] ?  YES
Enable To PLUTO package 0  [Y] ?  YES
Enable To PLUTO package 1  [Y] ?  YES
Enable To PLUTO package 2  [Y] ?  YES
Enable To PLUTO package 3  [Y] ?  YES
To PLUTO Timeout [256 ms] : 1000
Save the new configuration [y/n]  YES

dnet_gw>
```

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6.6 Configuration Verification

The configuration can be verified with the "bw" command, see below

```
dnet_gw> bw
----------------------------
DeviceNet bus status.
----------------------------
Node number : 3 [0x3]
Bus speed   : 250 kbits
Bus power   : VALID
Bus status  : OFFLINE
----------------------------
Current setup done by PLC system.
Input  assembly 1 = PLUTO Data Only   [102]
Output assembly 1 = To PLUTO Data     [113]
Expected PLUTO 00-15 : 00 01 02 03 -- -- -- -- -- -- -- -- -- -- -- --
Expected PLUTO 16-31 : -- -- -- -- -- -- -- -- -- -- -- -- -- -- 30 31
Enabled To PLUTO package 0-3 : 0 1 2 3 , Timeout 1000 ms .
----------------------------
dnet_gw>
```

Don't forget to document the configuration by copy/past the terminal text to a configuration document for use if new gateway needs to be configured.

7 ABB Robotic System IO Configuration

7.1 Input IO configuration

Below is template input IO configuration for the Pluto stations 0 – 15 used to read data from the Pluto system.

Data is structured in bits and grouped into registers. Each Pluto will hold registers **diPlutoX_iY** for the 16 bit input; **diPlutoX_qY** for 4 bit safety output and **diPlutoX_gmY** for 12 bits global memory data.

7.1.1 Pluto stations 0

```
#
EIO_SIGNAL:

     -Name "diPluto0_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "0"
     -Name "diPluto0_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "1"
     -Name "diPluto0_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "2"
     -Name "diPluto0_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "3"
     -Name "diPluto0_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "4"
     -Name "diPluto0_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "5"
     -Name "diPluto0_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "6"
     -Name "diPluto0_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "7"
     -Name "diPluto0_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "8"
     -Name "diPluto0_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "9"
     -Name "diPluto0_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "10"
     -Name "diPluto0_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "11"
     -Name "diPluto0_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "12"
     -Name "diPluto0_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "13"
     -Name "diPluto0_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "14"
     -Name "diPluto0_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "15"
     -Name "diPluto0_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "16"
     -Name "diPluto0_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "17"
     -Name "diPluto0_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "18"
     -Name "diPluto0_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "19"
     -Name "diPluto0_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "20"
     -Name "diPluto0_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "21"
     -Name "diPluto0_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "22"
     -Name "diPluto0_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "23"
     -Name "diPluto0_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "24"
     -Name "diPluto0_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "25"
     -Name "diPluto0_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "26"
     -Name "diPluto0_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "27"
     -Name "diPluto0_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "28"
     -Name "diPluto0_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "29"
     -Name "diPluto0_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "30"
     -Name "diPluto0_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "31"

     -Name "diPluto0_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "0-15"
     -Name "diPluto0_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "16-19"
     -Name "diPluto0_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "20-31"
```

7.1.2 Additional data area 0

Additional Data

When using additional data this example below show how additional data area 0 is mapped e.g. the same as for the old Pluto node 0 (as above). The same mapping will for all other data areas 1 – 31 e.g. see corresponding Pluto node to get correct bit mapping!

Below is used "B0b0" to say Byte 0 and Bit 0. If data is global IO from Pluto e.g. IO-type is equal 111 for the additional area then the Pluto node mapping table is correct.

```
#
EIO_SIGNAL:

      -Name "diAddData0_B0b0" -SignalType "DI" -Unit "ioPluto" -UnitMap "0"
      -Name "diAddData0_B0b1" -SignalType "DI" -Unit "ioPluto" -UnitMap "1"
      -Name "diAddData0_B0b2" -SignalType "DI" -Unit "ioPluto" -UnitMap "2"
      -Name "diAddData0_B0b3" -SignalType "DI" -Unit "ioPluto" -UnitMap "3"
      -Name "diAddData0_B0b4" -SignalType "DI" -Unit "ioPluto" -UnitMap "4"
      -Name "diAddData0_B0b5" -SignalType "DI" -Unit "ioPluto" -UnitMap "5"
      -Name "diAddData0_B0b6" -SignalType "DI" -Unit "ioPluto" -UnitMap "6"
      -Name "diAddData0_B0b7" -SignalType "DI" -Unit "ioPluto" -UnitMap "7"
      -Name "diAddData0_B1b0" -SignalType "DI" -Unit "ioPluto" -UnitMap "8"
      -Name "diAddData0_B1b1" -SignalType "DI" -Unit "ioPluto" -UnitMap "9"
      -Name "diAddData0_B1b2" -SignalType "DI" -Unit "ioPluto" -UnitMap "10"
      -Name "diAddData0_B1b3" -SignalType "DI" -Unit "ioPluto" -UnitMap "11"
      -Name "diAddData0_B1b4" -SignalType "DI" -Unit "ioPluto" -UnitMap "12"
      -Name "diAddData0_B1b5" -SignalType "DI" -Unit "ioPluto" -UnitMap "13"
      -Name "diAddData0_B1b6" -SignalType "DI" -Unit "ioPluto" -UnitMap "14"
      -Name "diAddData0_B1b7" -SignalType "DI" -Unit "ioPluto" -UnitMap "15"
      -Name "diAddData0_B2b0" -SignalType "DI" -Unit "ioPluto" -UnitMap "16"
      -Name "diAddData0_B2b1" -SignalType "DI" -Unit "ioPluto" -UnitMap "17"
      -Name "diAddData0_B2b2" -SignalType "DI" -Unit "ioPluto" -UnitMap "18"
      -Name "diAddData0_B2b3" -SignalType "DI" -Unit "ioPluto" -UnitMap "19"
      -Name "diAddData0_B2b4" -SignalType "DI" -Unit "ioPluto" -UnitMap "20"
      -Name "diAddData0_B2b5" -SignalType "DI" -Unit "ioPluto" -UnitMap "21"
      -Name "diAddData0_B2b6" -SignalType "DI" -Unit "ioPluto" -UnitMap "22"
      -Name "diAddData0_B2b7" -SignalType "DI" -Unit "ioPluto" -UnitMap "23"
      -Name "diAddData0_B3b0" -SignalType "DI" -Unit "ioPluto" -UnitMap "24"
      -Name "diAddData0_B3b1" -SignalType "DI" -Unit "ioPluto" -UnitMap "25"
      -Name "diAddData0_B3b2" -SignalType "DI" -Unit "ioPluto" -UnitMap "26"
      -Name "diAddData0_B3b3" -SignalType "DI" -Unit "ioPluto" -UnitMap "27"
      -Name "diAddData0_B3b4" -SignalType "DI" -Unit "ioPluto" -UnitMap "28"
      -Name "diAddData0_B3b5" -SignalType "DI" -Unit "ioPluto" -UnitMap "29"
      -Name "diAddData0_B3b6" -SignalType "DI" -Unit "ioPluto" -UnitMap "30"
      -Name "diAddData0_B3b7" -SignalType "DI" -Unit "ioPluto" -UnitMap "31"

Example register handling when additional data have IO-type 100

      -Name "diAddData_ErrorCode" -SignalType "GI" -Unit "ioPluto" -UnitMap "24-31"
```

7.1.3 Pluto stations 1

```
#
EIO_SIGNAL:

      -Name "diPluto1_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "32"
      -Name "diPluto1_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "33"
      -Name "diPluto1_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "34"
      -Name "diPluto1_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "35"
      -Name "diPluto1_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "36"
      -Name "diPluto1_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "37"
      -Name "diPluto1_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "38"
      -Name "diPluto1_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "39"
      -Name "diPluto1_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "40"
```

```
        -Name "diPluto1_i9"   -SignalType "DI" -Unit "ioPluto" -UnitMap "41"
        -Name "diPluto1_i10"  -SignalType "DI" -Unit "ioPluto" -UnitMap "42"
        -Name "diPluto1_i11"  -SignalType "DI" -Unit "ioPluto" -UnitMap "43"
        -Name "diPluto1_i12"  -SignalType "DI" -Unit "ioPluto" -UnitMap "44"
        -Name "diPluto1_i13"  -SignalType "DI" -Unit "ioPluto" -UnitMap "45"
        -Name "diPluto1_i14"  -SignalType "DI" -Unit "ioPluto" -UnitMap "46"
        -Name "diPluto1_i15"  -SignalType "DI" -Unit "ioPluto" -UnitMap "47"
        -Name "diPluto1_q0"   -SignalType "DI" -Unit "ioPluto" -UnitMap "48"
        -Name "diPluto1_q1"   -SignalType "DI" -Unit "ioPluto" -UnitMap "49"
        -Name "diPluto1_q2"   -SignalType "DI" -Unit "ioPluto" -UnitMap "50"
        -Name "diPluto1_q3"   -SignalType "DI" -Unit "ioPluto" -UnitMap "51"
        -Name "diPluto1_gm0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "52"
        -Name "diPluto1_gm1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "53"
        -Name "diPluto1_gm2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "54"
        -Name "diPluto1_gm3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "55"
        -Name "diPluto1_gm4"  -SignalType "DI" -Unit "ioPluto" -UnitMap "56"
        -Name "diPluto1_gm5"  -SignalType "DI" -Unit "ioPluto" -UnitMap "57"
        -Name "diPluto1_gm6"  -SignalType "DI" -Unit "ioPluto" -UnitMap "58"
        -Name "diPluto1_gm7"  -SignalType "DI" -Unit "ioPluto" -UnitMap "59"
        -Name "diPluto1_gm8"  -SignalType "DI" -Unit "ioPluto" -UnitMap "60"
        -Name "diPluto1_gm9"  -SignalType "DI" -Unit "ioPluto" -UnitMap "61"
        -Name "diPluto1_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "62"
        -Name "diPluto1_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "63"

        -Name "diPluto1_i"    -SignalType "GI" -Unit "ioPluto" -UnitMap "32-47"
        -Name "diPluto1_q"    -SignalType "GI" -Unit "ioPluto" -UnitMap "48-51"
        -Name "diPluto1_gm"   -SignalType "GI" -Unit "ioPluto" -UnitMap "52-63"
```

7.1.4   Pluto stations 2

```
#
EIO_SIGNAL:

        -Name "diPluto2_i0"   -SignalType "DI" -Unit "ioPluto" -UnitMap "64"
        -Name "diPluto2_i1"   -SignalType "DI" -Unit "ioPluto" -UnitMap "65"
        -Name "diPluto2_i2"   -SignalType "DI" -Unit "ioPluto" -UnitMap "66"
        -Name "diPluto2_i3"   -SignalType "DI" -Unit "ioPluto" -UnitMap "67"
        -Name "diPluto2_i4"   -SignalType "DI" -Unit "ioPluto" -UnitMap "68"
        -Name "diPluto2_i5"   -SignalType "DI" -Unit "ioPluto" -UnitMap "69"
        -Name "diPluto2_i6"   -SignalType "DI" -Unit "ioPluto" -UnitMap "70"
        -Name "diPluto2_i7"   -SignalType "DI" -Unit "ioPluto" -UnitMap "71"
        -Name "diPluto2_i8"   -SignalType "DI" -Unit "ioPluto" -UnitMap "72"
        -Name "diPluto2_i9"   -SignalType "DI" -Unit "ioPluto" -UnitMap "73"
        -Name "diPluto2_i10"  -SignalType "DI" -Unit "ioPluto" -UnitMap "74"
        -Name "diPluto2_i11"  -SignalType "DI" -Unit "ioPluto" -UnitMap "75"
        -Name "diPluto2_i12"  -SignalType "DI" -Unit "ioPluto" -UnitMap "76"
        -Name "diPluto2_i13"  -SignalType "DI" -Unit "ioPluto" -UnitMap "77"
        -Name "diPluto2_i14"  -SignalType "DI" -Unit "ioPluto" -UnitMap "78"
        -Name "diPluto2_i15"  -SignalType "DI" -Unit "ioPluto" -UnitMap "79"
        -Name "diPluto2_q0"   -SignalType "DI" -Unit "ioPluto" -UnitMap "80"
        -Name "diPluto2_q1"   -SignalType "DI" -Unit "ioPluto" -UnitMap "81"
        -Name "diPluto2_q2"   -SignalType "DI" -Unit "ioPluto" -UnitMap "82"
        -Name "diPluto2_q3"   -SignalType "DI" -Unit "ioPluto" -UnitMap "83"
        -Name "diPluto2_gm0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "84"
        -Name "diPluto2_gm1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "85"
        -Name "diPluto2_gm2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "86"
        -Name "diPluto2_gm3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "87"
        -Name "diPluto2_gm4"  -SignalType "DI" -Unit "ioPluto" -UnitMap "88"
        -Name "diPluto2_gm5"  -SignalType "DI" -Unit "ioPluto" -UnitMap "89"
        -Name "diPluto2_gm6"  -SignalType "DI" -Unit "ioPluto" -UnitMap "90"
        -Name "diPluto2_gm7"  -SignalType "DI" -Unit "ioPluto" -UnitMap "91"
        -Name "diPluto2_gm8"  -SignalType "DI" -Unit "ioPluto" -UnitMap "92"
```

```
      -Name "diPluto2_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "93"
      -Name "diPluto2_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "94"
      -Name "diPluto2_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "95"

      -Name "diPluto2_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "64-79"
      -Name "diPluto2_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "80-83"
      -Name "diPluto2_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "84-95"
```

7.1.5   Pluto stations 3

```
#
EIO_SIGNAL:

      -Name "diPluto3_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "96"
      -Name "diPluto3_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "97"
      -Name "diPluto3_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "98"
      -Name "diPluto3_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "99"
      -Name "diPluto3_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "100"
      -Name "diPluto3_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "101"
      -Name "diPluto3_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "102"
      -Name "diPluto3_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "103"
      -Name "diPluto3_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "104"
      -Name "diPluto3_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "105"
      -Name "diPluto3_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "106"
      -Name "diPluto3_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "107"
      -Name "diPluto3_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "108"
      -Name "diPluto3_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "109"
      -Name "diPluto3_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "110"
      -Name "diPluto3_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "111"
      -Name "diPluto3_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "112"
      -Name "diPluto3_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "113"
      -Name "diPluto3_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "114"
      -Name "diPluto3_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "115"
      -Name "diPluto3_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "116"
      -Name "diPluto3_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "117"
      -Name "diPluto3_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "118"
      -Name "diPluto3_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "119"
      -Name "diPluto3_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "120"
      -Name "diPluto3_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "121"
      -Name "diPluto3_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "122"
      -Name "diPluto3_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "123"
      -Name "diPluto3_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "124"
      -Name "diPluto3_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "125"
      -Name "diPluto3_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "126"
      -Name "diPluto3_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "127"

      -Name "diPluto3_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "96-111"
      -Name "diPluto3_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "112-115"
      -Name "diPluto3_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "116-125"
```

7.1.6   Pluto stations 4

```
#
EIO_SIGNAL:

      -Name "diPluto4_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "128"
      -Name "diPluto4_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "129"
      -Name "diPluto4_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "130"
      -Name "diPluto4_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "131"
      -Name "diPluto4_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "132"
      -Name "diPluto4_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "133"
```

```
     -Name "diPluto4_i6"  -SignalType "DI" -Unit "ioPluto" -UnitMap "134"
     -Name "diPluto4_i7"  -SignalType "DI" -Unit "ioPluto" -UnitMap "135"
     -Name "diPluto4_i8"  -SignalType "DI" -Unit "ioPluto" -UnitMap "136"
     -Name "diPluto4_i9"  -SignalType "DI" -Unit "ioPluto" -UnitMap "137"
     -Name "diPluto4_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "138"
     -Name "diPluto4_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "139"
     -Name "diPluto4_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "140"
     -Name "diPluto4_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "141"
     -Name "diPluto4_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "142"
     -Name "diPluto4_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "143"
     -Name "diPluto4_q0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "144"
     -Name "diPluto4_q1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "145"
     -Name "diPluto4_q2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "146"
     -Name "diPluto4_q3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "147"
     -Name "diPluto4_gm0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "148"
     -Name "diPluto4_gm1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "149"
     -Name "diPluto4_gm2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "150"
     -Name "diPluto4_gm3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "151"
     -Name "diPluto4_gm4"  -SignalType "DI" -Unit "ioPluto" -UnitMap "152"
     -Name "diPluto4_gm5"  -SignalType "DI" -Unit "ioPluto" -UnitMap "153"
     -Name "diPluto4_gm6"  -SignalType "DI" -Unit "ioPluto" -UnitMap "154"
     -Name "diPluto4_gm7"  -SignalType "DI" -Unit "ioPluto" -UnitMap "155"
     -Name "diPluto4_gm8"  -SignalType "DI" -Unit "ioPluto" -UnitMap "156"
     -Name "diPluto4_gm9"  -SignalType "DI" -Unit "ioPluto" -UnitMap "157"
     -Name "diPluto4_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "158"
     -Name "diPluto4_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "159"

     -Name "diPluto4_i"   -SignalType "GI" -Unit "ioPluto" -UnitMap "128-143"
     -Name "diPluto4_q"   -SignalType "GI" -Unit "ioPluto" -UnitMap "144-147"
     -Name "diPluto4_gm"  -SignalType "GI" -Unit "ioPluto" -UnitMap "147-159"
```

7.1.7   Pluto stations 5

```
#
EIO_SIGNAL:

     -Name "diPluto5_i0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "160"
     -Name "diPluto5_i1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "161"
     -Name "diPluto5_i2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "162"
     -Name "diPluto5_i3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "163"
     -Name "diPluto5_i4"  -SignalType "DI" -Unit "ioPluto" -UnitMap "164"
     -Name "diPluto5_i5"  -SignalType "DI" -Unit "ioPluto" -UnitMap "165"
     -Name "diPluto5_i6"  -SignalType "DI" -Unit "ioPluto" -UnitMap "166"
     -Name "diPluto5_i7"  -SignalType "DI" -Unit "ioPluto" -UnitMap "167"
     -Name "diPluto5_i8"  -SignalType "DI" -Unit "ioPluto" -UnitMap "168"
     -Name "diPluto5_i9"  -SignalType "DI" -Unit "ioPluto" -UnitMap "169"
     -Name "diPluto5_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "170"
     -Name "diPluto5_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "171"
     -Name "diPluto5_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "172"
     -Name "diPluto5_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "173"
     -Name "diPluto5_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "174"
     -Name "diPluto5_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "175"
     -Name "diPluto5_q0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "176"
     -Name "diPluto5_q1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "177"
     -Name "diPluto5_q2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "178"
     -Name "diPluto5_q3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "179"
     -Name "diPluto5_gm0"  -SignalType "DI" -Unit "ioPluto" -UnitMap "180"
     -Name "diPluto5_gm1"  -SignalType "DI" -Unit "ioPluto" -UnitMap "181"
     -Name "diPluto5_gm2"  -SignalType "DI" -Unit "ioPluto" -UnitMap "182"
     -Name "diPluto5_gm3"  -SignalType "DI" -Unit "ioPluto" -UnitMap "183"
     -Name "diPluto5_gm4"  -SignalType "DI" -Unit "ioPluto" -UnitMap "184"
     -Name "diPluto5_gm5"  -SignalType "DI" -Unit "ioPluto" -UnitMap "185"
```

```
      -Name "diPluto5_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "186"
      -Name "diPluto5_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "187"
      -Name "diPluto5_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "188"
      -Name "diPluto5_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "189"
      -Name "diPluto5_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "190"
      -Name "diPluto5_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "191"

      -Name "diPluto5_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "160-175"
      -Name "diPluto5_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "176-179"
      -Name "diPluto5_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "180-191"
```

7.1.8   Pluto stations 6

```
#
EIO_SIGNAL:

      -Name "diPluto6_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "192"
      -Name "diPluto6_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "193"
      -Name "diPluto6_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "194"
      -Name "diPluto6_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "195"
      -Name "diPluto6_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "196"
      -Name "diPluto6_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "197"
      -Name "diPluto6_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "198"
      -Name "diPluto6_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "199"
      -Name "diPluto6_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "200"
      -Name "diPluto6_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "201"
      -Name "diPluto6_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "202"
      -Name "diPluto6_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "203"
      -Name "diPluto6_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "204"
      -Name "diPluto6_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "205"
      -Name "diPluto6_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "206"
      -Name "diPluto6_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "207"
      -Name "diPluto6_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "208"
      -Name "diPluto6_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "209"
      -Name "diPluto6_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "210"
      -Name "diPluto6_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "211"
      -Name "diPluto6_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "212"
      -Name "diPluto6_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "213"
      -Name "diPluto6_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "214"
      -Name "diPluto6_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "215"
      -Name "diPluto6_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "216"
      -Name "diPluto6_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "217"
      -Name "diPluto6_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "218"
      -Name "diPluto6_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "219"
      -Name "diPluto6_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "220"
      -Name "diPluto6_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "221"
      -Name "diPluto6_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "222"
      -Name "diPluto6_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "223"

      -Name "diPluto6_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "192-207"
      -Name "diPluto6_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "208-211"
      -Name "diPluto6_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "212-223"
```

7.1.9   Pluto stations 7

```
#
EIO_SIGNAL:

      -Name "diPluto7_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "224"
      -Name "diPluto7_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "225"
      -Name "diPluto7_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "226"
```

```
      -Name "diPluto7_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "227"
      -Name "diPluto7_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "228"
      -Name "diPluto7_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "229"
      -Name "diPluto7_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "230"
      -Name "diPluto7_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "231"
      -Name "diPluto7_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "232"
      -Name "diPluto7_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "233"
      -Name "diPluto7_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "234"
      -Name "diPluto7_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "235"
      -Name "diPluto7_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "236"
      -Name "diPluto7_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "237"
      -Name "diPluto7_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "238"
      -Name "diPluto7_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "239"
      -Name "diPluto7_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "240"
      -Name "diPluto7_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "241"
      -Name "diPluto7_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "242"
      -Name "diPluto7_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "243"
      -Name "diPluto7_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "244"
      -Name "diPluto7_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "245"
      -Name "diPluto7_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "246"
      -Name "diPluto7_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "247"
      -Name "diPluto7_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "248"
      -Name "diPluto7_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "249"
      -Name "diPluto7_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "250"
      -Name "diPluto7_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "251"
      -Name "diPluto7_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "252"
      -Name "diPluto7_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "253"
      -Name "diPluto7_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "254"
      -Name "diPluto7_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "255"

      -Name "diPluto7_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "224-239"
      -Name "diPluto7_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "240-243"
      -Name "diPluto7_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "244-255"
```

7.1.10 Pluto stations 8

```
#
EIO_SIGNAL:

      -Name "diPluto8_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "256"
      -Name "diPluto8_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "257"
      -Name "diPluto8_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "258"
      -Name "diPluto8_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "259"
      -Name "diPluto8_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "260"
      -Name "diPluto8_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "261"
      -Name "diPluto8_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "262"
      -Name "diPluto8_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "263"
      -Name "diPluto8_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "264"
      -Name "diPluto8_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "265"
      -Name "diPluto8_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "266"
      -Name "diPluto8_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "267"
      -Name "diPluto8_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "268"
      -Name "diPluto8_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "269"
      -Name "diPluto8_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "270"
      -Name "diPluto8_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "271"
      -Name "diPluto8_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "272"
      -Name "diPluto8_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "273"
      -Name "diPluto8_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "274"
      -Name "diPluto8_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "275"
      -Name "diPluto8_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "276"
      -Name "diPluto8_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "277"
      -Name "diPluto8_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "278"
```

```
     -Name "diPluto8_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "279"
     -Name "diPluto8_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "280"
     -Name "diPluto8_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "281"
     -Name "diPluto8_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "282"
     -Name "diPluto8_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "283"
     -Name "diPluto8_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "284"
     -Name "diPluto8_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "285"
     -Name "diPluto8_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "286"
     -Name "diPluto8_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "287"

     -Name "diPluto8_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "256-271"
     -Name "diPluto8_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "272-275"
     -Name "diPluto8_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "276-287"
```

7.1.11 Pluto stations 9

```
#
EIO_SIGNAL:

     -Name "diPluto9_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "288"
     -Name "diPluto9_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "289"
     -Name "diPluto9_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "290"
     -Name "diPluto9_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "291"
     -Name "diPluto9_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "292"
     -Name "diPluto9_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "293"
     -Name "diPluto9_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "294"
     -Name "diPluto9_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "295"
     -Name "diPluto9_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "296"
     -Name "diPluto9_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "297"
     -Name "diPluto9_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "298"
     -Name "diPluto9_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "299"
     -Name "diPluto9_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "300"
     -Name "diPluto9_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "301"
     -Name "diPluto9_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "302"
     -Name "diPluto9_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "303"
     -Name "diPluto9_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "304"
     -Name "diPluto9_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "305"
     -Name "diPluto9_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "306"
     -Name "diPluto9_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "307"
     -Name "diPluto9_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "308"
     -Name "diPluto9_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "309"
     -Name "diPluto9_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "310"
     -Name "diPluto9_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "311"
     -Name "diPluto9_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "312"
     -Name "diPluto9_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "313"
     -Name "diPluto9_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "314"
     -Name "diPluto9_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "315"
     -Name "diPluto9_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "316"
     -Name "diPluto9_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "317"
     -Name "diPluto9_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "318"
     -Name "diPluto9_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "319"

     -Name "diPluto9_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "288-303"
     -Name "diPluto9_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "304-307"
     -Name "diPluto9_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "308-319"
```

7.1.12 Pluto stations 10

```
#
EIO_SIGNAL:

        -Name "diPluto10_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "320"
        -Name "diPluto10_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "321"
        -Name "diPluto10_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "322"
        -Name "diPluto10_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "323"
        -Name "diPluto10_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "324"
        -Name "diPluto10_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "325"
        -Name "diPluto10_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "326"
        -Name "diPluto10_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "327"
        -Name "diPluto10_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "328"
        -Name "diPluto10_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "329"
        -Name "diPluto10_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "330"
        -Name "diPluto10_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "331"
        -Name "diPluto10_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "332"
        -Name "diPluto10_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "333"
        -Name "diPluto10_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "334"
        -Name "diPluto10_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "335"
        -Name "diPluto10_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "336"
        -Name "diPluto10_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "337"
        -Name "diPluto10_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "338"
        -Name "diPluto10_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "339"
        -Name "diPluto10_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "340"
        -Name "diPluto10_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "341"
        -Name "diPluto10_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "342"
        -Name "diPluto10_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "343"
        -Name "diPluto10_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "344"
        -Name "diPluto10_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "345"
        -Name "diPluto10_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "346"
        -Name "diPluto10_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "347"
        -Name "diPluto10_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "348"
        -Name "diPluto10_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "349"
        -Name "diPluto10_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "350"
        -Name "diPluto10_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "351"

        -Name "diPluto10_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "320-335"
        -Name "diPluto10_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "336-339"
        -Name "diPluto10_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "340-351"
```

7.1.13 Pluto stations 11

```
#
EIO_SIGNAL:

        -Name "diPluto11_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "352"
        -Name "diPluto11_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "353"
        -Name "diPluto11_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "354"
        -Name "diPluto11_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "355"
        -Name "diPluto11_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "356"
        -Name "diPluto11_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "357"
        -Name "diPluto11_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "358"
        -Name "diPluto11_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "359"
        -Name "diPluto11_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "360"
        -Name "diPluto11_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "361"
        -Name "diPluto11_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "362"
        -Name "diPluto11_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "363"
        -Name "diPluto11_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "364"
        -Name "diPluto11_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "365"
        -Name "diPluto11_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "366"
```

```
        -Name "diPluto11_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "367"
        -Name "diPluto11_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "368"
        -Name "diPluto11_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "369"
        -Name "diPluto11_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "370"
        -Name "diPluto11_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "371"
        -Name "diPluto11_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "372"
        -Name "diPluto11_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "373"
        -Name "diPluto11_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "374"
        -Name "diPluto11_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "375"
        -Name "diPluto11_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "376"
        -Name "diPluto11_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "377"
        -Name "diPluto11_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "378"
        -Name "diPluto11_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "379"
        -Name "diPluto11_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "380"
        -Name "diPluto11_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "381"
        -Name "diPluto11_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "382"
        -Name "diPluto11_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "383"

        -Name "diPluto11_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "352-367"
        -Name "diPluto11_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "368-371"
        -Name "diPluto11_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "372-383"
```

7.1.14 Pluto stations 12

```
#
EIO_SIGNAL:

        -Name "diPluto12_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "384"
        -Name "diPluto12_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "385"
        -Name "diPluto12_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "386"
        -Name "diPluto12_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "387"
        -Name "diPluto12_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "388"
        -Name "diPluto12_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "389"
        -Name "diPluto12_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "390"
        -Name "diPluto12_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "391"
        -Name "diPluto12_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "392"
        -Name "diPluto12_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "393"
        -Name "diPluto12_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "394"
        -Name "diPluto12_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "395"
        -Name "diPluto12_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "396"
        -Name "diPluto12_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "397"
        -Name "diPluto12_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "398"
        -Name "diPluto12_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "399"
        -Name "diPluto12_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "400"
        -Name "diPluto12_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "401"
        -Name "diPluto12_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "402"
        -Name "diPluto12_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "403"
        -Name "diPluto12_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "404"
        -Name "diPluto12_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "405"
        -Name "diPluto12_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "406"
        -Name "diPluto12_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "407"
        -Name "diPluto12_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "408"
        -Name "diPluto12_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "409"
        -Name "diPluto12_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "410"
        -Name "diPluto12_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "411"
        -Name "diPluto12_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "412"
        -Name "diPluto12_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "413"
        -Name "diPluto12_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "414"
        -Name "diPluto12_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "415"

        -Name "diPluto12_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "384-399"
        -Name "diPluto12_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "400-403"
        -Name "diPluto12_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "404-415"
```

7.1.15 Pluto stations 13

```
#
EIO_SIGNAL:

      -Name "diPluto13_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "416"
      -Name "diPluto13_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "417"
      -Name "diPluto13_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "418"
      -Name "diPluto13_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "419"
      -Name "diPluto13_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "420"
      -Name "diPluto13_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "421"
      -Name "diPluto13_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "422"
      -Name "diPluto13_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "423"
      -Name "diPluto13_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "424"
      -Name "diPluto13_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "425"
      -Name "diPluto13_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "426"
      -Name "diPluto13_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "427"
      -Name "diPluto13_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "428"
      -Name "diPluto13_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "429"
      -Name "diPluto13_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "430"
      -Name "diPluto13_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "431"
      -Name "diPluto13_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "432"
      -Name "diPluto13_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "433"
      -Name "diPluto13_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "434"
      -Name "diPluto13_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "435"
      -Name "diPluto13_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "436"
      -Name "diPluto13_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "437"
      -Name "diPluto13_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "438"
      -Name "diPluto13_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "439"
      -Name "diPluto13_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "440"
      -Name "diPluto13_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "441"
      -Name "diPluto13_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "442"
      -Name "diPluto13_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "443"
      -Name "diPluto13_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "444"
      -Name "diPluto13_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "445"
      -Name "diPluto13_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "446"
      -Name "diPluto13_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "447"

      -Name "diPluto13_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "416-431"
      -Name "diPluto13_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "432-435"
      -Name "diPluto13_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "436-447"
```

7.1.16 Pluto stations 14

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#
EIO_SIGNAL:

      -Name "diPluto14_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "448"
      -Name "diPluto14_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "449"
      -Name "diPluto14_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "450"
      -Name "diPluto14_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "451"
      -Name "diPluto14_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "452"
      -Name "diPluto14_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "453"
      -Name "diPluto14_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "454"
      -Name "diPluto14_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "455"
      -Name "diPluto14_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "456"
      -Name "diPluto14_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "457"
      -Name "diPluto14_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "458"
      -Name "diPluto14_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "459"
      -Name "diPluto14_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "460"
      -Name "diPluto14_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "461"
      -Name "diPluto14_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "462"
```

```
        -Name "diPluto14_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "463"
        -Name "diPluto14_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "464"
        -Name "diPluto14_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "465"
        -Name "diPluto14_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "466"
        -Name "diPluto14_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "467"
        -Name "diPluto14_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "468"
        -Name "diPluto14_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "469"
        -Name "diPluto14_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "470"
        -Name "diPluto14_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "471"
        -Name "diPluto14_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "472"
        -Name "diPluto14_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "473"
        -Name "diPluto14_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "474"
        -Name "diPluto14_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "475"
        -Name "diPluto14_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "476"
        -Name "diPluto14_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "477"
        -Name "diPluto14_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "478"
        -Name "diPluto14_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "479"

        -Name "diPluto14_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "448-463"
        -Name "diPluto14_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "464-467"
        -Name "diPluto14_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "468-479"
```

7.1.17 Pluto stations 15

```
#
EIO_SIGNAL:

        -Name "diPluto15_i0" -SignalType "DI" -Unit "ioPluto" -UnitMap "480"
        -Name "diPluto15_i1" -SignalType "DI" -Unit "ioPluto" -UnitMap "481"
        -Name "diPluto15_i2" -SignalType "DI" -Unit "ioPluto" -UnitMap "482"
        -Name "diPluto15_i3" -SignalType "DI" -Unit "ioPluto" -UnitMap "483"
        -Name "diPluto15_i4" -SignalType "DI" -Unit "ioPluto" -UnitMap "484"
        -Name "diPluto15_i5" -SignalType "DI" -Unit "ioPluto" -UnitMap "485"
        -Name "diPluto15_i6" -SignalType "DI" -Unit "ioPluto" -UnitMap "486"
        -Name "diPluto15_i7" -SignalType "DI" -Unit "ioPluto" -UnitMap "487"
        -Name "diPluto15_i8" -SignalType "DI" -Unit "ioPluto" -UnitMap "488"
        -Name "diPluto15_i9" -SignalType "DI" -Unit "ioPluto" -UnitMap "489"
        -Name "diPluto15_i10" -SignalType "DI" -Unit "ioPluto" -UnitMap "490"
        -Name "diPluto15_i11" -SignalType "DI" -Unit "ioPluto" -UnitMap "491"
        -Name "diPluto15_i12" -SignalType "DI" -Unit "ioPluto" -UnitMap "492"
        -Name "diPluto15_i13" -SignalType "DI" -Unit "ioPluto" -UnitMap "493"
        -Name "diPluto15_i14" -SignalType "DI" -Unit "ioPluto" -UnitMap "494"
        -Name "diPluto15_i15" -SignalType "DI" -Unit "ioPluto" -UnitMap "495"
        -Name "diPluto15_q0" -SignalType "DI" -Unit "ioPluto" -UnitMap "496"
        -Name "diPluto15_q1" -SignalType "DI" -Unit "ioPluto" -UnitMap "497"
        -Name "diPluto15_q2" -SignalType "DI" -Unit "ioPluto" -UnitMap "498"
        -Name "diPluto15_q3" -SignalType "DI" -Unit "ioPluto" -UnitMap "499"
        -Name "diPluto15_gm0" -SignalType "DI" -Unit "ioPluto" -UnitMap "500"
        -Name "diPluto15_gm1" -SignalType "DI" -Unit "ioPluto" -UnitMap "501"
        -Name "diPluto15_gm2" -SignalType "DI" -Unit "ioPluto" -UnitMap "502"
        -Name "diPluto15_gm3" -SignalType "DI" -Unit "ioPluto" -UnitMap "503"
        -Name "diPluto15_gm4" -SignalType "DI" -Unit "ioPluto" -UnitMap "504"
        -Name "diPluto15_gm5" -SignalType "DI" -Unit "ioPluto" -UnitMap "505"
        -Name "diPluto15_gm6" -SignalType "DI" -Unit "ioPluto" -UnitMap "506"
        -Name "diPluto15_gm7" -SignalType "DI" -Unit "ioPluto" -UnitMap "507"
        -Name "diPluto15_gm8" -SignalType "DI" -Unit "ioPluto" -UnitMap "508"
        -Name "diPluto15_gm9" -SignalType "DI" -Unit "ioPluto" -UnitMap "509"
        -Name "diPluto15_gm10" -SignalType "DI" -Unit "ioPluto" -UnitMap "510"
        -Name "diPluto15_gm11" -SignalType "DI" -Unit "ioPluto" -UnitMap "511"

        -Name "diPluto15_i" -SignalType "GI" -Unit "ioPluto" -UnitMap "480-495"
        -Name "diPluto15_q" -SignalType "GI" -Unit "ioPluto" -UnitMap "496-499"
        -Name "diPluto15_gm" -SignalType "GI" -Unit "ioPluto" -UnitMap "500-511"
```

7.2 Output IO configuration

Below is template output IO configuration for the package area 0 – 3 used to send data to the Pluto system.

Data is structured in bits and grouped into registers. Each package will hold registers **doPackageX_bit** for the 16 bit information; **doPackageX_reg0** and **doPackageX_reg1** for 16 bits register value.

7.2.1 Package area 0

```
#
EIO_SIGNAL:

    -Name "doPackage0_0" -SignalType "DO" -Unit "ioPluto" -UnitMap "0"
    -Name "doPackage0_1" -SignalType "DO" -Unit "ioPluto" -UnitMap "1"
    -Name "doPackage0_2" -SignalType "DO" -Unit "ioPluto" -UnitMap "2"
    -Name "doPackage0_3" -SignalType "DO" -Unit "ioPluto" -UnitMap "3"
    -Name "doPackage0_4" -SignalType "DO" -Unit "ioPluto" -UnitMap "4"
    -Name "doPackage0_5" -SignalType "DO" -Unit "ioPluto" -UnitMap "5"
    -Name "doPackage0_6" -SignalType "DO" -Unit "ioPluto" -UnitMap "6"
    -Name "doPackage0_7" -SignalType "DO" -Unit "ioPluto" -UnitMap "7"
    -Name "doPackage0_8" -SignalType "DO" -Unit "ioPluto" -UnitMap "8"
    -Name "doPackage0_9" -SignalType "DO" -Unit "ioPluto" -UnitMap "9"
    -Name "doPackage0_10" -SignalType "DO" -Unit "ioPluto" -UnitMap "10"
    -Name "doPackage0_11" -SignalType "DO" -Unit "ioPluto" -UnitMap "11"
    -Name "doPackage0_12" -SignalType "DO" -Unit "ioPluto" -UnitMap "12"
    -Name "doPackage0_13" -SignalType "DO" -Unit "ioPluto" -UnitMap "13"
    -Name "doPackage0_14" -SignalType "DO" -Unit "ioPluto" -UnitMap "14"
    -Name "doPackage0_15" -SignalType "DO" -Unit "ioPluto" -UnitMap "15"


    -Name "doPackage0_16" -SignalType "DO" -Unit "ioPluto" -UnitMap "16"
    -Name "doPackage0_17" -SignalType "DO" -Unit "ioPluto" -UnitMap "17"
    -Name "doPackage0_18" -SignalType "DO" -Unit "ioPluto" -UnitMap "18"
    -Name "doPackage0_19" -SignalType "DO" -Unit "ioPluto" -UnitMap "19"
    -Name "doPackage0_20" -SignalType "DO" -Unit "ioPluto" -UnitMap "20"
    -Name "doPackage0_21" -SignalType "DO" -Unit "ioPluto" -UnitMap "21"
    -Name "doPackage0_22" -SignalType "DO" -Unit "ioPluto" -UnitMap "22"
    -Name "doPackage0_23" -SignalType "DO" -Unit "ioPluto" -UnitMap "23"
    -Name "doPackage0_24" -SignalType "DO" -Unit "ioPluto" -UnitMap "24"
    -Name "doPackage0_25" -SignalType "DO" -Unit "ioPluto" -UnitMap "25"
    -Name "doPackage0_26" -SignalType "DO" -Unit "ioPluto" -UnitMap "26"
    -Name "doPackage0_27" -SignalType "DO" -Unit "ioPluto" -UnitMap "27"
    -Name "doPackage0_28" -SignalType "DO" -Unit "ioPluto" -UnitMap "28"
    -Name "doPackage0_29" -SignalType "DO" -Unit "ioPluto" -UnitMap "29"
    -Name "doPackage0_30" -SignalType "DO" -Unit "ioPluto" -UnitMap "30"
    -Name "doPackage0_31" -SignalType "DO" -Unit "ioPluto" -UnitMap "31"


    -Name "doPackage0_32" -SignalType "DO" -Unit "ioPluto" -UnitMap "32"
    -Name "doPackage0_33" -SignalType "DO" -Unit "ioPluto" -UnitMap "33"
    -Name "doPackage0_34" -SignalType "DO" -Unit "ioPluto" -UnitMap "34"
    -Name "doPackage0_35" -SignalType "DO" -Unit "ioPluto" -UnitMap "35"
    -Name "doPackage0_36" -SignalType "DO" -Unit "ioPluto" -UnitMap "36"
    -Name "doPackage0_37" -SignalType "DO" -Unit "ioPluto" -UnitMap "37"
    -Name "doPackage0_38" -SignalType "DO" -Unit "ioPluto" -UnitMap "38"
    -Name "doPackage0_39" -SignalType "DO" -Unit "ioPluto" -UnitMap "39"
    -Name "doPackage0_40" -SignalType "DO" -Unit "ioPluto" -UnitMap "40"
    -Name "doPackage0_41" -SignalType "DO" -Unit "ioPluto" -UnitMap "41"
    -Name "doPackage0_42" -SignalType "DO" -Unit "ioPluto" -UnitMap "42"
    -Name "doPackage0_43" -SignalType "DO" -Unit "ioPluto" -UnitMap "43"
    -Name "doPackage0_44" -SignalType "DO" -Unit "ioPluto" -UnitMap "44"
    -Name "doPackage0_45" -SignalType "DO" -Unit "ioPluto" -UnitMap "45"
    -Name "doPackage0_46" -SignalType "DO" -Unit "ioPluto" -UnitMap "46"
```

```
    -Name "doPackage0_47" -SignalType "DO" -Unit "ioPluto" -UnitMap "47"

    -Name "doPackage0_bit" -SignalType "GO" -Unit "ioPluto" -UnitMap "0-15"
    -Name "doPackage0_reg0" -SignalType "GO" -Unit "ioPluto" -UnitMap "16-31"
    -Name "doPackage0_reg1" -SignalType "GO" -Unit "ioPluto" -UnitMap "32-47"
```

7.2.2 Package area 1

```
#
EIO_SIGNAL:

    -Name "doPackage1_0" -SignalType "DO" -Unit "ioPluto" -UnitMap "48"
    -Name "doPackage1_1" -SignalType "DO" -Unit "ioPluto" -UnitMap "49"
    -Name "doPackage1_2" -SignalType "DO" -Unit "ioPluto" -UnitMap "50"
    -Name "doPackage1_3" -SignalType "DO" -Unit "ioPluto" -UnitMap "51"
    -Name "doPackage1_4" -SignalType "DO" -Unit "ioPluto" -UnitMap "52"
    -Name "doPackage1_5" -SignalType "DO" -Unit "ioPluto" -UnitMap "53"
    -Name "doPackage1_6" -SignalType "DO" -Unit "ioPluto" -UnitMap "54"
    -Name "doPackage1_7" -SignalType "DO" -Unit "ioPluto" -UnitMap "55"
    -Name "doPackage1_8" -SignalType "DO" -Unit "ioPluto" -UnitMap "56"
    -Name "doPackage1_9" -SignalType "DO" -Unit "ioPluto" -UnitMap "57"
    -Name "doPackage1_10" -SignalType "DO" -Unit "ioPluto" -UnitMap "58"
    -Name "doPackage1_11" -SignalType "DO" -Unit "ioPluto" -UnitMap "59"
    -Name "doPackage1_12" -SignalType "DO" -Unit "ioPluto" -UnitMap "60"
    -Name "doPackage1_13" -SignalType "DO" -Unit "ioPluto" -UnitMap "61"
    -Name "doPackage1_14" -SignalType "DO" -Unit "ioPluto" -UnitMap "62"
    -Name "doPackage1_15" -SignalType "DO" -Unit "ioPluto" -UnitMap "63"

    -Name "doPackage1_16" -SignalType "DO" -Unit "ioPluto" -UnitMap "64"
    -Name "doPackage1_17" -SignalType "DO" -Unit "ioPluto" -UnitMap "65"
    -Name "doPackage1_18" -SignalType "DO" -Unit "ioPluto" -UnitMap "66"
    -Name "doPackage1_19" -SignalType "DO" -Unit "ioPluto" -UnitMap "67"
    -Name "doPackage1_20" -SignalType "DO" -Unit "ioPluto" -UnitMap "68"
    -Name "doPackage1_21" -SignalType "DO" -Unit "ioPluto" -UnitMap "69"
    -Name "doPackage1_22" -SignalType "DO" -Unit "ioPluto" -UnitMap "70"
    -Name "doPackage1_23" -SignalType "DO" -Unit "ioPluto" -UnitMap "71"
    -Name "doPackage1_24" -SignalType "DO" -Unit "ioPluto" -UnitMap "72"
    -Name "doPackage1_25" -SignalType "DO" -Unit "ioPluto" -UnitMap "73"
    -Name "doPackage1_26" -SignalType "DO" -Unit "ioPluto" -UnitMap "74"
    -Name "doPackage1_27" -SignalType "DO" -Unit "ioPluto" -UnitMap "75"
    -Name "doPackage1_28" -SignalType "DO" -Unit "ioPluto" -UnitMap "76"
    -Name "doPackage1_29" -SignalType "DO" -Unit "ioPluto" -UnitMap "77"
    -Name "doPackage1_30" -SignalType "DO" -Unit "ioPluto" -UnitMap "78"
    -Name "doPackage1_31" -SignalType "DO" -Unit "ioPluto" -UnitMap "79"

    -Name "doPackage1_32" -SignalType "DO" -Unit "ioPluto" -UnitMap "80"
    -Name "doPackage1_33" -SignalType "DO" -Unit "ioPluto" -UnitMap "81"
    -Name "doPackage1_34" -SignalType "DO" -Unit "ioPluto" -UnitMap "82"
    -Name "doPackage1_35" -SignalType "DO" -Unit "ioPluto" -UnitMap "83"
    -Name "doPackage1_36" -SignalType "DO" -Unit "ioPluto" -UnitMap "84"
    -Name "doPackage1_37" -SignalType "DO" -Unit "ioPluto" -UnitMap "85"
    -Name "doPackage1_38" -SignalType "DO" -Unit "ioPluto" -UnitMap "86"
    -Name "doPackage1_39" -SignalType "DO" -Unit "ioPluto" -UnitMap "87"
    -Name "doPackage1_40" -SignalType "DO" -Unit "ioPluto" -UnitMap "88"
    -Name "doPackage1_41" -SignalType "DO" -Unit "ioPluto" -UnitMap "89"
    -Name "doPackage1_42" -SignalType "DO" -Unit "ioPluto" -UnitMap "90"
    -Name "doPackage1_43" -SignalType "DO" -Unit "ioPluto" -UnitMap "91"
    -Name "doPackage1_44" -SignalType "DO" -Unit "ioPluto" -UnitMap "92"
    -Name "doPackage1_45" -SignalType "DO" -Unit "ioPluto" -UnitMap "93"
    -Name "doPackage1_46" -SignalType "DO" -Unit "ioPluto" -UnitMap "94"
    -Name "doPackage1_47" -SignalType "DO" -Unit "ioPluto" -UnitMap "95"
```

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```
    -Name "doPackage1_bit" -SignalType "GO" -Unit "ioPluto" -UnitMap "48-63"
    -Name "doPackage1_reg0" -SignalType "GO" -Unit "ioPluto" -UnitMap "64-79"
    -Name "doPackage1_reg1" -SignalType "GO" -Unit "ioPluto" -UnitMap "80-95"
```

7.2.3 Package area 2

```
#
EIO_SIGNAL:

    -Name "doPackage2_0" -SignalType "DO" -Unit "ioPluto" -UnitMap "96"
    -Name "doPackage2_1" -SignalType "DO" -Unit "ioPluto" -UnitMap "97"
    -Name "doPackage2_2" -SignalType "DO" -Unit "ioPluto" -UnitMap "98"
    -Name "doPackage2_3" -SignalType "DO" -Unit "ioPluto" -UnitMap "99"
    -Name "doPackage2_4" -SignalType "DO" -Unit "ioPluto" -UnitMap "100"
    -Name "doPackage2_5" -SignalType "DO" -Unit "ioPluto" -UnitMap "101"
    -Name "doPackage2_6" -SignalType "DO" -Unit "ioPluto" -UnitMap "102"
    -Name "doPackage2_7" -SignalType "DO" -Unit "ioPluto" -UnitMap "103"
    -Name "doPackage2_8" -SignalType "DO" -Unit "ioPluto" -UnitMap "104"
    -Name "doPackage2_9" -SignalType "DO" -Unit "ioPluto" -UnitMap "105"
    -Name "doPackage2_10" -SignalType "DO" -Unit "ioPluto" -UnitMap "106"
    -Name "doPackage2_11" -SignalType "DO" -Unit "ioPluto" -UnitMap "107"
    -Name "doPackage2_12" -SignalType "DO" -Unit "ioPluto" -UnitMap "108"
    -Name "doPackage2_13" -SignalType "DO" -Unit "ioPluto" -UnitMap "109"
    -Name "doPackage2_14" -SignalType "DO" -Unit "ioPluto" -UnitMap "110"
    -Name "doPackage2_15" -SignalType "DO" -Unit "ioPluto" -UnitMap "111"

    -Name "doPackage2_16" -SignalType "DO" -Unit "ioPluto" -UnitMap "112"
    -Name "doPackage2_17" -SignalType "DO" -Unit "ioPluto" -UnitMap "113"
    -Name "doPackage2_18" -SignalType "DO" -Unit "ioPluto" -UnitMap "114"
    -Name "doPackage2_19" -SignalType "DO" -Unit "ioPluto" -UnitMap "115"
    -Name "doPackage2_20" -SignalType "DO" -Unit "ioPluto" -UnitMap "116"
    -Name "doPackage2_21" -SignalType "DO" -Unit "ioPluto" -UnitMap "117"
    -Name "doPackage2_22" -SignalType "DO" -Unit "ioPluto" -UnitMap "118"
    -Name "doPackage2_23" -SignalType "DO" -Unit "ioPluto" -UnitMap "119"
    -Name "doPackage2_24" -SignalType "DO" -Unit "ioPluto" -UnitMap "120"
    -Name "doPackage2_25" -SignalType "DO" -Unit "ioPluto" -UnitMap "121"
    -Name "doPackage2_26" -SignalType "DO" -Unit "ioPluto" -UnitMap "122"
    -Name "doPackage2_27" -SignalType "DO" -Unit "ioPluto" -UnitMap "123"
    -Name "doPackage2_28" -SignalType "DO" -Unit "ioPluto" -UnitMap "124"
    -Name "doPackage2_29" -SignalType "DO" -Unit "ioPluto" -UnitMap "125"
    -Name "doPackage2_30" -SignalType "DO" -Unit "ioPluto" -UnitMap "126"
    -Name "doPackage2_31" -SignalType "DO" -Unit "ioPluto" -UnitMap "127"

    -Name "doPackage2_32" -SignalType "DO" -Unit "ioPluto" -UnitMap "128"
    -Name "doPackage2_33" -SignalType "DO" -Unit "ioPluto" -UnitMap "129"
    -Name "doPackage2_34" -SignalType "DO" -Unit "ioPluto" -UnitMap "130"
    -Name "doPackage2_35" -SignalType "DO" -Unit "ioPluto" -UnitMap "131"
    -Name "doPackage2_36" -SignalType "DO" -Unit "ioPluto" -UnitMap "132"
    -Name "doPackage2_37" -SignalType "DO" -Unit "ioPluto" -UnitMap "133"
    -Name "doPackage2_38" -SignalType "DO" -Unit "ioPluto" -UnitMap "134"
    -Name "doPackage2_39" -SignalType "DO" -Unit "ioPluto" -UnitMap "135"
    -Name "doPackage2_40" -SignalType "DO" -Unit "ioPluto" -UnitMap "136"
    -Name "doPackage2_41" -SignalType "DO" -Unit "ioPluto" -UnitMap "137"
    -Name "doPackage2_42" -SignalType "DO" -Unit "ioPluto" -UnitMap "138"
    -Name "doPackage2_43" -SignalType "DO" -Unit "ioPluto" -UnitMap "139"
    -Name "doPackage2_44" -SignalType "DO" -Unit "ioPluto" -UnitMap "140"
    -Name "doPackage2_45" -SignalType "DO" -Unit "ioPluto" -UnitMap "141"
    -Name "doPackage2_46" -SignalType "DO" -Unit "ioPluto" -UnitMap "142"
    -Name "doPackage2_47" -SignalType "DO" -Unit "ioPluto" -UnitMap "143"

    -Name "doPackage2_bit" -SignalType "GO" -Unit "ioPluto" -UnitMap "96-111"
    -Name "doPackage2_reg0" -SignalType "GO" -Unit "ioPluto" -UnitMap "112-127"
    -Name "doPackage2_reg1" -SignalType "GO" -Unit "ioPluto" -UnitMap "128-143"
```

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7.2.4 Package area 3

```
#
EIO_SIGNAL:

    -Name "doPackage3_0" -SignalType "DO" -Unit "ioPluto" -UnitMap "144"
    -Name "doPackage3_1" -SignalType "DO" -Unit "ioPluto" -UnitMap "145"
    -Name "doPackage3_2" -SignalType "DO" -Unit "ioPluto" -UnitMap "146"
    -Name "doPackage3_3" -SignalType "DO" -Unit "ioPluto" -UnitMap "147"
    -Name "doPackage3_4" -SignalType "DO" -Unit "ioPluto" -UnitMap "148"
    -Name "doPackage3_5" -SignalType "DO" -Unit "ioPluto" -UnitMap "149"
    -Name "doPackage3_6" -SignalType "DO" -Unit "ioPluto" -UnitMap "150"
    -Name "doPackage3_7" -SignalType "DO" -Unit "ioPluto" -UnitMap "151"
    -Name "doPackage3_8" -SignalType "DO" -Unit "ioPluto" -UnitMap "152"
    -Name "doPackage3_9" -SignalType "DO" -Unit "ioPluto" -UnitMap "153"
    -Name "doPackage3_10" -SignalType "DO" -Unit "ioPluto" -UnitMap "154"
    -Name "doPackage3_11" -SignalType "DO" -Unit "ioPluto" -UnitMap "155"
    -Name "doPackage3_12" -SignalType "DO" -Unit "ioPluto" -UnitMap "156"
    -Name "doPackage3_13" -SignalType "DO" -Unit "ioPluto" -UnitMap "157"
    -Name "doPackage3_14" -SignalType "DO" -Unit "ioPluto" -UnitMap "158"
    -Name "doPackage3_15" -SignalType "DO" -Unit "ioPluto" -UnitMap "159"

    -Name "doPackage3_16" -SignalType "DO" -Unit "ioPluto" -UnitMap "160"
    -Name "doPackage3_17" -SignalType "DO" -Unit "ioPluto" -UnitMap "161"
    -Name "doPackage3_18" -SignalType "DO" -Unit "ioPluto" -UnitMap "162"
    -Name "doPackage3_19" -SignalType "DO" -Unit "ioPluto" -UnitMap "163"
    -Name "doPackage3_20" -SignalType "DO" -Unit "ioPluto" -UnitMap "164"
    -Name "doPackage3_21" -SignalType "DO" -Unit "ioPluto" -UnitMap "165"
    -Name "doPackage3_22" -SignalType "DO" -Unit "ioPluto" -UnitMap "166"
    -Name "doPackage3_23" -SignalType "DO" -Unit "ioPluto" -UnitMap "167"
    -Name "doPackage3_24" -SignalType "DO" -Unit "ioPluto" -UnitMap "168"
    -Name "doPackage3_25" -SignalType "DO" -Unit "ioPluto" -UnitMap "169"
    -Name "doPackage3_26" -SignalType "DO" -Unit "ioPluto" -UnitMap "170"
    -Name "doPackage3_27" -SignalType "DO" -Unit "ioPluto" -UnitMap "171"
    -Name "doPackage3_28" -SignalType "DO" -Unit "ioPluto" -UnitMap "172"
    -Name "doPackage3_29" -SignalType "DO" -Unit "ioPluto" -UnitMap "173"
    -Name "doPackage3_30" -SignalType "DO" -Unit "ioPluto" -UnitMap "174"
    -Name "doPackage3_31" -SignalType "DO" -Unit "ioPluto" -UnitMap "175"

    -Name "doPackage3_32" -SignalType "DO" -Unit "ioPluto" -UnitMap "176"
    -Name "doPackage3_33" -SignalType "DO" -Unit "ioPluto" -UnitMap "177"
    -Name "doPackage3_34" -SignalType "DO" -Unit "ioPluto" -UnitMap "178"
    -Name "doPackage3_35" -SignalType "DO" -Unit "ioPluto" -UnitMap "179"
    -Name "doPackage3_36" -SignalType "DO" -Unit "ioPluto" -UnitMap "180"
    -Name "doPackage3_37" -SignalType "DO" -Unit "ioPluto" -UnitMap "181"
    -Name "doPackage3_38" -SignalType "DO" -Unit "ioPluto" -UnitMap "182"
    -Name "doPackage3_39" -SignalType "DO" -Unit "ioPluto" -UnitMap "183"
    -Name "doPackage3_40" -SignalType "DO" -Unit "ioPluto" -UnitMap "184"
    -Name "doPackage3_41" -SignalType "DO" -Unit "ioPluto" -UnitMap "185"
    -Name "doPackage3_42" -SignalType "DO" -Unit "ioPluto" -UnitMap "186"
    -Name "doPackage3_43" -SignalType "DO" -Unit "ioPluto" -UnitMap "187"
    -Name "doPackage3_44" -SignalType "DO" -Unit "ioPluto" -UnitMap "188"
    -Name "doPackage3_45" -SignalType "DO" -Unit "ioPluto" -UnitMap "189"
    -Name "doPackage3_46" -SignalType "DO" -Unit "ioPluto" -UnitMap "190"
    -Name "doPackage3_47" -SignalType "DO" -Unit "ioPluto" -UnitMap "191"

    -Name "doPackage3_bit" -SignalType "GO" -Unit "ioPluto" -UnitMap "144-159"
    -Name "doPackage3_reg0" -SignalType "GO" -Unit "ioPluto" -UnitMap "160-175"
    -Name "doPackage3_reg1" -SignalType "GO" -Unit "ioPluto" -UnitMap "176-191"
```