

**Datalogic Modbus TCP
I/O Data Mapping**

Rev. 00 (03/10/2012)

Overview

The following notes show how to map the I/O communication data through the Modbus TCP protocol for Datalogic built-in implementations (Matrix family and 6K-8KA family) and for BM2x0 implementations.

➤ **Read Process Data (Output Data)**

The “**Read Process Data**” are the output data that the PLC sends to the scanner.

➤ **Write Process Data (Input Data)**

The “**Write Process Data**” are the input data that come from the reader (scanned barcodes).

These data are available:

- in the **HOLDING Registers(4x)**, from address **40001** to address **40256**.

The Modbus TCP function to use is:

- “**Read Holding Register”(code 3)** function, to read the “**Holding Registers (4x)**” area

This function has mapped to read Write Process Data, ADIs, and configuration registers. It is allowed to read parts of a larger data type; it is also allowed to read multiple ADIs using a single request.

The situation as in table below:

Register type	Begin Address (symbolic)	End Address (symbolic)	Content
Holding Register (4x)	40001	40256	Input data Write Process Data

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Functions & Offset:

the addresses above are "symbolic" addresses.

In order to get the register content through a dedicated reading function, we use the "offset" value.

Example:

- to read the HOLDING Register area, we use the function **#3 "Read Holding Registers"**. Then, to read the first input data in the HOLDING Register area (register 40001), we have to use that function with offset = 0 (0 hex)

➤ **Where do we get the data (Input Data)?**

Where exactly can we read the barcode data?

As answer, see the following example:

The scanned bar code is **<stx>12345678<etx>** (10 bytes).

The data are available from register from register **40001** of the Holding Registers.
(it always assumed the Big Endian format):

- 40001:	1	<stx>	(offset = 0 hex)
- 40002:	3	2	
- 40003:	5	4	
- 40004:	7	6	
- 40005:	<etx>	8	(offset = 4 hex)

Warning: here the user needs to set the Input area size to the barcode length, at least.
This means: Number of Register = 5 (minimum).