

# Product Engineering Guide

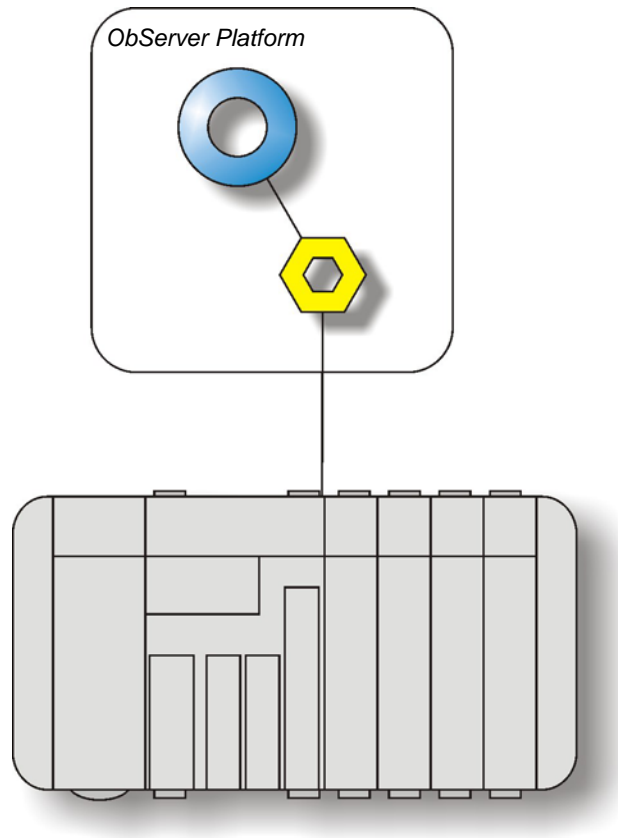
## OSM v20 OmronPLC v10

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### Introduction

The OmronPLC OSM links Omron Programmable Logic Controllers (PLC) supporting the Host Link protocol (also known as SYSMAC WAY) to ObServer.

PLC with an RS232 interface (e.g. CQM1 or C200H/S with LK201) may be connected directly to the Computer. Other PLC with an RS422 interface may be networked together, up to 32 units supported, and connected via a Link Adapter.



### Supported PLCs

Omron PLC supporting the Host Link protocol include:

- All C series PLCs (C120, CxxK, CxxH, CQM1, C200H/S, C500, C1000H, C2000H)
- CV series PLCs in C-mode.
- CJ series.

### Supported Data Areas

Values are held within the PLC in specific data areas, the following are supported by the driver:

AR	Auxiliary Relay area used to store flags, control bits and word bits. (Available on H-type PLC's only)
DM	Data Memory area used to hold word data.
HR	Data area used to store and manipulate data, and to preserve data when power to PLC is lost.
IR	I/O area used to hold the status of inputs and outputs.
LR	Link area used in a PLC Link System so that data can be transferred between two or more PLC's. Can also be used for work bits.
SR	Special Relay area used for flags, control bits, and other information provided about PLC operation.
TC	Data area reserved only for timers and counters.

### Notes

A PLC does not have a fixed list of variables within it, and it cannot be scanned to determine the list of objects – the Object Database of a particular PLC controller must therefore be generated manually.

Omron PLCs do not report alarm events or store logged data. If this functionality is required additional modules such as the AlarmGen and LogMax are required.

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# Engineering

## Step 1 – Install OSM

The OmronPLC OSM is installed automatically with all ObSys editions. Refer to the 'ObSys CD sleeve' for details on how to install ObSys.

## Step 2 – Configure Omron PLC

The PLC should be configured with the following parameters, either using DIP switches and/or the Omron Ladder Logic engineering software. Consult the specific PLC documentation for further details.

Transmission: ASCII, even parity, 7-bit, 2 stop bits  
Link Type Selector: Multiple link  
CTS selector: 0V  
Baud rate: 2400...19200  
Unit number: 0...31

## Step 3 – Connect COM Port to Omron PLC

Using cable, connect the Omron Programmable Logic Controller to a COM port of the PC. Refer to the section 'Cable' below for details of the cable.

## Step 4 – Plug in OmronPLC OSM to ObServer

Use object engineering software to locate the ObServer Setup object. Assign the OmronPLC OSM to an available channel. Refer to '[ObServer v20 Application Engineering Guide](#)'.

Note: After inserting the OSM, your engineering software may need to re-scan the ObServer object in order to view the OSM.

## Step 5 – Configure OmronPLC OSM

The COM port, baudrate and user-definable formula are configured using objects. Use object engineering software to view and modify the module objects within the OSM.

## Step 6 – Access Objects within the Omron Programmable Logic Controller

Values from the Omron PLC are made available as objects from ObServer. Any object software that is connected to ObServer can access these objects.

Values held within the PLC, after decoding, may not be in engineering units. The driver allows a simple formula to be applied to the numeric value after decoding so that the object values contain meaningful values.

The driver can convert the number into an object value using a formula:-

$$\text{real-value} = (M \times \text{raw-value}) + A$$

The formula values m and a can be engineer-defined. When reading, the driver automatically converts using the formula specified. When writing, the driver applies the formula below before writing to the PLC:-

$$\text{raw-value} = (\text{real-value} - A) / M$$

The driver contains both formulas with fixed values for A and M, and also engineer-definable values for A and M.

For example, a register may contain the temperature where value 0 = -50°C and value 65535 = +50°C.

If A is set to -50 and M=0.0015259, then the formula would be:

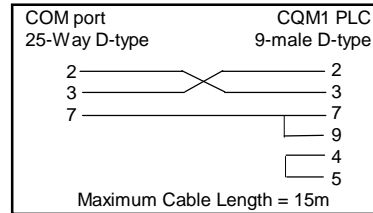
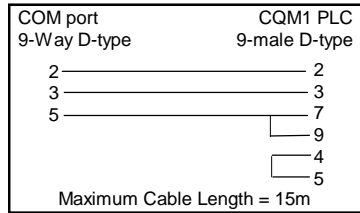
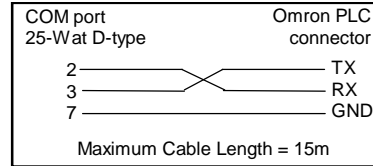
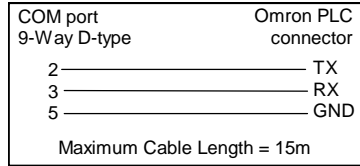
$$\text{real-value} = (0.0015259 \times \text{raw value}) + (-50)$$

Raw Value	Real Value
0	-50°C
32767	0°C
49150	25°C
65535	50°C

# Engineering Reference

## Cable Specification

The cable between COM port and the Omron Programmable Logic Controller is as follows: (The following is given as a guide.)



## Objects

When the OSM is loaded the following objects are created within ObServer, use object software to access these objects.

Object <sup>[1]</sup>	Label	R/W	Type
Sc	OmronPLC System connected to channel c	-	[OmronPLC v10] <sup>[2]</sup>
Mc	OmronPLC Module connected to channel c	-	[OSM v20\OmronPLC v10]

### Notes

- [1] The ObServer channel number, c, is a number in the range 1...40.
- [2] This object has a variable content and as such requires scanning.