

# Dupline® Plug & Play Master Module Interface for Omron Type G 3496 0004



- Interface for Omron PLC with the function of a master
- Plug and play: Automatic communication with specific PLC/Controllers
- Built-in normal Dupline® Channel Generator
- 128 I/O's and DC power supply on 3 wires
- RS232/RS422/RS485 port for interfacing to control system
- Split-I/O mode selectable (128 inputs and 128 outputs)
- LED-indications for supply, Dupline® carrier and Com-port Tx
- Galvanically isolated Com-port supplied by internal DC/DC converter

## Product Description

G 3496 0004 is designed as a cost-effective solution for interfacing Dupline® I/O's to a Omron PLC. It performs three functions: Dupline® channel

generator, power supply synchronization (enables 3-wire system with supply) and RS232/RS422/RS485 interface.

## Ordering Key

**G 3496 0004 700**

Type: Dupline® \_\_\_\_\_  
H4-Housing \_\_\_\_\_  
Combined module \_\_\_\_\_  
Interface type \_\_\_\_\_  
DC supply \_\_\_\_\_

## Type Selection

| Supply    | PLC Interface Conformance          | Ordering no.    |
|-----------|------------------------------------|-----------------|
| 20-30 VDC | Omron CPM, CPM1A, CQM, SRM1 & C200 | G 3496 0004 700 |

## Input/ Output Specifications

|                           |                               |
|---------------------------|-------------------------------|
| <b>Power output</b>       |                               |
| Output voltage            | 20-30 VDC (pulsating)         |
| Output current            | < 3.0 A @ 50°C                |
| Short circuit protection  | 4 A quick acting fuse         |
| Output voltage drop       | < 1.0 V                       |
| <b>Dupline® carrier</b>   |                               |
| Output voltage            | 8.2 V (pulsating)             |
| Current                   | < 60 mA                       |
| Short circuit protection  | Yes                           |
| Scan time                 |                               |
| 128 channels              | 132.2 ms                      |
| 64 channels               | 69.8 ms                       |
| <b>Communication port</b> |                               |
| Standard                  | RS232/RS422/RS485             |
| Split I/O mode            | Yes, selectable               |
| Normal Dupline mode       | Yes, selectable               |
| Connection                | 9 pole female Sub-D           |
| Dielectric voltage        |                               |
| Com-port Dupline®         | 1 kVAC (rms)                  |
| Protocol                  | HostLink                      |
| Baud rate                 | 9600 (Omron Default)<br>19200 |
| Data bits                 | 7                             |
| Start bit                 | 1                             |
| Stop bit                  | 2                             |
| Parity                    | Even                          |
| Flow-control              | None                          |

## Input/ Output Specifications (Cont.)

|                       |                                                        |
|-----------------------|--------------------------------------------------------|
| <b>Pin assignment</b> |                                                        |
| 2-wire RS 485         |                                                        |
| S/R Data line + (B)   | Pin 3                                                  |
| S/R Data line - (A)   | Pin 8                                                  |
| GND                   | Pin 5                                                  |
| 4-wire RS 485/RS 422  |                                                        |
| R Data line + (B)     | Pin 3                                                  |
| R Data line - (A)     | Pin 8                                                  |
| S Data line + (B)     | Pin 2                                                  |
| S Data line - (A)     | Pin 7                                                  |
| Direction             | Pin 4                                                  |
|                       | (Connect to GND pin 5 when using 4-wire communication) |
| <b>RS 232</b>         |                                                        |
| TX                    | Pin 1                                                  |
| RX                    | Pin 9                                                  |
| GND                   | Pin 5                                                  |

## Supply Specifications

|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| <b>Power supply</b>                    |                                               |
| Operational voltage (V <sub>in</sub> ) | Overvoltage cat. III (IEC 60664)<br>20-30 VDC |
| Reverse polarity protection            | None                                          |
| Current consumption                    | < 150 mA + Power load                         |
| Power dissipation                      | < 5 W                                         |
| Transient protection voltage           | 800 V                                         |
| Dielectric voltage                     |                                               |
| Supply - Dupline®                      | None                                          |
| Supply - com-port                      | 1 kVAC (rms)                                  |

## General Specifications

|                       |                                |                                  |                             |
|-----------------------|--------------------------------|----------------------------------|-----------------------------|
| <b>Power ON delay</b> | 2 s                            | <b>Humidity (non-condensing)</b> | 20 to 80%                   |
| <b>Indication for</b> |                                | <b>Mechanical resistance</b>     |                             |
| Com-port Tx           | LED, red                       | Shock                            | 15 G (11 ms)                |
| Supply ON             | LED, green                     | Vibration                        | 2 G (6 to 55 Hz)            |
| Dupline® carrier      | LED, yellow                    | <b>Dimensions</b>                | H4-Housing                  |
| <b>Environment</b>    |                                | <b>Material</b>                  | (see Technical information) |
| Pollution degree      | 3 (IEC 60664)                  | <b>Weight</b>                    | 100 g                       |
| Operating temperature | 0° to +50°C (+32° to +122°F)   |                                  |                             |
| Storage temperature   | -50° to +85°C (-58° to +185°F) |                                  |                             |

## Mode of Operation

The Dupline® Master Module (DMM) controls a 3-wire bus with signal, DC-power and common GND. The DMM is connected to a standard DC-supply, which it synchronizes with the Dupline® carrier signal before it is output to supply. The synchronization is necessary in order to enable the Dupline® and DC-supply to share the GND-wire.

The Dupline® Master Module is a Dupline® Channel Generator with the function of a master.

This means that the 128 Dupline® I/O's will be read/written by the DMM and then sent to the PLC.

The DMM can run in two different modes – Normal mode and split I/O mode. In Normal mode, Dupline® operates as a peer-to-peer system, where the channel generator automatically establishes a connection between Dupline® inputs and Dupline® outputs which are coded to the same Dupline® address. If e.g. an

input coded for B5 is activated, the output(s) coded for B5 will also be activated.

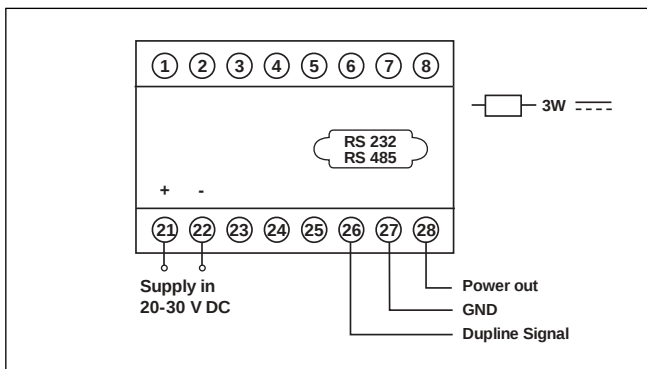
Consequently, a Dupline®-output can either be activated through the output-data received on DMM or by an active Dupline® input coded for the same Dupline®-address. In "Split I/O" mode, the channel generator treats the Dupline® inputs and Dupline® outputs independently. If e.g. an input coded for B5 is activated, the DMM

will make the information available for the PLC (like in normal mode), but it will not automatically activate the Dupline® output(s) coded to B5. The Dupline® outputs are controlled exclusively through the output data received from the PLC. In this mode, up to 128 Dupline® inputs and 128 Dupline® outputs are available, since an input and an output coded to the same Dupline® address can operate independently.

## Dip-Switch Setting

|             |             |                                                            |
|-------------|-------------|------------------------------------------------------------|
| <b>Sw.3</b> | <b>On:</b>  | 19200 baud                                                 |
|             | <b>Off:</b> | 9600 baud (Default Omron setting)                          |
| <b>Sw.4</b> | <b>On:</b>  | Split I/O Channel Generator Mode (See "Mode of Operation") |
|             | <b>Off:</b> | Normal Dupline® Monostable Channel Generator Mode          |
| <b>Sw.5</b> | <b>On:</b>  | 64 Dupline® channels                                       |
|             | <b>Off:</b> | 128 Dupline® channels                                      |

## Wiring Diagram



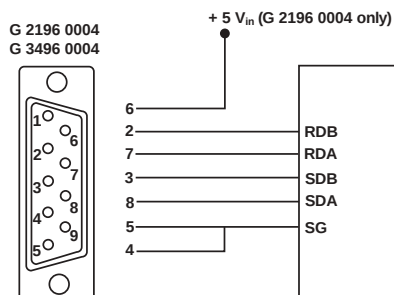
## Memory Mapping

Table of the memory mapping to the PLC

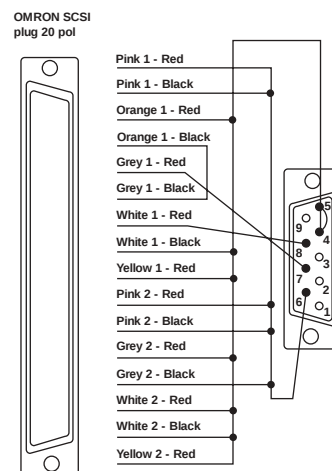
| Dupline® Channel | Omron  |        | Dupline® Channel | Omron  |        |
|------------------|--------|--------|------------------|--------|--------|
|                  | Read   | Write  |                  | Read   | Write  |
| A1               | LR0000 | LR0800 | E1               | LR0200 | LR1000 |
| A2               | LR0001 | LR0801 | F1               | LR0208 | LR1008 |
| A3               | LR0002 | LR0802 | G1               | LR0300 | LR1100 |
| A4               | LR0003 | LR0803 | H1               | LR0308 | LR1108 |
| A5               | LR0004 | LR0804 | I1               | LR0400 | LR1200 |
| A6               | LR0005 | LR0805 | J1               | LR0408 | LR1208 |
| A7               | LR0006 | LR0806 | K1               | LR0500 | LR1300 |
| A8               | LR0007 | LR0807 | L1               | LR0508 | LR1308 |
| B1               | LR0008 | LR0808 | M1               | LR0600 | LR1400 |
| B8               | LR0015 | LR0815 | N1               | LR0608 | LR1408 |
| C1               | LR0100 | LR0900 | O1               | LR0700 | LR1500 |
| D1               | LR0108 | LR0908 | P1               | LR0708 | LR1508 |

## Pin Assignment

### RS-422-OM1 CIF11



### RS-422-OM2



## Accessories

### Through Com. Module

Cable Sub-D 9M/6Wires for Com.  
Module with Screw term.

RS-422-OM1

### Peripheral Port

Cable Sub-D 9M/SCSI

RS-422-OM2

## Installation Hints

### IMPORTANT

**The PLC must be in Monitor-mode. Termination switch on CIF11 must be in OFF position**

### TX-LED

Slow flashing

No communication  
Check the wiring.

Fast flashing

Communication OK.

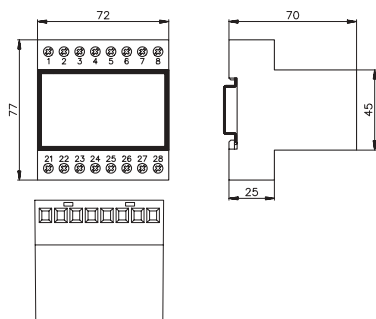
### No Dupline® Carrier-LED

Dupline® Short circuit

Short circuit between the  
two Dupline® wires.

## Dimensions (mm)

### H4-housing



## Additional Information

### Scope of supply

1 x Master Module

G3496 0004 700