

# Dupline® Plug & Play Master Module Interface for Mitsubishi PLC Type G 3496 0003



- Interface for Mitsubishi 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

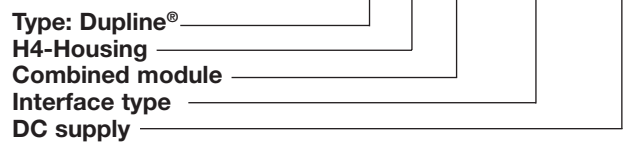
## Product Description

G 3496 0003 is designed as a cost-effective solution for interfacing Dupline® I/O's to a Mitsubishi 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 0003 700**



## Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	Mitsubishi FX-serie Mitsubishi AnS-serie with interface module	<b>G 3496 0003 700</b>

## 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	Programming Port
Baud rate	9600
Data bits	7
Start bit	1
Stop bit	1
Parity	Even
Flow-control	None
Protocol	Dedicated Protocol
Baud rate	19200
Data bits	8
Start bit	1
Stop bit	1
Parity	None
Flow-control	None

## Input/Output Specifications (Cont.)

Pin assignment	
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)
RS 232	
TX	Pin 1
RX	Pin 9
GND	Pin 5

## Supply Specifications

<b>Power supply</b>	
Operational voltage ( $V_{in}$ )	Overvoltage cat. III (IEC 60664)
Reverse polarity protection	20-30 VDC
Current consumption	None
Power dissipation	< 150 mA + Power load
Transient protection voltage	< 5 W
Dielectric voltage	800 V
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

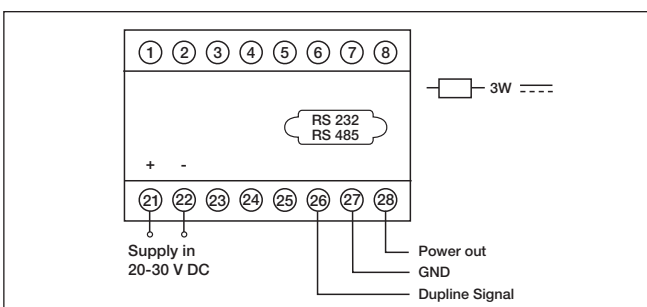
<b>Sw.2</b>	<b>On:</b>	If Communication fails, all Dupline® channels activated by the PLC, is deactivated.
	<b>Off:</b>	If Communication fails, Dupline® channels activated by the PLC, remains activated.
<b>Sw.3</b>	<b>On:</b>	Programming-port Protocol (Power up the Module)
	<b>Off:</b>	Dedicated Protocol 1 (Power up the Module)
<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

## Memory Mapping

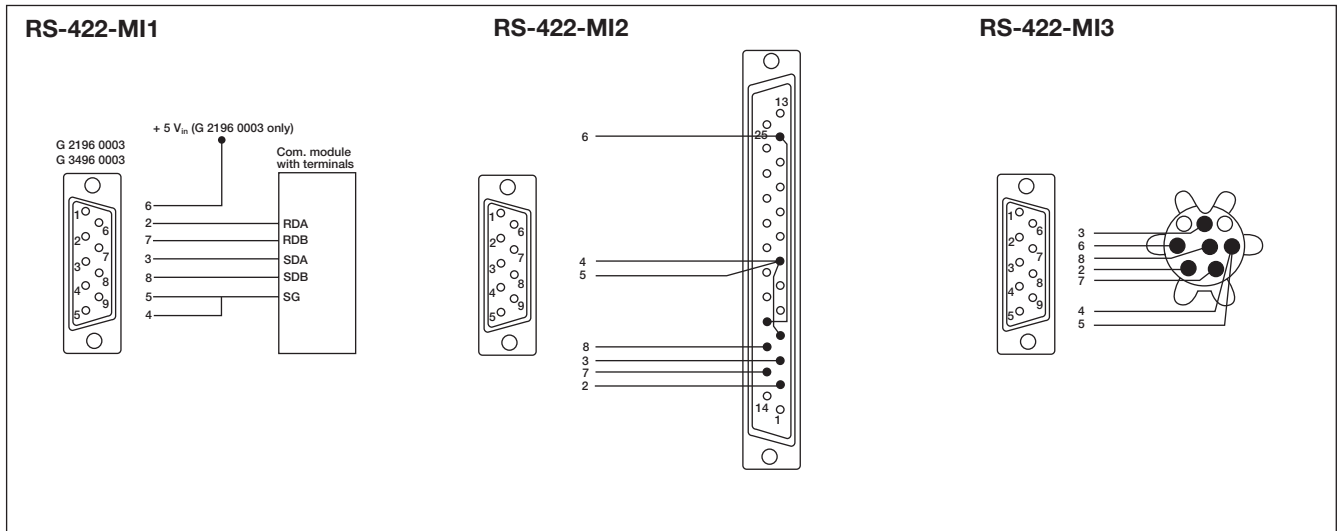
Table of the memory mapping to the PLC

Dupline® Channel	Mitsubishi		Dupline® Channel	Mitsubishi	
	Read	Write		Read	Write
A1	M0000	M0128	E1	M0032	M0160
A2	M0001	M0129	F1	M0040	M0168
A3	M0002	M0130	G1	M0048	M0176
A4	M0003	M0131	H1	M0056	M0184
A5	M0004	M0132	I1	M0064	M0192
A6	M0005	M0133	J1	M0072	M0200
A7	M0006	M0134	K1	M0080	M0208
A8	M0007	M0135	L1	M0088	M0216
B1	M0008	M0136	M1	M0096	M0224
B8	M0015	M0143	N1	M0104	M0232
C1	M0016	M0144	O1	M0112	M0240
D1	M0024	M0152	P1	M0120	M0248

## Wiring Diagram



## Pin Assignment



## Accessories

### FX- and AnS- Series

Cable Sub-D 9M/25M for 25p Programming port RS-422-MI2  
 Cable Sub-D 9M/8M DIN for 8p Programming port RS-422-MI3

### Through RS-485 Communication Adapter or PCB

Cable Sub-D 9M/6Wires for com. Module with Screw term. RS-422-MI1

## Interface Modules

### AnS-Series

RS232 Type A1SJ71UC24-R2\*  
 RS422/485 Type A1SJ71UC24-R4\*

### FX-Series

Directly through the programming port or communication modul FXON-485ADP\* or Interface adapter FX2N-485BD\*

\* Mitsubishi product.

## Additional Information

Scope of supply  
 1 x Master Module

G3496 0003 700

## Installation Hints

### No Dupline® Carrier-LED

Short circuit

Short circuit between the two Dupline® wires.

## Dimensions (mm)

