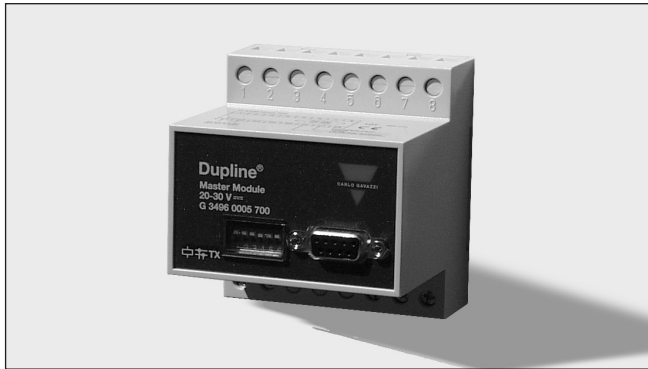# Dupline® Plug & Play Master Module Interface for Koyo PLC Type G 3496 0008

- Interface for Koyo 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 0008 is designed as a cost-effective solution for interfacing Dupline® I/O's to the Koyo DL05 Micro PLC family. 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 0008 700

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

Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	DL05 Micro PLC family	G 3496 0008 700

Input/Output Specifications

Power Output	
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
Dupline® carrier	
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
Communication Port	
Standard	RS232/RS422/RS485
Connection	9 pole female Sub-D
Dielectric voltage	
Com-port - Dupline®	1 kVAC (rms)
Protocol	Modbus-RTU (function code 01 and 15)
Channel Configuration in PLC	
Baud rate	
9600	
Data bits	8
Start bit	1
Stop bit	1
Parity	None
Flow-control	None

Input/Output Specifications (Cont.)

Device no.	1
Pin assignment	
2-wire RS485	
S/R Data line + (B)	3
S/R Data line – (A)	8
GND	5
4-wire RS485/RS422	
R Data line + (B)	3
R Data line - (A)	8
S Data line + (B)	2
S Data line - (A)	7
Direction	4 (Connect pin 5 to GND when using 4-wire com.)
RS232	
TX	1
RX	9
GND	5

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Operational voltage (V_{in})	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)

Note: Use individual power supplies for all G349600xx700, as the input are not galvanic isolated from each other.

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General Specifications

Power ON delay	2 s
Indication for	
Com-port TX	LED, red
Supply ON	LED, green
Dupline® carrier	LED, yellow
Environment	
Pollution degree	2 (IEC 60664)
Operating temperature	0° to +50°C (+32° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)

Humidity (non-condensing)	20 to 80%
Mechanical resistance	
Shock	15 G (11 ms)
Vibration	2 G (6 to 55 Hz)
Dimensions	H4-Housing
Weight	100 g

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 outputted 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 mas-ter. 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 informa-tion 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.

Pin Assignment

Dupline Master Module
9p D-sub. Male

Koyo PLC, CPU Port
6p Phone Plug
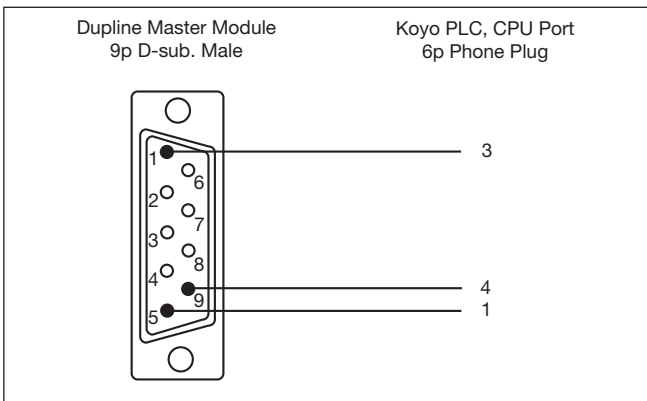
Memory Mapping

Table of the memory mapping to the PLC

Dupline® Channel	Read	Write	Dupline® Channel	Read	Write
A1	C0	C200	E1	C40	C240
A2	C1	C201	F1	C50	C250
A3	C2	C202	G1	C60	C260
A4	C3	C203	H1	C70	C270
A5	C4	C204	I1	C100	C300
A6	C5	C205	J1	C110	C310
A7	C6	C206	K1	C120	C320
A8	C7	C207	L1	C130	C330
B1	C10	C210	M1	C140	C340
B8	C17	C217	N1	C150	C350
C1	C20	C220	O1	C160	C360
D1	C30	C230	P1	C170	C370

Dip-Switch Setting

| Sw.4	On:	Split I/O Channel Generator Mode (Receivers activated by the PLC)
	Off:	Normal Dupline Monostable Channel Generator Mode
Sw. 5	On:	64 Dupline® channels
	Off:	128 Dupline® channels
Sw.6	On:	Maintain data on Dupline® in case of communication failure
	Off:	Clear data on Dupline® after 10 sec. of communication failure

Installation Hints

Slow flashing TX-LED

Polling without contact to Koyo PLC	Check the wiring.
Fast flashing TX-LED	Communication OK

No Dupline® Carrier-LED

Dupline® Short circuit.	Short circuit between the two Dupline® wires.

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Dimensions (mm)

H4-housing
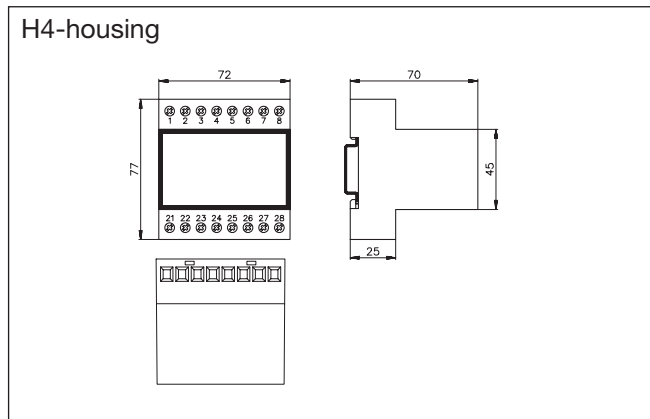
Wiring Diagrams
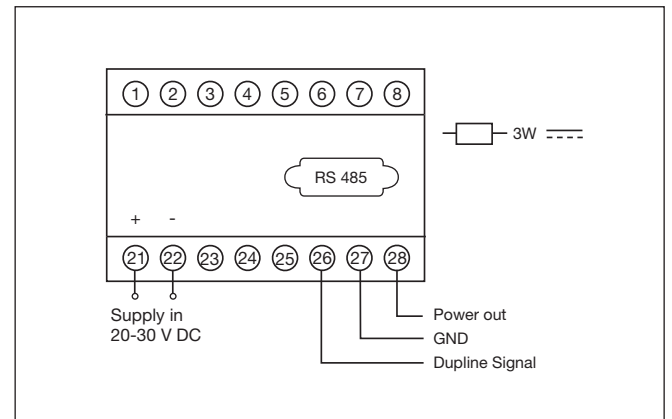
Additional Information

Scope of supply
1 x Master Module   G3496 0008 700

Accessories

Cable Sub-D 9p M /6p Phone Plug   RS-232-KO1