Dupline® Plug & Play Master Module Interface for Toshiba Type G 3496 0011

- **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 0011 is designed as a cost-effective solution for interfacing Dupline® I/O's to a Toshiba 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 0011 700

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

Type Selection

Supply	PLC Interface Conformance	Ordering no.
20-30 VDC	Toshiba T-series PLCs	**G 3496 0011 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
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	Computer-Link
Station no.	01
Baud rate	9600 (Toshiba default)/19200
Data bits	8
Start bit	1
Stop bit	1
Parity	Odd
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

Power supply	Overvoltage cat. III (IEC 60664)
Operational voltage (V_{in})	20-30 VDC
Reverse polarity protection	None
Current consumption	< 150 mA + Power load
Transient protection voltage	800 V
Dielectric voltage	
Supply - Dupline®	None
Supply - Com-port	1 kVAC (rms)

Dupline®
Fieldbus Installationbus

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
Material	(see Technical information)
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 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.

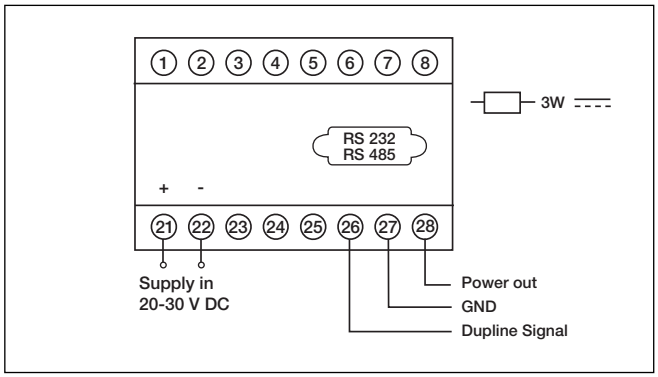
The DMM can run in two different modes – normal mode and split I/O mode. In normal mode, Dupline® operates as a peer-to-peer system, where the channel generator automatically establishes a connection between Dupline® inputs and Dupline® outputs which are coded to the same Dupline® address. If e.g. an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

Sw.3	**On:**	19200 baud
	Off:	9600 baud (default Toshiba 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

Wiring Diagram



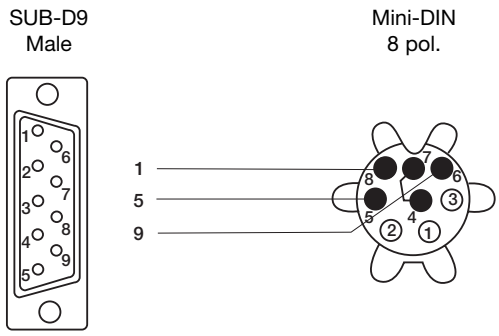
Memory Mapping

Table of the memory mapping to the PLC

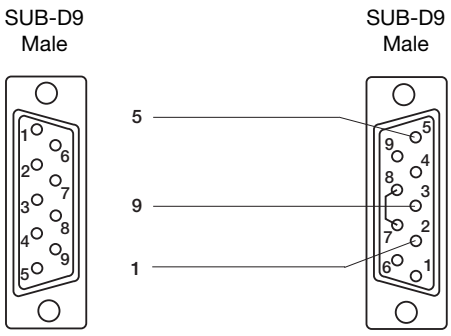
Dupline® Channel	Toshiba		Dupline® Channel	Toshiba	
	Read	Write		Read	Write
A1	R0000	R0080	E1	R0020	R0100
A2	R0001	R0081	F1	R0028	R0108
A3	R0002	R0082	G1	R0030	R0110
A4	R0003	R0083	H1	R0038	R0118
A5	R0004	R0084	I1	R0040	R0120
A6	R0005	R0085	J1	R0048	R0128
A7	R0006	R0086	K1	R0050	R0130
A8	R0007	R0087	L1	R0058	R0138
B1	R0008	R0088	M1	R0060	R0140
B8	R000F	R008F	N1	R0068	R0148
C1	R0010	R0090	O1	R0070	R0150
D1	R0018	R0098	P1	R0078	R0158

Pin Assignment

RS-232-TO1



RS-232-TO2



Accessories

Programming port on T1 series
Cable Sub-D 9M/8M mini-DIN for T1 programming port: RS-232-TO1

Optional T2 communication port CM232E
Cable Sub-D 9M/9M for communication port: RS-232-TO2

Additional Information

Scope of supply
1 x Master Module G3496 0011 700

Installation Hints

Slow flashing red LED:
Hardware fault — Check the wiring.

No yellow LED:
Dupline® short-circuit — Short curcuit between the two Dupline® wires.