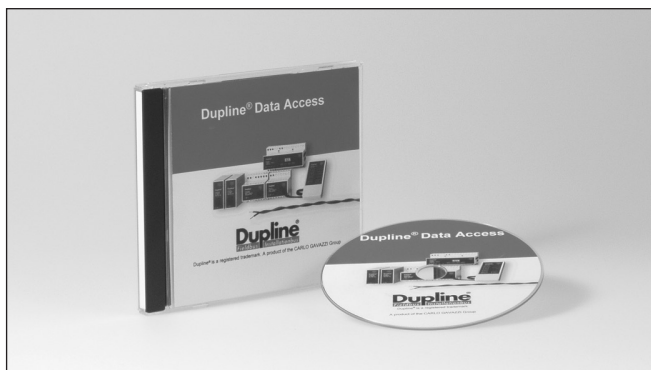# Dupline®
Data Access Software Package
DupDatAcc

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- DDE driver included
- ActiveX driver included
- "Copy and paste" Dupline data into EXCEL and other DDE clients
- Easy access to Dupline data from Microsoft Visual Basic, Borland C++ and Delphi
- Operates with G38900014, G380000xx, G380010xx, G34960005700
- Read Digital, AnaLink, Multiplexed Analog and Counter data
- Write Digital Data

Product Description

The Dupline Data Access Package contains two software tools that provide easy access from a PC to Dupline digital, analog and counter data via the serial port of the Master Channelgenerator (G38900014 or G389000xx). The Modbus Master Module G34960005 can also be used, but only for digital signals.
The Dupline DDE-driver provides a DDE (Dynamic Data Exchange) interface, which can be used from applications that support client side DDE such as Microsoft EXCEL. Links between cells in a spreadsheet and continuously up-dated Dupline digital, analog or counter data are created by simple copy-and-paste operations. It is also easy to create EXCEL pushbuttons for control of Dupline signals. The Dupline ActiveX driver provides an ActiveX interface (ActiveX = COM = Component Object Model), which is a Microsoft standard for communication between two products. The Dupline ActiveX driver can be used from any development tool that support client side ActiveX such as Microsoft Visual Basic and Borland C++ builder.

Ordering Key

DupDatAcc

Type ———————————————

Type Selection

Software Package	Ordering no.
	DUPDATACC

System Requirements

The Dupline Data Access software can be used with the following versions of Windows:

Windows 95, Windows 98,
Windows ME,
Windows NT 4, service pack 4 or later,
Windows 2000
Windows XP
Windows 7, 32 and 64 bit

Mode of Operation

The Dupline Data Access package for easy interfacing of Dupline to PC's operates with one of the following Dupline RS232/RS485 Interface/Control Units: G38900014, G380000xx, G380010xx, G34960005. Any type of Dupline data (digital, AnaLink, Multiplexed analog, Counter values) can be accessed and the status of digital Dupline outputs can be controlled.

• DDE-DRIVER
The main purpose of the DDE-driver is to make Dupline data easily accessible from Microsoft EXCEL. After the DDE-driver has been activated a dynamic link to a cell in an EXCEL spreadsheet can be created the following way:

1. Select the desired type of Dupline data and Dupline address in the "selection tree" of the DDE-driver.
2. Press Ctrl+C or right click on the item and select Copy.
3. Switch to EXCEL and select the cell you wish to link to the Dupline address.
4. Finally press Ctrl+V or select Paste in Excel's Edit menu.

Now, at any point of time, the real-time status of the selected Dupline channel will be displayed in the spreadsheet cell.

Analog and Counter values are displayed as values, while Digital data are displayed as text ("ON" , "OFF"). If scaling or a different representation of the data is desired, the data can be further processed using the standard functions in EXCEL.

Digital addresses can be controlled via Excel's VB Script language. If the EXCEL menu view/toolbars/control toolbox is selected, a control pushbutton can be defined and placed in the spreadsheet. In order to link the pushbutton to a Dupline control function, in this example control of channel A4, the below code must be entered for the "macro" defining the function of the pushbutton:

Code for sending a pulse on address A4: (this creates the same response as e.g. a pulse from a pushbutton coded for A4- can for example be used to toggle a flip-flop channel)
```
Dim ch As Long
ch = Application.DDEInitiate("DIDdeSrv", "Digital")
Application.DDEExecute ch, "Toggle:A4"
Application.DDETerminate ch
```

Mode of Operation (cont.)

Code for continuous activation of A4: (this creates the same response as a continuous activation of e.g. a pushbutton coded for A4)
Dim ch As Long
ch = Application.DDEInitiate("DlDdeSrv", "Digital")
Application.DDEExecute ch, **"ForceON:A4"**
Application.DDETerminate ch

Code for removing continuous activation of A4:
Dim ch As Long
ch = Application.DDEInitiate("DlDdeSrv", "Digital")
Application.DDEExecute ch, **"ForceOFF:A4"**
Application.DDETerminate ch

• **Communication Status**
Communication status can at all times be determined by looking at the status bar where one of the following messages will appear:
Communication Idle - The specified COM port is opened.
Communication Ok - The Dupline DDE Server is communicating with the Dupline Master Generator.
Communication Error - The Dupline DDE Server CANNOT communicate with the Dupline Master Generator.

If the Dupline DDE Server fails to communicate with the Dupline Master Generator it will return the string '#N/A'.

• **ActiveX-driver**
The purpose of the Active-driver is to make Dupline data easily accessible from software development tools like Microsoft Visual Basic, Borland C++ and Delphi which all support client side ActiveX.

The driver is build on an observer pattern which means that an application tells the driver which Dupline addresses the application is interested in through the Add/Remove method described in the manual. The driver fires events when it for example detects a state change on a digital address. In this way it is not necessary for an application to poll the Dupline Master Generator, it is notified whenever a change occurs.

Events included in the ActiveX driver:

OnDigital
The OnDigital event is fired when a digital address changes its state.

OnAnalink
The OnAnalink event is fired when an analink address changes value.

OnMuxAnalog
The OnMuxAnalog event is fired when a muxanalog address changes value.

OnCounter
The OnCounter event is fired when a counter address changes value.

Methods included in the ActiveX driver:

Open
Opens the specified COM port.

Close
Closes the COM port previously opened by a call to the Open method.

ToggleDigital
Sends out a pulse on the selected Dupline address. Same function as if a pushbutton coded for this address is activated shortly. Can e.g. be used to toggle the output of a Dupline address defined as bistable or to activate a Dupline address with off-delay delay timer.

ForceDigital
Forces a continuous activation of the selected Dupline address when set to ON. Removes the continuous activation when set to OFF. Same function as if a pushbutton or the input of a transmitter coded for this address is activated continuously. Typically used to control the output of a Dupline address defined as monostable (normal).

AddDigital
Adds a digital address to the subscription mechanism causing the OnDigital event to fire on a state change.

RemoveDigital
Removes a digital address from the subscription mechanism.

AddAnalink
Adds an analink address to the subscription mechanism causing the OnAnalink event to fire when the analink value changes.

RemoveAnalink
Removes an analink address from the subscription mechanism.

AddMuxAnalog
Adds a muxanalog address to the subscription mechanism causing the OnMuxAnalog event to fire when the muxanalog value changes.

RemoveMuxAnalog
Removes a muxanalog address from the subscription mechanism.

AddCounter
Adds a counter address to the subscription mechanism causing the OnCounter event to fire when the counter value changes.

RemoveCounter
Removes a counter address from the subscription mechanism.

Error Handling
The Dupline ActiveX-driver also includes an error handler using the standard COM IErrorInfo interface for returning errors to the application.