

GMTCNT TSG SERVICE HMI DA OPC UA SERVER USE

HMI(PDesigner) SETTINGS

The settings to be made in the PDesigner program for OPC UA Communication must be made in the following order. First, the correct hardware must be added to the configuration section. An IP address must be assigned to the added HMI. In our application, we defined the IP address 192.168.235.137 to the HMI. Then, in the OPC UA section, the OPC UA server of the HMI is activated by selecting OPCUA ---> OPCUA Server from the IOT tab at the top of the PDesigner program. After activation, Status Address and Control Address are activated from the Server Settings --> Basic Settings tab and the address type and address values are selected and entered. In practice, we chose LW0 as the Status Address and LW100 as the Control A

After the settings in this section are made, click "OK". Then a new group port is created and then a new data port is added.

In the window that opens after the added data port, selections such as Data Type, Read/Write feature, address type and address number of the variable with which you want to communicate are made. In practice, we will communicate RW0, LW200 and LB200 addresses, so we added 3 data ports and entered the variable information as you see below.

The image shows three screenshots of the 'Veri Bağlantı Noktası' (Data Connection Point) dialog box and the 'HMI0' main window.

Veri Bağlantı Noktası (Left): Ad: RW0, Register / Veri Türü: Bit, Veri Türü: 16-Bit İşareti Sayı, Veri Uzunluğu: 1, Oku / Yaz Özellikleri: Oku, Oku / Yaz: Oku / Yaz, Register: HMI, HMI0, PLC, Port: None, Terminal No: 0, Adres Türü: RW, Adres: 0, Kod Türü: BIN, Uzunluk: 1, Adres Etiketini Kullan: [], Format (Aralığı): DDDDD (0-261000).

Veri Bağlantı Noktası (Middle): Ad: LW200, Register / Veri Türü: Bit, Veri Türü: 16-Bit İşareti Sayı, Veri Uzunluğu: 1, Oku / Yaz Özellikleri: Oku, Oku / Yaz: Oku / Yaz, Register: HMI, HMI0, PLC, Port: None, Terminal No: 0, Adres Türü: LW, Adres: 200, Kod Türü: BIN, Uzunluk: 1, Adres Etiketini Kullan: [], Format (Aralığı): DDDDD (0-10255).

Veri Bağlantı Noktası (Right): Ad: LB200, Register / Veri Türü: Bit, Veri Türü: 16-Bit İşareti Sayı, Veri Uzunluğu: 1, Oku / Yaz Özellikleri: Oku, Oku / Yaz: Oku / Yaz, Register: HMI, HMI0, PLC, Port: None, Terminal No: 0, Adres Türü: LB, Adres: 200, Kod Türü: BIN, Uzunluk: 1, Adres Etiketini Kullan: [], Format (Aralığı): DDDDD (0-9999).

HMI0 (Bottom): OPC UA Sunucu Etkinleştir: [x], Sunucu Ayarları: [], Sunucu Bağlantı Noktası Bilgisi: RootNode, GroupNode1, RW0, LW200, LB200, Grup Bağlantı Noktası Ekle, Veri Bağlantı Noktası Ekle, Bağlantı Noktası Sil, Bağlantı Noktası Ayarları, İçer Aktar, Dışa Aktar, Tamam.

After the settings in this section are made. HMI's window design is created. To activate OPC UA, the number component with address LW100 must be added to the 0th window of the HMI, and then "start" operation is performed by writing 1 to this variable, and "stop" operation is performed by writing 2 to this variable. The value of the LW0 address must be 1 along with "start". If this value remains 0, it indicates that a communication error has occurred.

The image shows a screenshot of the HMI window design. The design is a grid with variables and their addresses:

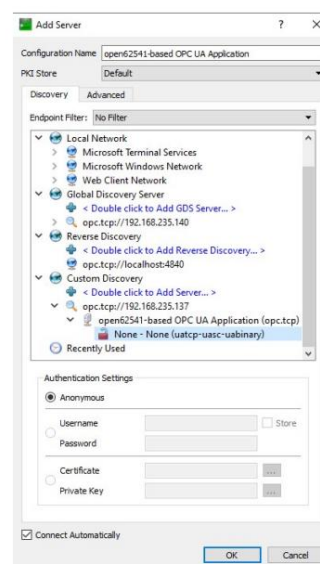
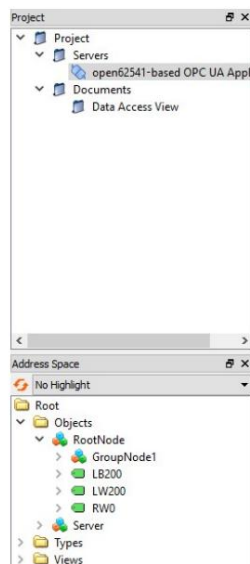
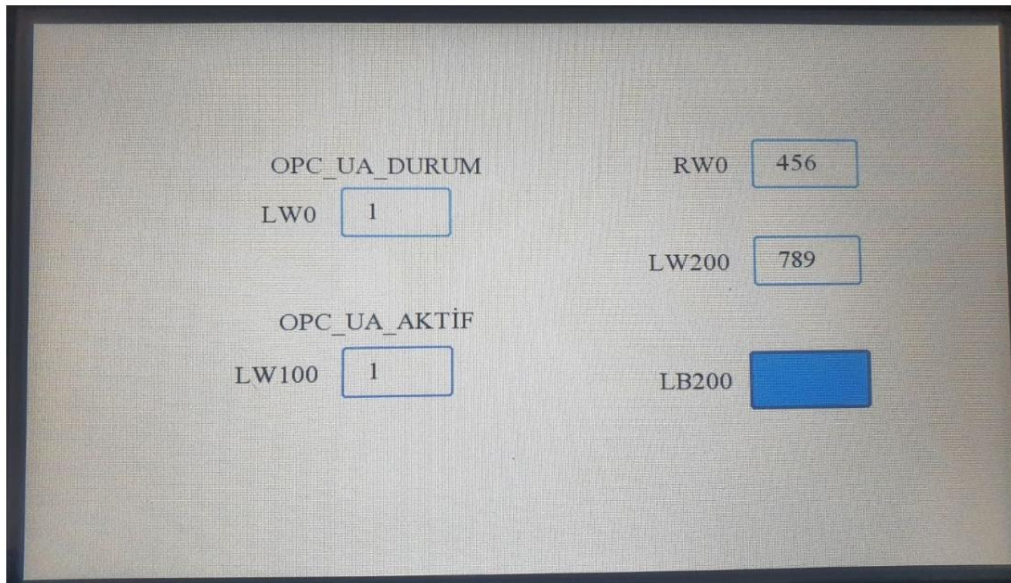
- OPC-UA-DURUM (RW0) with address #####
- LW0 with address #####
- OPC-UA-AKTİF (LW100) with address #####
- LW200 with address #####
- LB200 with address #####

UaExpert SETTINGS

Unified Automation UaExpert program was used for testing.

Before making the settings here, 1 must be written to the LW100 number component on the HMI screen. If LW100 is set to 1 and LW0 is also 1, it means that the communication process has been successful and no communication error has occurred.

Then, a new project is created in the Unified Automation UaExpert Program and a new server is added by pressing the blue "+" icon at the top of the program. In the window that opens, we write the IP address we gave to the computer in the "Global Discovery Server" section. In the "Custom Discovery" section, we write the IP address of the HMI. Then, if the device is not visible, right-click on the HMI's IP address under "Custom Discovery" and click on the phrase "rebrowse". When the device is found, the open lock icon will appear as shown at the bottom. After this stage, you can exit by pressing the "OK" button.



By clicking on the variables under Address Space --> Objects --> RootNode --> GroupNode1, we can read and write the value of the bit or word variable you have selected from the "Value" value in the Attributes window at the top right.

Attribute	Value
NamespaceIndex	0
IdentifierType	String
Identifier	RootNode_RW0
NodeClass	Variable
BrowseName	0, "RW0"
DisplayName	"en-US", "RW0"
Description	"", ""
WriteMask	0
UserWriteMask	0
RolePermissions	BadAttributeValue (0x80350000)
UserRolePermissions	BadAttributeValue (0x80350000)
AccessRestrictions	BadAttributeValue (0x80350000)
Value	
SourceTimestamp	9.12.2021 17:45:00.417
SourcePicoSeconds	0
ServerTimestamp	9.12.2021 17:45:19.504
ServerPicoSeconds	0
StatusCode	Good (0x00000000)
Value	456
DataType	Int16
NamespaceIndex	0

Attribute	Value
NamespaceIndex	0
IdentifierType	String
Identifier	RootNode_LW200
NodeClass	Variable
BrowseName	0, "LW200"
DisplayName	"en-US", "LW200"
Description	"", ""
WriteMask	0
UserWriteMask	0
RolePermissions	BadAttributeValue (0x80350000)
UserRolePermissions	BadAttributeValue (0x80350000)
AccessRestrictions	BadAttributeValue (0x80350000)
Value	
SourceTimestamp	9.12.2021 17:45:05.717
SourcePicoSeconds	0
ServerTimestamp	9.12.2021 17:49:14.381
ServerPicoSeconds	0
StatusCode	Good (0x00000000)
Value	789
DataType	Int16
NamespaceIndex	0

Attribute	Value
NamespaceIndex	0
IdentifierType	String
Identifier	RootNode_LB200
NodeClass	Variable
BrowseName	0, "LB200"
DisplayName	"en-US", "LB200"
Description	"", ""
WriteMask	0
UserWriteMask	0
RolePermissions	BadAttributeValue (0x80350000)
UserRolePermissions	BadAttributeValue (0x80350000)
AccessRestrictions	BadAttributeValue (0x80350000)
Value	
SourceTimestamp	9.12.2021 17:49:58.917
SourcePicoSeconds	0
ServerTimestamp	9.12.2021 17:50:10.263
ServerPicoSeconds	0
StatusCode	Good (0x00000000)
Value	true
DataType	Boolean
NamespaceIndex	0

V211210

GMT

GMT Endüstriyel Elektronik San. ve Tic. Ltd. Şti.

Çubuklu Mh. Boğaziçi Cd. Boğaziçi Plaza No:6B Beykoz 34805 İstanbul, Türkiye

T +90 (216) 668 0006 • F +90 (216) 668 0008 GSM +90 (534) 363 75 33

gmtcontrol.com