User Instructions Add-On Instruction (AOI)
IND780_IntDiv_Input_Data

This AOI is intended to be used with the Mettler Toledo Terminal IND780, software version 5 or greater. The AOI was created using Allen-Bradley RSLogix5000 version 16 and is intended for RSLogix5000 version 16 or greater.

User requirements:

Users will need an understanding the IND780 Terminal PLC Interface Data Formats and Message Slot data layout for Integer or Divisions Data Format.

Applicable Mettler Toledo Terminal PLC interfaces:

Allen Bradley Remote I/O (RIO)
ControlNet (using the RSLogix5000 generic module profile only, input data INT)
EtherNet/IP (using the RSLogix5000 generic module profile only, input data INT)

Note: The AOI is primarily intended to be used for Allen Bradley Remote I/O (RIO) communications.

Applicable Mettler Toledo PLC Data Formats:

Integer
Divisions

AOI provides:

Conversion of integer weight data into an RSLogix5000 Data Type REAL using a parameter input of the scale terminal Increment Size; the Increment Size must be the same as used for scale calibration. Or conversion of Divisions weight data into an RSLogix5000 Data Type REAL using a parameter input of the scale terminal Increment Size and the parameter input Use_Divisions.
Conversion of the Scale Status integer into sixteen (16) separate RSLogix5000 Data Type BOOL bits.

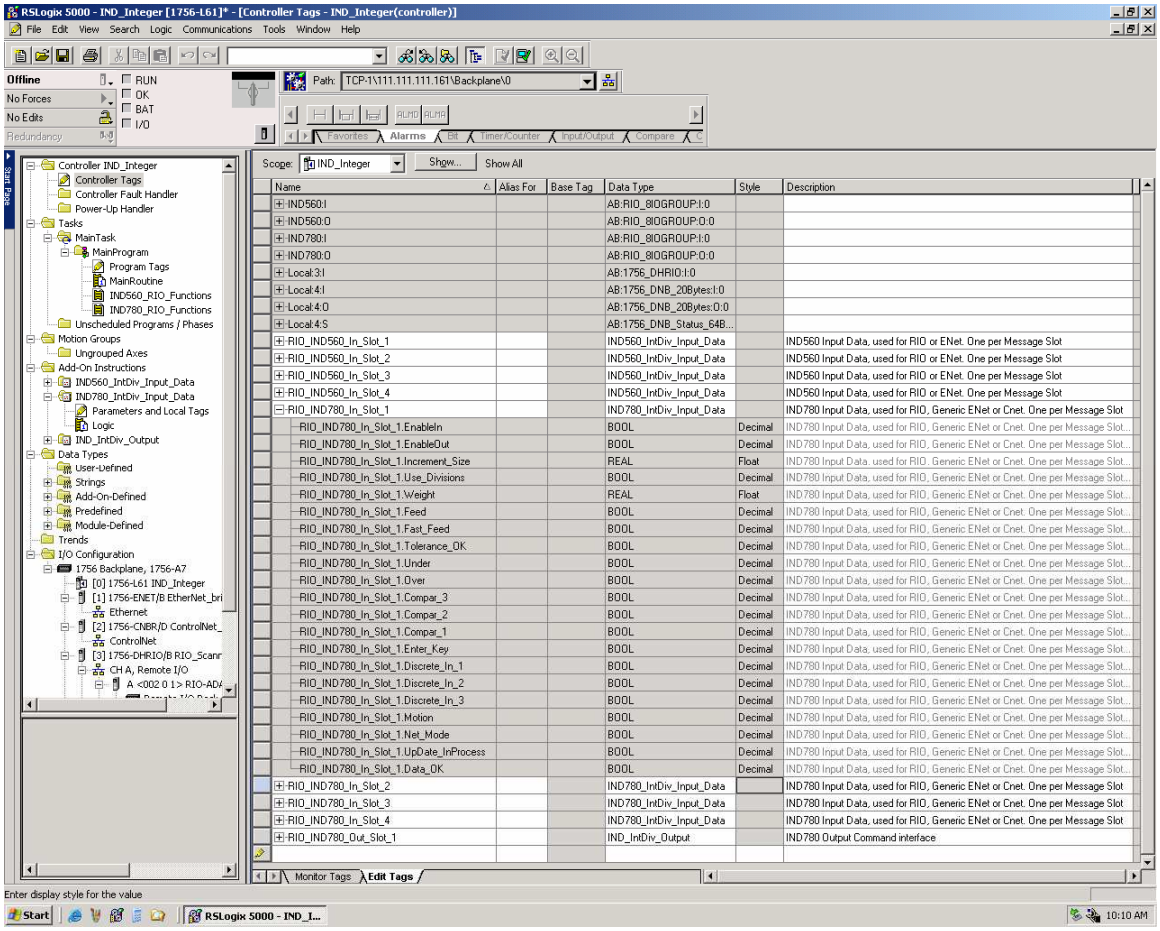
Within the RSLogix5000 application program one AOI is used for each input Message Slot.

Adding AOI to RSLogix5000:

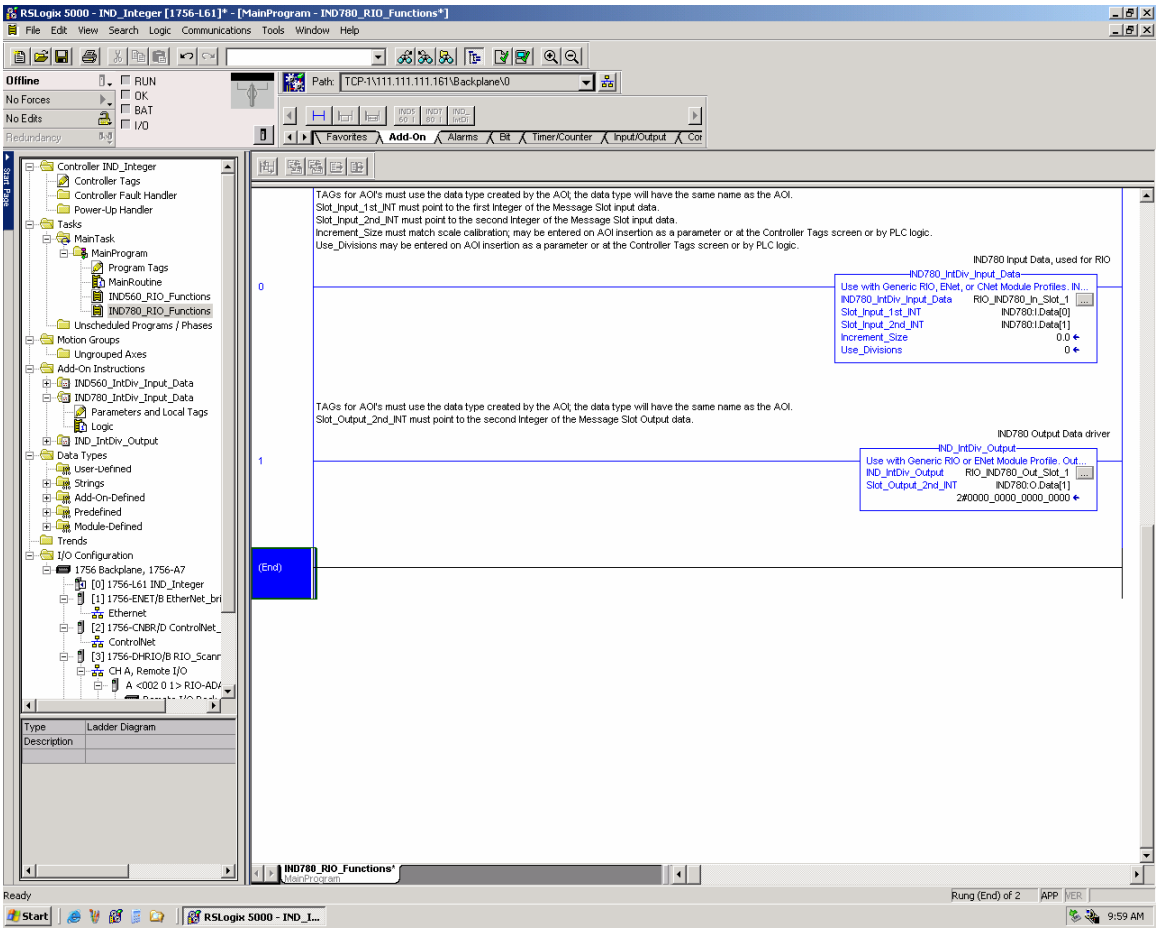
Within the RSLogix5000 in the Configuration window right click on Add-On Instructions; click on Import Instruction; click on IND780_IntDiv_Input_Data.L5X; click IMPORT. AOI will load creating the Add-On Instruction, a Data Type of the same name as the AOI and a new Tab to the Instruction Types over the programming screen window. The new Data Type will be included in any screen requiring Data Type entry. The Instruction will also appear in the window screen when keyboard inserting a new instruction to the program logic.

Adding AOI to RSLogix5000 application program:

Within the RSLogix5000 application program one AOI is used for each input Message Slot. A Tag must be associated to the AOI when inserting into the application program; this tag must use the RSLogix5000 Data Type of the same name as the AOI (IND780_IntDiv_Input_Data). In the example below the Tag is RIO_IND780_In_Slot_1.



Within the RSLogix5000 application program insert the AOI where desired. The first requirement for the AOI block will be the entry of the Tag created earlier. In the example below the Tag is RIO_IND780_In_Slot_1.



Input Parameters:
Slot_Input_1st_INT and *Slot_Input_2nd_INT* are required Input Parameters. *Increment_Size* and *Use_Divisions* are also Input Parameters but need not an entry when AOI is inserted in the application program; these two Parameters are visible in the AOI Tag as elements of the Tag. The parameter *EnableIn* is a system parameter and is part of every AOI.

Slot_Input_1st_INT is the Data Type INT and must be pointed to the first input data INT of the input Message Slot from the IND780 terminal into the PLC; this will always be an even number (0, 2, 4, 6 and so on) of the input data array.

Slot_Input_2nd_INT is the Data Type INT and must be pointed to the second input data INT of the input Message Slot from the IND780 terminal into the PLC; this will always be an odd number (1, 3, 5, 7 and so on) of the input data array.

Increment_Size is the Data Type REAL. The increment size entered must match the scale calibration size to assure correct conversion of the input weight data to a REAL. The increment size may be entered when the AOI is inserted and it will be a constant unless the PLC logic changes the increment size. The increment size may be entered at the Tag monitor screen and will be a constant unless the PLC logic changes the increment size. Be sure to save the program to assure the constants are saved as part of the program. The increment size may be entered into the Tag element *Increment_Size* by the program logic if desired.

Use_Divisions is the Data Type BOOL. This parameter must be set to one (1) or ON if the weight input data from the terminal is Data Format Divisions. The *Use_Divisions* parameter may be entered when the AOI is inserted and it will be a constant unless the PLC logic changes the state of *Use_Divisions*. The *Use_Divisions* parameter may be entered at the Tag monitor screen and will be a constant unless the PLC logic changes the state of *Use_Divisions*. Be sure to save the program to assure the constants are saved as part of the program. The state of *Use_Divisions* may be controlled by the program logic if desired.

Output Parameters:

The parameter *EnableOut* is a system parameter and is part of every AOI. The AOI Output Parameters are weight and the scale status bits.

Weight is the Data Type REAL. This Output Parameter is the math result of the data from the Input Parameters *Slot_Input_1st_INT, Increment_Size,* and the state of *Use_Divisions*.

Feed is the Data Type BOOL. This Output Parameter matches the state of bit 0 of the Input Parameter *Slot_Input_2nd_INT*.

Fast_Feed is the Data Type BOOL. This Output Parameter matches the state of bit 1 of the Input Parameter *Slot_Input_2nd_INT*.

Tolerance_OK is the Data Type BOOL. This Output Parameter matches the state of bit 2 of the Input Parameter *Slot_Input_2nd_INT*.

Under is the Data Type BOOL. This Output Parameter matches the state of bit 3 of the Input Parameter *Slot_Input_2nd_INT*.

Over is the Data Type BOOL. This Output Parameter matches the state of bit 4 of the Input Parameter *Slot_Input_2nd_INT*.

Compar_3 is the Data Type BOOL. This Output Parameter matches the state of bit 5 of the Input Parameter *Slot_Input_2nd_INT*.

Compar_2 is the Data Type BOOL. This Output Parameter matches the state of bit 6 of the Input Parameter *Slot_Input_2nd_INT*.

Compar_1 is the Data Type BOOL. This Output Parameter matches the state of bit 7 of the Input Parameter *Slot_Input_2nd_INT*.

Enter_key is the Data Type BOOL. This Output Parameter matches the state of bit 8 of the Input Parameter *Slot_Input_2nd_INT*.

Discrete_in_1 is the Data Type BOOL. This Output Parameter matches the state of bit 9 of the Input Parameter *Slot_Input_2nd_INT*.

Discrete_in_2 is the Data Type BOOL. This Output Parameter matches the state of bit 10 of the Input Parameter *Slot_Input_2nd_INT*.

Discrete_in_3 is the Data Type BOOL. This Output Parameter matches the state of bit 11 of the Input Parameter *Slot_Input_2nd_INT*.

Motion is the Data Type BOOL. This Output Parameter matches the state of bit 12 of the Input Parameter *Slot_Input_2nd_INT*.

Net_Mode is the Data Type BOOL. This Output Parameter matches the state of it 13 of the Input Parameter *Slot_Input_2nd_INT*.

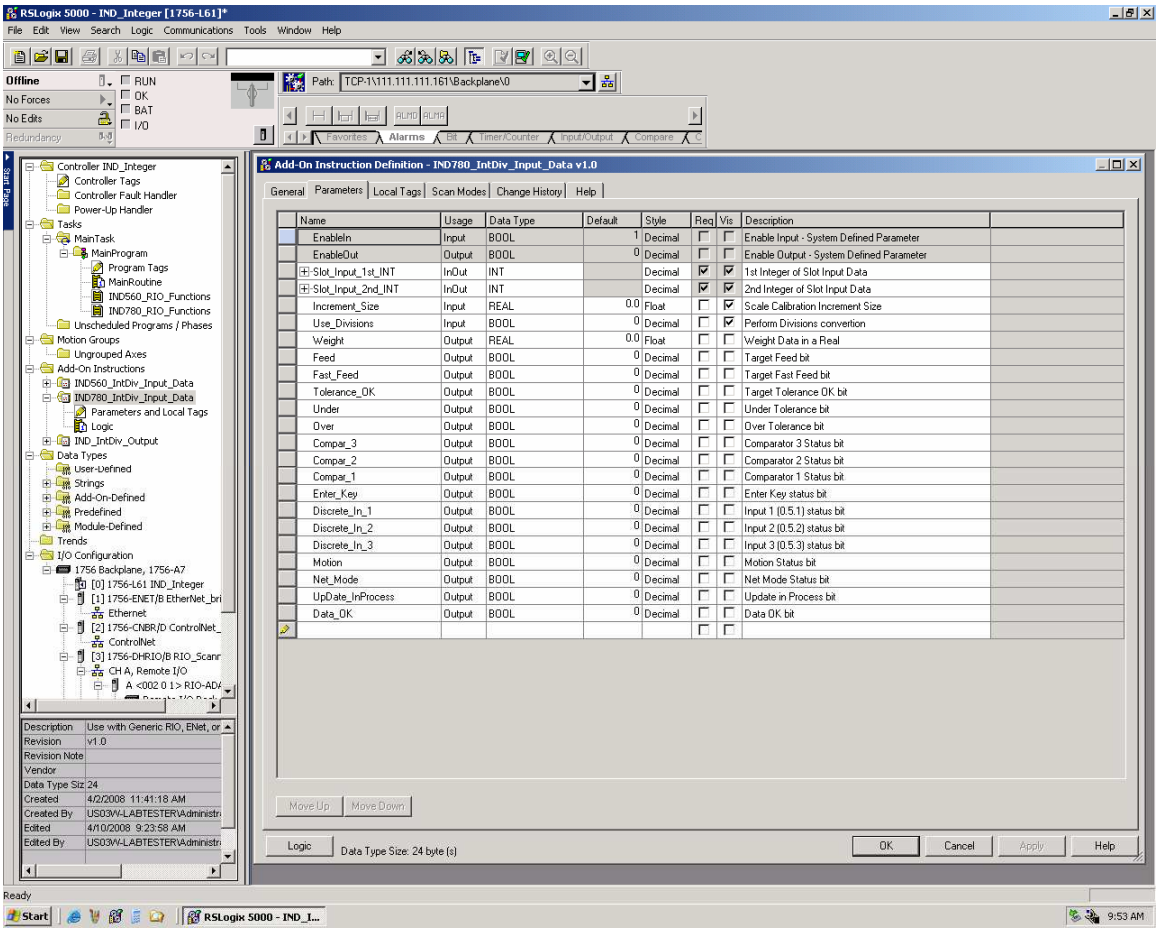
UpDate_inProcess is the Data Type BOOL. This Output Parameter matches the state of bit 14 of the Input Parameter *Slot_Input_2nd_INT*.

Data_OK is the Data Type BOOL. This Output Parameter matches the state of bit 15 of the Input Parameter *Slot_Input_2nd_INT*.

User edit of the AOI:

The AOI was created using RSLogix5000 version 16; there are no imbedded AOI's or nonstandard data types within the AOI.

The AOI is not protected; the Parameters, Local Tags and Logic may be edited by the user if desired. The user must assume responsibility for the operation and usability of the AOI when editing.

Contact Rockwell Software Support for questions of AOI development programming and editing; Mettler Toledo Technical Support is unable to provide assistance with AOI development programming and editing

Below is a screen capture of the AOI Parameter screen.