The function converts an input value of the **REAL** data type to a **BOOL, BYTE, WORD, DWORD, INT, DINT, UINT, UDINT** data type or into the **TIME** data type.

**NOTE:** The function converts strictly in accordance with IEC rules. Since this function has been realized as a generic function, there will also be a few illogical conversions, e.g. **REAL_TO_BOOL**.

When converting to **BOOL, BYTE, WORD**, the least significant bits of the input value are transferred to the output. A runtime error message is not given and **ENO** remains 1.
When converting to **INT, DINT, UINT, UDINT** and **TIME**, the IEC 559 rules for rounding are applied. **EN** and **ENO** can be configured as additional parameters. (The output **ENO** is not used for **REAL_TO_BOOL, REAL_TO_BYTE, REAL_TO_WORD** and **REAL_TO_DWORD**; it always has the value "1".)

**Available functions**

List of available functions:
- **REAL_TO_BOOL**
- **REAL_TO_BYTE**
- **REAL_TO.Word**
- **REAL_TO_DWORD**
- **REAL_TO_INT**
- **REAL_TO_DINT**
- **REAL_TO_UINT**
- **REAL_TO_UDINT**
- **REAL_TO_TIME**

**Example**

The following example shows how the IEC 559 rounding is applied.

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>3.5</td>
<td>4</td>
</tr>
<tr>
<td>4.5</td>
<td>4</td>
</tr>
<tr>
<td>4.6</td>
<td>5</td>
</tr>
</tbody>
</table>

**Negative input values**

Negative input values cannot be converted into data types **UINT, UDINT** or **TIME**.

**Representation in FBD**

Representation of an integer application:

```
REAL_variable IN  OUT  ConvertedVariable
```

03/01/2013
Representation in LD

Representation of an Integer application:

```
EN
REAL_TO_INT

REAL_variable

EN
OUT
ConvertedVariable
```

Representation in IL

Representation of an Integer application:

```IL
LD REAL_variable
REAL_TO_INT
ST ConvertedVariable
```

Representation in ST

Representation of an Integer application:

```ST
ConvertedVariable := REAL_TO_INT (REAL_variable) ;
```

Parameter description

Description of input parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data type</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL_variable</td>
<td>REAL</td>
<td>Input value</td>
</tr>
</tbody>
</table>

Description of output parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data type</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConvertedVariable</td>
<td>BOOL, BYTE, WORD, DWORD, INT, DINT, UINT, UDINT, TIME</td>
<td>Output value</td>
</tr>
</tbody>
</table>

Runtime error

The system bit %S18 is set to 1, if

- an unauthorized floating point number is set at the input
- the value range on the output is exceeded (numeric data types)
- a negative input value is to be converted into an UDINT-, UINT or TIME output value.
- an unauthorized floating point number is created during the conversion into the REAL data type. In this case, the status is also placed in %SW17.

The system bit %S18 and system word %SW17 are not used when data types are converted:

- BOOL
- BYTE
- WORD
- DWORD

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