

# Demo Project for Mathematical Functions of Macro

## Table of Contents

1. Overview and Operation
2. Setting Up the Screen
3. Addresses

## 1 Overview and Operation

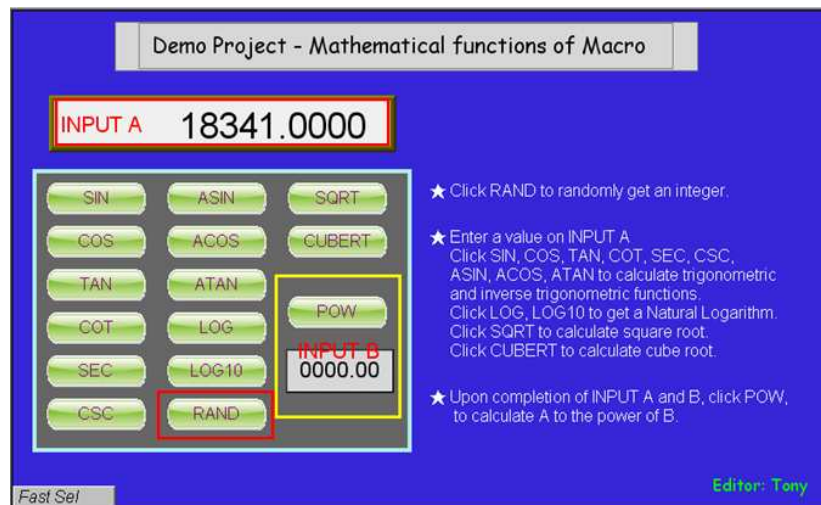
### [Overview]

This demo project is to demonstrate how to use Mathematical Functions of Macro to get a result of calculation.

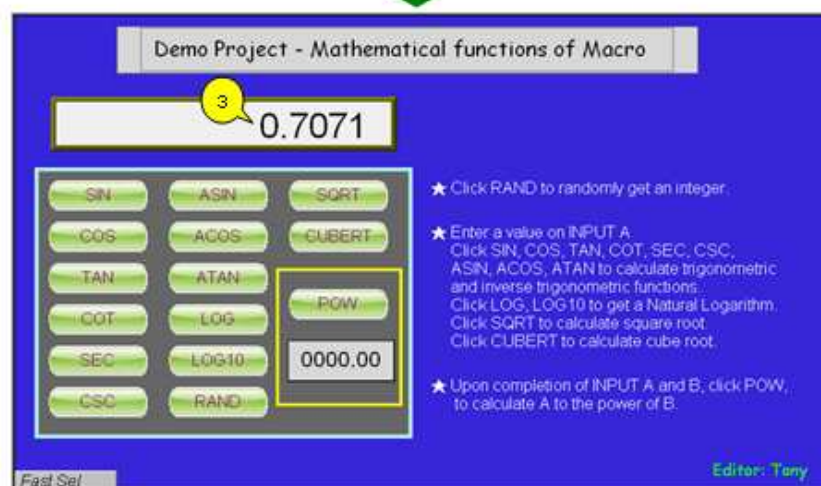
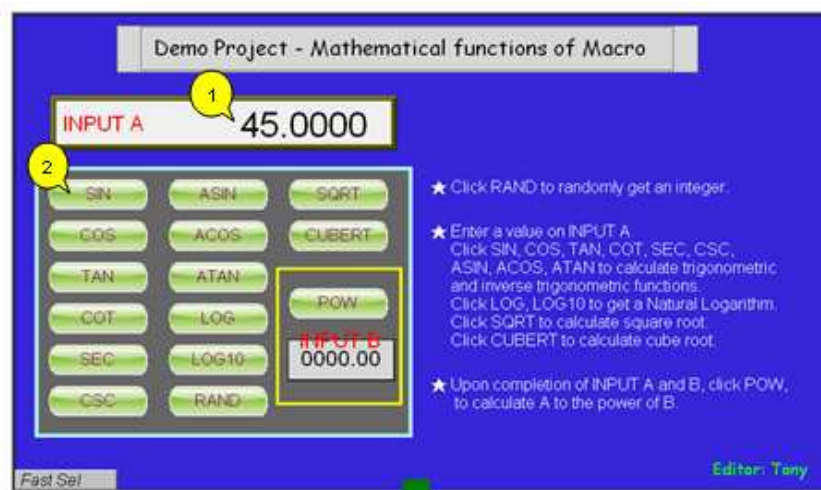
<b>Syntax</b>	SQRT(source, result)
<b>Description</b>	Calculate the square root of source into result.
<b>Syntax</b>	CUBERT (source, result)
<b>Description</b>	Calculate the cube root of source into result.
<b>Syntax</b>	POW (source1, source2, result)
<b>Description</b>	Calculate source1 raised to the power of source2.
<b>Syntax</b>	SIN(source, result)
<b>Description</b>	Calculate the sine of source into result.
<b>Syntax</b>	COS(source, result)
<b>Description</b>	Calculate the cosine of source into result.
<b>Syntax</b>	TAN(source, result)
<b>Description</b>	Calculate the tangent of source into result.
<b>Syntax</b>	COT(source, result)
<b>Description</b>	Calculate the cotangent of source into result.
<b>Syntax</b>	SEC(source, result)
<b>Description</b>	Calculate the secant of source into result.
<b>Syntax</b>	CSC(source, result)
<b>Description</b>	Calculate the cosecant of source into result.
<b>Syntax</b>	ASIN(source, result)
<b>Description</b>	Calculate the hyperbolic sine of source into result.
<b>Syntax</b>	ACOS(source, result)
<b>Description</b>	Calculate the hyperbolic cosine of source into result.
<b>Syntax</b>	ATAN(source, result)
<b>Description</b>	Calculate the hyperbolic tangent of source into result.
<b>Syntax</b>	LOG (source, result)
<b>Description</b>	Calculate the natural logarithm of a number.
<b>Syntax</b>	LOG10 (source, result)
<b>Description</b>	Calculate the base-10 logarithm of a number.
<b>Syntax</b>	RAND(result)
<b>Description</b>	Generate a random number and save into result.

[Operation]

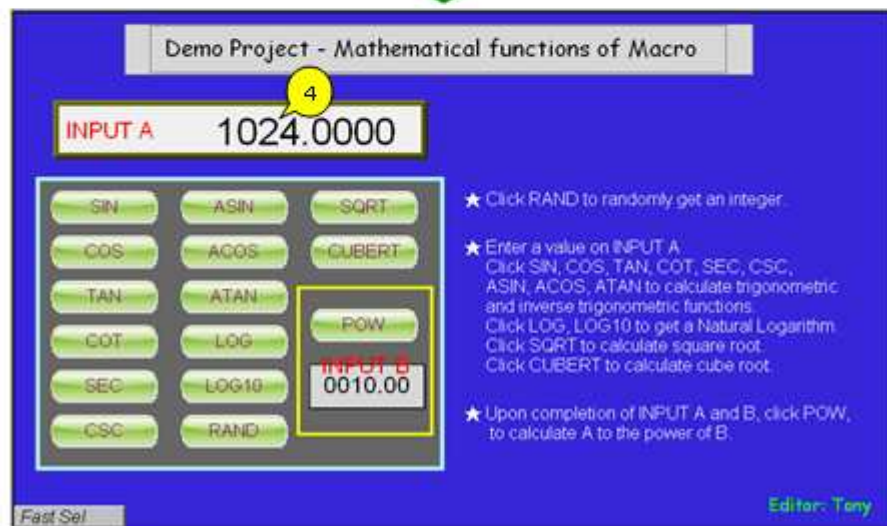
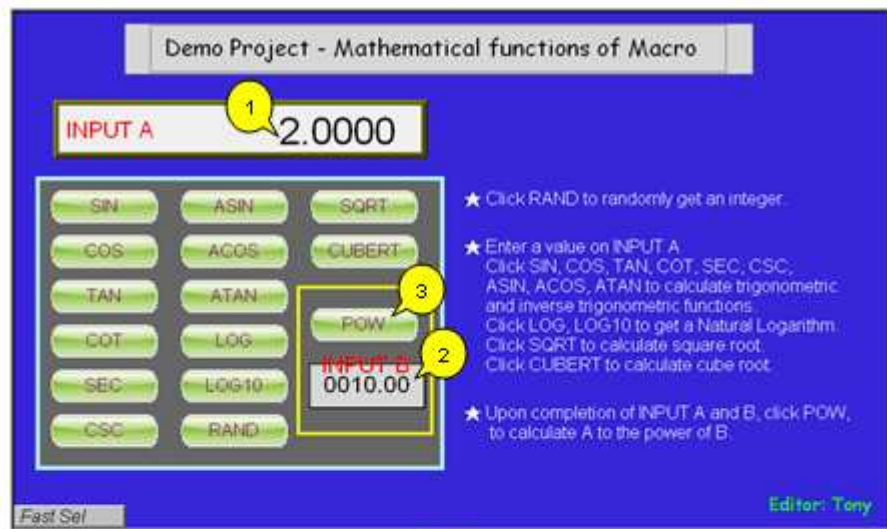
- ★ Click Rand to randomly get an integer.



- ★ Enter a value on INPUT A  
Click SIN, COS, TAN, COT, SEC, CSC, ASIN, ACOS, ATAN to calculate trigonometric and inverse trigonometric functions.  
Click LOG, LOG10 to get a natural logarithm.

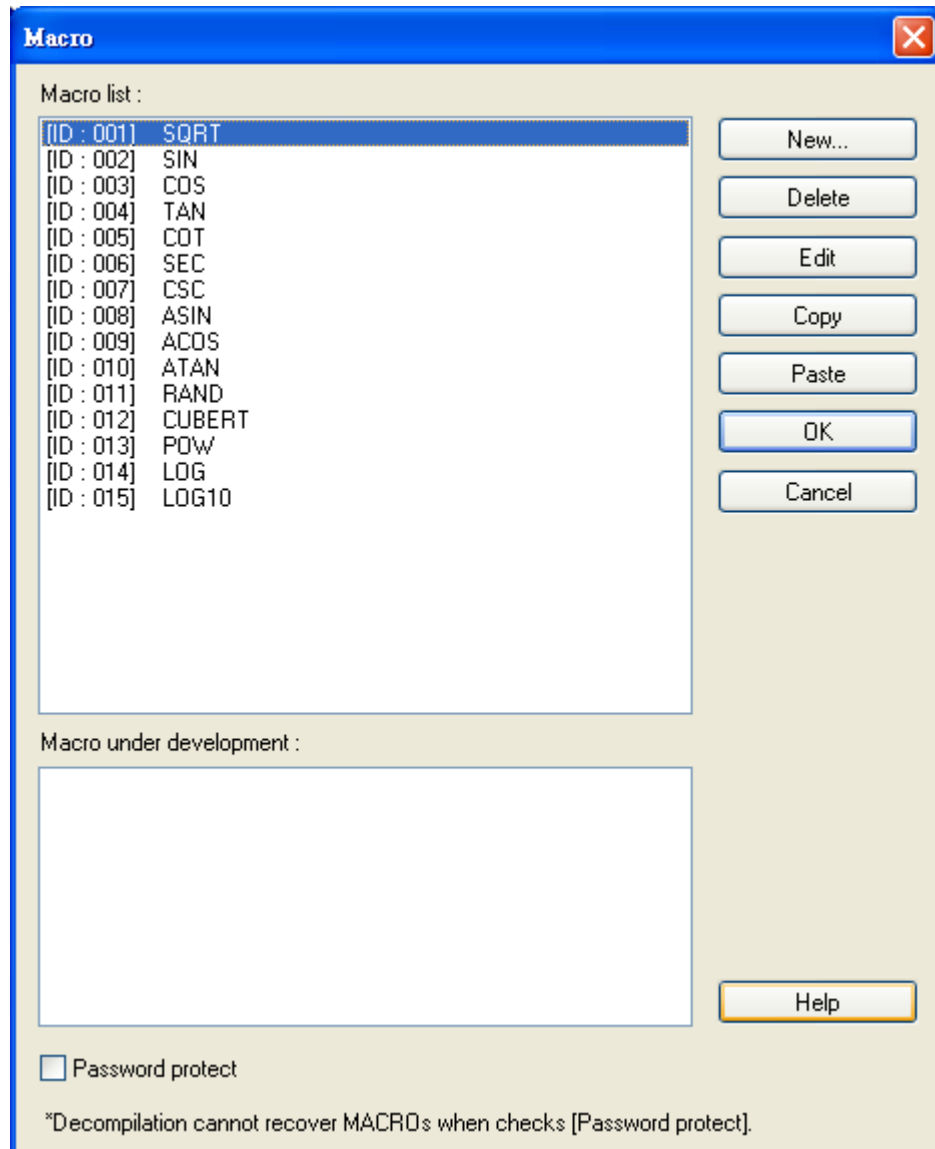


- ★ Upon completion of INPUT A and B, click POW to calculate A to the power of B.



## 2 Setting Up the Screen

### 2-1 Edit the Mathematical Functions of Macro.



[ID:001]SQRT:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  SQRT(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

[ID:002]SIN:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  SIN(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

[ID:003]COS:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  COS(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

[ID:004]TAN:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  TAN(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

[ID:005]COT:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  COT(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

## [ID:006]SEC:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  SEC(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

## [ID:007]CSC:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  CSC(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

## [ID:008]ASIN:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  ASIN(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```

## [ID:009]ACOS:

```
1
2
3  macro_command main()
4
5  float source,result
6  GetData(source,"Local HMI",LW,0,1)
7  ACOS(source,result)
8  SetData(result,"Local HMI",LW,0,1)
9
10 end macro_command
```



## [ID:010]ATAN:

```
1
2
3   macro_command main()
4
5   float source,result
6   GetData(source,"Local HMI",LW,0,1)
7   ATAN(source,result)
8   SetData(result,"Local HMI",LW,0,1)
9
10  end macro_command
```

## [ID:011]RAND:

```
1
2
3   macro_command main()
4
5   float result
6   RAND(result)
7   SetData(result,"Local HMI",LW,0,1)
8
9   end macro_command
```

## [ID:012]CUBERT:

```
1
2   macro_command main()
3
4   float source,result
5   GetData(source,"Local HMI",LW,0,1)
6   CUBERT(source,result)
7   SetData(result,"Local HMI",LW,0,1)
8
9   end macro_command
```

## [ID:013]POW:

```
1
2   macro_command main()
3
4   float source1,source2,result
5   GetData(source1,"Local HMI",LW,0,1)
6   GetData(source2,"Local HMI",LW,2,1)
7   POW(source1,source2,result)
8   SetData(result,"Local HMI",LW,0,1)
9
10  end macro_command
```

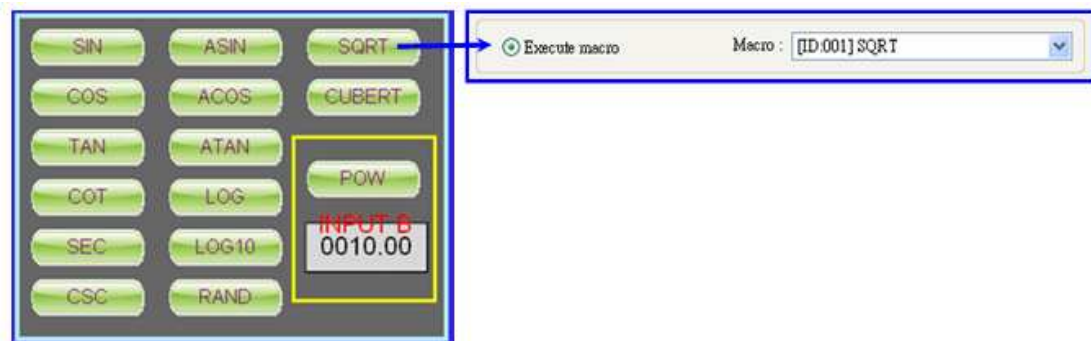
[ID:014]LOG:

```
1
2  macro_command main()
3
4  float source,result
5  GetData(source,"Local HMI",LW,0,1)
6  LOG(source,result)
7  SetData(result,"Local HMI",LW,0,1)
8
9  end macro_command
```

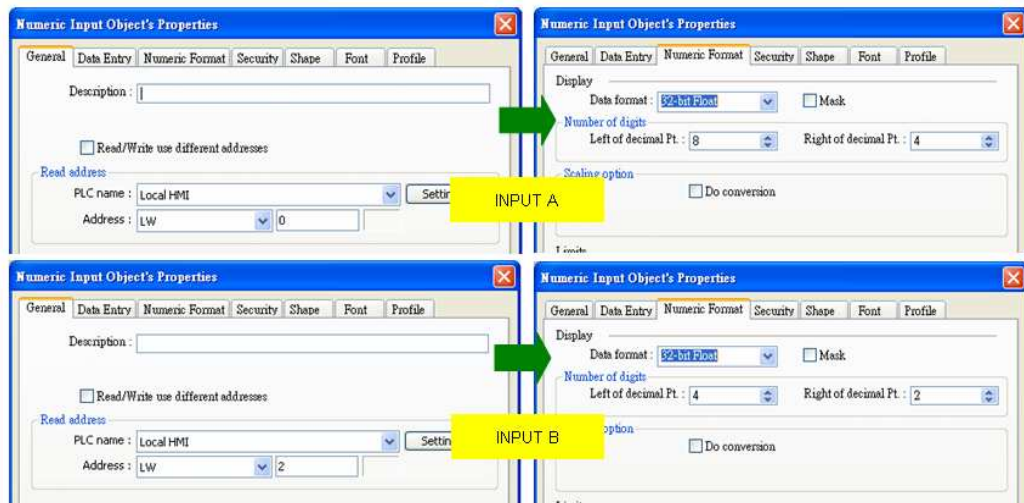
[ID:015]LOG10:

```
1
2  macro_command main()
3
4  float source,result
5  GetData(source,"Local HMI",LW,0,1)
6  LOG10(source,result)
7  SetData(result,"Local HMI",LW,0,1)
8
9  end macro_command
```

2-2 Create a Function Key to trigger Macro.



## 2-3 Create Numeric Input objects LW-0 (INPUT A), and LW-2(INPUT B).



### 3 Addresses

The Object Addresses used in this demo project are listed below: Users can change Addresses and Object ID base on actual usage.

Addresses		Object ID	Detail
Window 10			
Numeric Input	LW0	NE_0	Input A
	LW2	NE_1	Input B
Function Key		FK_0	To trigger macro
		FK_1	To trigger macro
		FK_2	To trigger macro
		FK_3	To trigger macro
		FK_4	To trigger macro
		FK_5	To trigger macro
		FK_6	To trigger macro
		FK_7	To trigger macro
		FK_8	To trigger macro
		FK_9	To trigger macro
		FK_10	To trigger macro
		FK_11	To trigger macro
		FK_12	To trigger macro
		FK_13	To trigger macro
		FK_14	To trigger macro