PLC220 Lab Exercise 21

InTouch HMI

Symbols/Cells
Symbols / Cells

Lesson Objective
By the end of this session, students should be able to:

1. Create a Symbol
2. Create a Cell.
3. Understand the differences between a Symbol and Cell

Lesson Requirements:
Computer with Wonderware InTouch, Software
**Introduction:**

This lesson demonstrates the differences between a Cell object and a Symbol Object. Both Cells and Symbols will group multiple objects into a single object.

Differences between Cells and Symbols
- Cells are not resizable
- Each object included in a cell can have its own Animation Links
- Symbols are resizable
- Animation Links for Symbols applied to the entire Symbol not to individual objects included in a Symbol

1. Create a new InTouch application called Symbol_Cell in InTouch

2. In WindowMaker create a Replace window called Symbol_Cell

3. Add the following Draw Object Toolbar objects to the window.
   - Ellipse
   - Rectangle
   - Using Polygon drawing tool – add two (2) Triangles to the window

The window will look similar to Figure 1-A
Figure 1-A  
Symbols_Cell Window Objects  
4. Position the window object to represent a Valve symbol

Figure 2-A  
Valve Symbol Likeness

Figure 3-A  
Valve Likeness Symbol_Cell Window  
Note: Use Send to Back / Bring to Front icons on Arrange Toolbar for positioning of overlapping objects

Figure 4-A  
Send to Back / Bring to Front Icons
Note: At least one object on the application windows must be selected for Send to Back / Bring to Front icons to be active.

5. Select all four objects on the window
   Right click the selected object
   Choose Duplicate from context menu

   ![Figure 5-A](image)
   Duplicate Windows Objects

6. Position objects on the window to appear similar to Figure 6-A
Figure 6-A
Duplicate Objects on Window

7. Select to Oval object on the left valve likeness
Assign an Animation Link of Fill Color Discrete.
8. Configure Fill Color Discrete Expression window as shown in Figure 8-A

9. Click the upper OK button

10. Define Tag 1 as Memory Discrete
11. Click Save Button – Click Close Button on Tagname Dictionary Window.

12. Click upper OK Button on Fill Color Discrete Expression Window to close the window

13. Add a Rocker Switch Wizard to the Symbol_Cell window. Assign Tag1 to the Rocker Switch object.
14. Test modified application window. Click Runtime button on WindowMaker

![Figure 11-A](image1)

**Rocker Switch - Tag1**

15. Click Development button on WindowViewer to return to WindowMaker

16. Create a Number Field on Symbol_Cell window to monitor the value of Tag1

17. Select all four objects on the left side Valve likeness and create Symbol.

Note: Make Symbol icon is located on the Arrange Toolbar

![Figure 12-A](image2)

**WindowViewer – Test Application**

The ellipse object on the left valve likeness will change RED to GREEN depending on the value of Tag1

- Tag1 = 0 - ellipse object RED
- Tag1 = 1 - ellipse object GREEN

![Figure 13-A](image3)
Make Symbol Icon Arrange Toolbar

Note: Multiple objects must be selected to activate the Make Symbol icon

Click the Make Symbol icon once all four objects on the left Valve likeness are selected

The four (4) objects that made up the left side valve likeness are now combined into one (1) object – Symbol

Note - Handles around Symbol likeness

Drag the Symbol handle to make the Valve Symbol smaller – Symbols can be resized.
18. Add a label below the Valve Symbol – Valve Symbol

19. Test Valve Symbol - Click Runtime button to open WindowView

Toggle the Rocker Switch
Note: All four (4) object that were included in the Valve Symbol change colors based on the Animation Link assigned to the Ellipse object – See pages 6-7.

20. Click the Development button to return to WindowMaker

21. Assign the following Animation Links to the right valve likeness

   Ellipse Object – Fill Color Discrete
   Use following information for Ellipse Fill Color
I AM iSTAR, A DOL funded project

**Figure 18-A**
Right Valve Likeness – Ellipse Object

- True Color – GREEN
- False Color – RED

**Figure 19-A**
Right Valve Likeness – Rectangle Object

- True Color – BLUE
- False Color – YELLOW

Right Polygon (right Triangle) Object – Fill Color Discrete

Use following information for Rectangle Fill Color
Figure 20-A
Right Valve Likeness – Right Polygon Object

True Color – PURPLE
False Color – LIGHT BLUE

Note: Tag1 assigned to all three (3) objects

Select all four (4) objects of right valve likeness

Figure 21-A
Right Valve Likeness – Four (4) Objects Selected

On the Arrange Toolbar click Make Cell icon
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Figure 22-A
Arrange Toolbar – Make Cell Icon

Note: Multiple objects must be selected to activate the Make Cell icon

The four (4) objects that made up the right side valve likeness are now combined into one (1) object – Cell

Note- Handles around Cell likeness

![Diagram of a valve likeness with handles.

Figure 23-A
Right Valve Likeness – Cell

22. Drag the Valve Cell handles
Can a Cell object be sized? ____________________________

23. Add a label below the Valve Cell – Valve Cell

24. Test Valve Cell - Click Runtime button to open WindowView
Toggle the Rocker Switch

Note: The four (4) object that are included in the Valve Cell change colors based on their individual Animation Link assigned. – See pages 10-11.

Note: All four (4) object that were included in the Valve Symbol change colors based on the Animation Link assigned to the Ellipse object – See pages 6-7.
The Animation Links assigned to an object within a Symbol will be applied to all the Symbol objects.

25. Click the Development button to return to WindowMaker – Cell_Symbol window.

To add Animation Links to a Symbol – double click the Symbol object or right click the Symbol object and select Animation Links from the context menu.

Note: only one of a Symbol’s object can have Animation Links assigned prior to
grouping objects as a Symbol

Right click the Cell object

Note: No Animation Link selection on Cell’s context menu

Figure 28-A
Cell Context Window – No Animation Link Selection

To modify a Cell’s object Animation Links-Select the Cell object- break the Cell.

Break Cell icon on Arrange Toolbar

Figure 29-A
Break Cell – Arrange Toolbar

After Break Cell - the Cell object returns to its original objects the composed the Cell

See Figure 30-A
Modify Animation Links on individual objects – Make Cell when changes are completed

Note: Break Symbol icon also located on Arrange Toolbar

Brake Symbol will return the Symbol back to its original objects the composed the Symbol.
Note: On context menus for Cells and Symbols – Selection to Make / Break Cells/Symbols

See Figure 33-A
Review Questions

1. T   F   Cells can have multiple Animation Links.

2. A InTouch Window object that cannot be resized
   a) Rectangle Object
   b) Cell
   c) Symbol
   d) Wizard Objects

3. To return a cell back to the original objects - use:
   a) Break Symbol
   b) Make Cell
   c) Break Cell
d) Cells cannot be returned to its original objects

4. T F Symbols can be resized

5. Wonderware InTouch objects that can be resized.
   a) Cells
   b) Symbols
   c) Wizard Objects
   d) Text
   e) None of the Above

6. T F Individual objects within a cell cannot have its own Animation Links

7. T F Individual objects within a symbol can have its own Animation Links

8. T F Objects cannot overlap on an InTouch Window

9. T F Cells cannot be resized

10. Objects that can be included in a Symbol are:
    a) Ellipse
    b) Polygon
    c) Rectangle
    d) All the above.
Review Questions Answers

1) T
2) b
3) c
4) T
5) b, c, d
6) F
7) F
8) F
9) T
10) d

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