TurboCAD PPM Quick Reference Guide

A multi-page reference for **Parametric Parts Modeling (PPM)** scripting in TurboCAD. Organized by categories with syntax, tables, and examples.

---

1. Script Basics

Comments

```
// Single line comment
/* Multi-line comment */
```

Identifiers

- Must start with a letter.
- Cannot use reserved words (e.g., PI, LINEAR, ANGULAR).

Parameters

```
H = Parameter("Height", 5, LINEAR, Interval(0, 100));
Angle = Parameter("Rotation", 45, ANGULAR, Interval(0, 360));
Name = Parameter("Label", "MyPart", TEXT);
Color = Parameter("Line Color", 0xff0000, COLOR);
Mat = Parameter("Material", "Wood\\Pine", MATERIAL);
Check = Parameter("Toggle", 1, CHECKBOX);
```

Input / Output

```
Input(H, W);
Output(Box1, Box2);
```

Units

```
Units(1[in]); // inches
Units(1[mm]); // millimeters
```

RefPoint

```
RP = RefPoint(0, 0, 0);
Output(RP);
```

---

2. 2D Geometry Functions

Function	Format	Example
Circle	Circle(r, [cx, cy])	C = Circle(10, 5, 5);
Rectangle	Rectangle(W, H, [cx,	R = Rectangle(10, 5);

Function	Format	Example
	cy])	
Polyline	Polyline(...)	P = Polyline(Point(0,0), Point(5,0), Point(5,5), Point(0,5), Point(0,0));
Arc0/Arc1	Arc0(cx,cy,r), Arc1(cx,cy,r)	Polyline(..., Arc0(5,5,2), ...);
Fillet	Fillet(r)	Polyline(Point(0,0), Point(5,0), Fillet(1), Point(5,5));

Rounded Rectangle Example

```
R = Polyline(Point(0,0), Point(L,0), Fillet(1), Point(L,H), Fillet(1),
Point(0,H), Fillet(1), Point(0,0), Fillet(1));
Output(R);
```

---

3. 3D Creation Functions

Function	Format	Example
Thickness	Thickness(obj, h)	T = Thickness(Rectangle(5,10), 3);
Sweep	Sweep(profile, path, [angle])	Torus = Sweep(Circle(2), Circle(5));
Sphere	Sphere(r, [x,y,z])	S = Sphere(5,0,0,0);
Cone	Cone(h, r1, [r2])	C = Cone(10, 5, 2);
Box (macro)	Box(x0,y0,z0,x1,y1,z1)	B = Box(0,0,0,10,10,10);

---

4. 3D Boolean Operations

Function	Format	Example
BooleanUnion	BooleanUnion(obj1,obj2, ...)	U = BooleanUnion(Sphere(5), Sphere(5,5,0));
BooleanSubtract	BooleanSubtract(base,cut)	Hole = BooleanSubtract(Sphere(5), Cylinder);
BooleanIntersect	BooleanIntersect(a,b)	I = BooleanIntersect(Sphere(5),

Function	Format	Example
		Box(0,0,0,5,5,5));

5. 3D Modification Functions

Function	Purpose	Example
G3Fillet	Round edges	G3Fillet(Box1, Point(5,0,0), Array(1,1));
G3Chamfer	Chamfer edges	G3Chamfer(Box1, Point(5,5,0), Array(1,1));
G3Offset	Offset face	G3Offset(Box1, Point(0,0,5), 2);
G3Shell	Hollow object	G3Shell(Box1, Point(0,0,5), 1);
G3Bend	Bend solid	G3Bend(Part, Point(0,0,0), Point(0,5,0), 90, 2, 0);

6. Transformations

Function	Format	Example
Move	Move(obj, dx,dy,dz, [count])	M = Move(Box1, 10,0,0,3);
RotateX	RotateX(obj, angle, [ox,oy,oz], [count])	R = RotateX(Box1, 90);
RotateY	RotateY(obj, angle, [ox,oy,oz], [count])	R = RotateY(Box1, 45,0,0,0);
RotateZ	RotateZ(obj, angle, [ox,oy,oz], [count])	R = RotateZ(Box1, 30);

7. SetProperties (Styling & Attributes)

Property	Purpose	Example
PenColor	Line color (RGB hex)	SetProperties(Box1, “PenColor”=0xff0000);
PenWidth	Line thickness	SetProperties(Box1, “PenWidth”=0.5);
Material	Apply material	SetProperties(Box1, “Material”=“Wood\Pine”);

Property	Purpose	Example
Brush	Surface fill style	SetProperties(Box1, “Brush”=“SOLID”);
#$AUX@_Contour \| Define clipping contour \| SetProperties(Profile, "#$AUX@_Contour“=1);		

---

8. Text Functions

Function	Format	Example
Text	Text(string,font,style)	T = Text(“Hello”, F, S);
TextFont	TextFont(mode,size,angle,font)	F = TextFont(0,10,0,“Arial”);
TextStyle	TextStyle(...)	S = TextStyle(LEFT,TOP,BOLD, ITALIC);

```
F = TextFont(0, 5, 45, "Times New Roman");
S = TextStyle(CENTER, MIDDLE, UNDERLINE);
T = Text("PPM Demo", F, S);
Output(T);
```

---

9. Math & Logic Helpers

Function	Purpose	Example
IF	Conditional selection	A = IF(L>H, Rectangle(L,H), Rectangle(H,L));
min/max	Min/max value	r = min(2,5,1);
Mod	Remainder	x = Mod(7,3); // = 1
Div	Division	d = Div(7,3);
Array	Collect values	arr = Array(1,2,3);

---

10. Grouping & Symbols

Function	Purpose	Example
Group	Treat multiple objects as one	G = Group(Box1, Sphere1);
StaticSymbol	Load external file	S =

Function	Purpose	Example
		StaticSymbol(“Part.tcw”);
FolderList	Select from folder	P = Parameter(“Drawing”,“File 1”, Set(FolderList(“....\Drawings”,“*.tcw”)));
Custom Macro	Use another .ppm as function	B = Box(0,0,0,10,10,10);

✅ Usage

This guide is intended as a **compact multi-page reference** for TurboCAD PPM users. Each function can be expanded with additional examples for deeper study.