



===== Six-axis robot Cartesian coordinate system =====

$P(x, y, z, a, b, c, d)$

x: X-axis distance (P-point X-axis component);

y: Y-axis distance (P-point Y-axis component);

z: Z-axis distance (P-point Z-axis component);

a: attitude plane angle;

The angle is the angle between the vector mapped by the attitude vector PQ in the XOY plane and the OX axis;

Angle range:  $(-180, 180)$ ;

b: attitude line face angle;

The angle b is the angle between the attitude vector PQ and the OZ axis;

Angle range:  $(0, 180)$ ;

c: attitude rotation angle;

The angle c is the angle between the vector mapped by the tool vector in the XOY plane and the OX axis;

Angle range:  $(-360, 360)$ ;

d: angle state of each joint in the model;

D is an integer, and no value defaults to 0;

Provisions:

0: The end is mapped to the positive direction, the same direction as D1 of the DH parameter, the third axis angle (-) sign, and the fifth axis angle (-) sign;

1: The end map is in the positive direction, the same direction as D1 of the DH parameter, the

third axis angle (-) sign, and the fifth axis angle (+) sign;  
2: The end is mapped in the positive direction, the same direction as D1 of the DH parameter, the third axis angle (+) sign, and the fifth axis angle (-) sign;  
3: The end map is in the positive direction, the same direction as D1 of the DH parameter, the third axis angle (+) sign, and the fifth axis angle (+) sign;  
4: The end is mapped in the negative direction, inverse to D1 of the DH parameter, the third axis angle (-) sign, and the fifth axis angle (-) sign;  
5: The end is mapped in the negative direction, inverse to D1 of the DH parameter, the third axis angle (-) sign, and the fifth axis angle (+) sign;  
6: The end is mapped in the negative direction, inverse to D1 of the DH parameter, the third axis angle (+) sign, and the fifth axis angle (-) sign;  
7: The end is mapped to the negative direction, inverse to D1 of the DH parameter, the third axis angle (+) sign, and the fifth axis angle (+) sign;

## Program case Description

FILE=ST

AM.ST

1719 //Sequence number of the program  
code:

G07 VP=20 //Speed set to 20%

G00 J1=0 J2=0 J3=-90 J4=0 J5=-90 J6=0 //Run to door position

G20 X=300 Y=131 Z=55 A=0 B=180 C=0 D=0 //Run to a location

G06 O=P0.1 //Turn on output 00

G20 X=300 Y=131 Z=20 A=0 B=180 C=0 D=0 //Run to a location

G06 O=P0.0 //Turn off output 00

G06 T=500 //Delay 500 ms

G00 J1=0 J2=0 J3=-90 J4=0 J5=-90 J6=0 //Back door position

G08 EXIT //Exit the loop,Program ends