Building a better future
Global Leader

Communication between Robot with Sensor system

1. Dedicated Method
   1) Basic

```
Robot      ------------------------------------------------------------>     Sensor System
   SREQ R=1,PT=1
   or SREQT R=1,PT=1,WT=10.0,SS=100
      R1.CFG = Port No×2  (set Request bit)
         ------------------------------------------------------------> "SHIFT 1[CR][LF]"
         <------------------------------------------------------------ "SHIFT 10,20,30,0,0[CR]"
      R1.CFG = &B10000 (set InputState bit,
                        and reset Request )
      R1.X=10,  R1.Y=20,  R1.Z=30,  R1.RX=0,  R1.RY=0,  R1.Z=0
   SONL ST=1,RF=0,R=1,SS=10
      Shift next step until SONL ST=0
```

   2) expand usage

```
      R1=(0,0,0,0,0,0)
      R1.CFG = Port No×2  (set R1.Reguest = Port No.)
         <------------------------------------------------------------ "SHIFT 10,20,30,0,0[CR]"
      R1.CFG = &B10000 (set InputState bit,
                        and reset Request )
      R1.X=10,  R1.Y=20,  R1.Z=30,  R1.RX=0,  R1.RY=0,  R1.Z=0
   IF R1.CFG=&B10000 THEN 10 ELSE 20
   Use R1 element to anywhere in your program.
```

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2. ASCII protocol
   Refer to Application example.

3. Binary protocol

Robot ----------> Sensor System

_TEINPUT=-10 This value is reset at cycle start.
INPUT #1,V1$
use ORG(V1$) and MID(V1$, V1%, 1)

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4. Commands about Vision system

① SONL Command

Description	On-line shift (M52)		
Syntax	SONL ST=<Start/End>,RF=<Std>,R=<Register Number>,SS=<Shelter Step No>		
Parameter	Start/End	If 1, starts the shift application. If 0, ends. If 0, all other factors are ignored.	0～1
	Std.	If 0, based on the ground coord. If 1, based on the tool coord.	0～1
	Reg. Number	The register number where the received shift amount is stored.	1～8
	Shelter Step No.	Step to which jump, when the shift amount is not input within the specified time limit.	0～999
Example	SONL ST=1,RF=0,R=1,SS=10		

② SREQ Command

Description	Shift Requirement (M51)		
Syntax	SREQ R=<Register Number>,PT=<Port Number>		
Parameter	Reg. Number	Register number for saving the received shift amount.	1～8
	Port Number	RS232C port number to be used for shift requirement and transmission.	1～1
Example	SREQ R=1,PT=1		

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③ SREQT Command

Description	Timer conditional shift function (M56)		
Syntax	SREQT R=<Reg. Number>,PT=<Port Number>,WT=<Wait Time>,SS=<Shelter Step Number>		
Parameter	Reg. Number	Register number for saving the received shift amount.	1～8
	Port Number	RS232C port number to be used for shift requirement and shift amount transmission.	1～1
	Wait Time	wait time until receiving the shift amount.	0.0～60.0 (sec)
	Shelter Step Number	Step number to which jumps when the wait time is elapsed.	0～999
Example	SREQT R=1,PT=1,WT=10.0,SS=100		

④ SXYZ Command

Description	XYZ Shift (M58)		
Syntax	SXYZ RF=<Coord>,X=<X Shift Amount>,Y=<Y Shift Amount>,Z=<Z Shift Amount>		
Parameter	Coord.	If 0, ground coord. If 1, tool coord.	0～1
	Shift Amount	Shift Amount to be shifted parallel in 3D.	-3000.0～3000.0
Example	SXYZ RF=0,X=10.50,Y=20.50,Z=0.00		

⑤ TONL1 Command

Description	Online coordinate conversion (Slipping) (M53)		
Syntax	TONL1 ST=<Start/End>,RF1=<Ref. Step number1>,RF2=<Ref. Step number2>,RF3=<Ref. Step number3>		
Parameter	Start/End	If 1, Coordinate conversion starts. If 0, exits.	0～1
	Ref. Step number	The step numbers used as 3 reference points.	0～999
Example	TONL1 ST=1,RF1=1,RF2=5,RF3=7		

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⑥ TONL2 Command

Description	Online coordinate conversion (coordinate value) (M54)		
Syntax	TONL2 ST=<Start/End>,RF1=<Basic Step number1>,RF2=<Basic Step number2>,RF3=<Basic Step number3>		
Parameter	Start/End	If 1, coordinate conversion starts. If 0, exits	0～1
	Ref. Step number	Step numbers used as 3 reference points.	0～999
Example	TONL2 ST=1,RF1=1,RF2=5,RF3=7		

⑦ CLR232C Command

Description	Clears the receive buffer of the serial port (M111)		
Syntax	CLR232C <port no.>		
Parameter	port no.	serial port number	1～2
Example	CLR232C 1		

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