

<b>Case name</b>	Shihlin SA3 turret control				
<b>Department</b>	FA engineering group	<b>date</b>	2015.09.30	<b>page</b>	4
<b>Product</b>	Shihlin SA3 series				

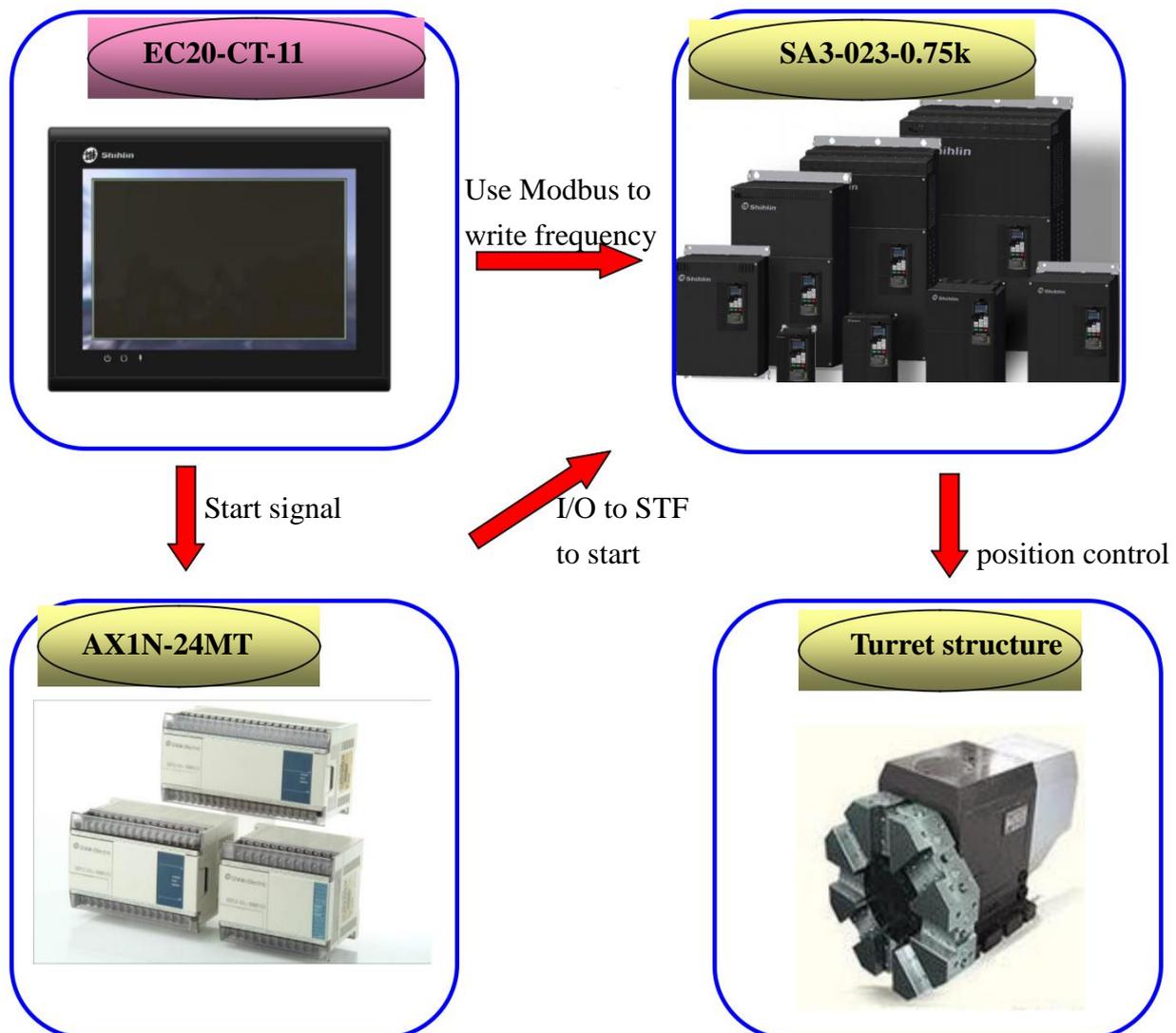
### 1. Introduction and requirement

At present, for application of the industry, the demand for motor position control is mostly done by servo drive, but in many practical cases, many positioning points are not needed.

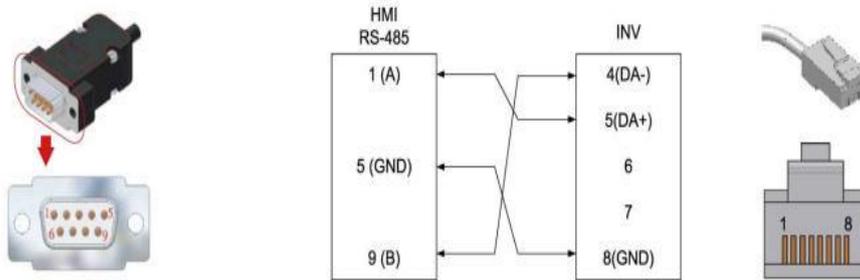
Considering the cost, the Shihlin inverter SA3 series can be chosen.

SA3 inverter positioning control is one of its characteristics. In the past, the inverter can only drive the induction motor (IM) for speed control, but the SA3 can drive the servo motor (SPM) to perform positioning control. The positioning function can be achieved by adding a PG feedback card on the SA3 expansion card slot to receive the servo motor encoder signal. This example uses the human-machine interface EC210-CT-11, where input the frequency to control the speed, and the AX1N PLC is used to provide the inverter position and forward rotation signal to achieve the turret control and 8-point dial positioning control.

### 2. System structure



## HMI communicate with INV wiring



## Communication setting

## HMI part



## Inverter:

Parameter	setting	Description
P. 32	1	Baud rate: 9600bps
P. 33	0	Modbus communication
P. 36	1	Station number
P. 52	9	Communication error times tolerance
P. 153	0	Idle stop when alarm
P. 154	5	Start bit 1、Data bit 8、Parity odd、Stop bits 1 (Modbus、RTU)

Inverter other parameter setting:

Parameter	Set value	Description
P.5	XXX	Middle speed, set by HMI through Modbus
P.6	XXX	Low speed, set by HMI through Modbus
P.79	6	Exterior start signal, Modbus for frequency
P.87	0	Multi-function input terminal active high
P.88	0	Multi-function output terminal active high
P.300	5	Synchronous motor PG vector control
P.301	0	Motor parameter auto measure disable
P.302	0.4	Motor capacity
P.303	8	Motor poles
P.304	220	Motor rated voltage
P.305	200	Motor rated frequency
P.306	2.4	Motor rated current
P.307	3000	Motor rated rpm
P.327	0	Synchronous motor type (For this case SPM)
P.349	1	Servo motor ABZ signal
P.350	2500	Motor encoder pulse per round
P.351	1	Encoder pulse type(For this case AB phase pulse, A phase forward B phase 90 degree is positive)
P.400	2	Position control
P.420	2010	Origin point return: u = 2: Trigger by terminal SHOM x = 0: After checking origin point, motor decelerate to origin point y = 1: When returning don' t reverse, go forward to find Z z = 0: Turn forward to do origin return, ORGP for reset origin
P.451	60000	Position 1 pulses

### Product features and features

- ※ High performance vector control technology
- ※ Four quadrant torque control and limit
- ※ Sudden low voltage compensation
- ※ Regeneration avoidance function
- ※ High performance synchronous motor control technology
- ※ Built-in position control, torque control, speed control, tension control function
- ※ Built-in PLC function

### Conclusion (recommendation)

Shihlin inverter SA3 with PG feedback card can perform positioning control.

Shihlin SA3 plus expansion card can perform CANopen communication, Profibus communication, Devicenet communication

Shihlin human-machine interface can control Shihlin inverters with up to 31 units by using Modbus protocol.