CLAIMS

1. A servo system comprising:

a motor wherein a movable element is configured to move relative to a stator;

an encoder configured to detect at least one of a position and a speed of the movable element; and

a higher-level device configured to control an operation of the motor based on a detection result of the encoder; wherein

the higher-level device includes a first command transmission part configured to transmit a first command signal for changing a communication speed between the encoder and the higher-level device to a second speed higher than a present first speed to the encoder at the first speed; ~~and~~

the encoder includes:

a speed setting part configured to change the communication speed between the encoder and the higher-level device to the second speed after at least a first period elapses from the reception of the first command signal~~, when the first command signal is received~~ and when the communication speed between the encoder and the higher-level device is capable of being set of the second speed; and

a determination part configured to determine whether or not the encoder receives a signal from the higher-level device before the first period elapses; and

the speed setting part is configured not to change the communication speed between the encoder and the higher-level device to the second speed, when the determination part determines that the signal is received from the higher-level device.

2. The servo system according to claim 1, wherein

the encoder further includes a command response part configured to transmit a first response signal to the higher-level device, when the first command signal is received and when the communication speed between the encoder and the higher-level device is capable of being set to the second speed; ~~and~~

the speed setting part is configured to change the communication speed between the encoder and the higher-level device to the second speed after at least the first period elapses from the reception of the first command signal, when the command response part transmits the first response signal to the higher-level device; and

the determination part is configured to determine whether or not the command response part receives a signal from the higher-level device before the first period

elapses.

~~3. The servo system according to claim 2, wherein the speed setting part is configured to change the communication speed between the encoder and the higher-level device to the second speed, after at least a first period elapses from the reception of the first command signal when the command response part transmits the first response signal to the higher-level device.~~

~~4. The servo system according to claim 3, wherein~~

~~the encoder further includes a determination part configured to determine whether or not the command response part receives a signal from the higher-level device before the first period elapses; and~~

~~the speed setting part is configured not to change the communication speed between the encoder and the higher-level device to the second speed, when the determination part determines that the determination part receives a signal from the higher-level device.~~

~~5~~3. The servo system according to claim ~~4~~2, wherein the higher-level device further includes a higher-level speed setting part configured to change the communication speed between the higher-level device and the encoder to the

second speed, after at least a second period longer than the first period elapses from a point of time that the first command transmission part transmits the first command signal when the first response signal is received.

~~6~~4. The servo system according to claim ~~5~~3, wherein

the higher-level device further includes a second command transmission part configured to transmit a second command signal for confirming whether or not the speed setting part changes the communication speed between the encoder and the higher-level device to the second speed, after the higher-level speed setting part changes the communication speed between the higher-level device and the encoder to the second speed to the encoder; and

the command response part is configured to transmit a second response signal to the higher-level device, when the communication speed between the encoder and the higher-level device is set to the second speed when the second command signal is changed.

~~7~~5. The servo system according to any one of claims 1 to ~~6~~4, wherein

the higher-level device further includes a parameter setting part configured to set parameters containing the second speed; and

the speed setting part is configured to change the communication speed between the encoder and the higher-level device to the second speed expressed in the parameters included in the first command signal.

~~8~~6. The servo system according to any one of claims 1 to ~~7~~5, wherein the speed setting part includes a speed initializing part configured to initialize the communication speed between the encoder and the higher-level device to the first speed when a power source of the encoder is interrupted.

~~9~~7. An encoder configured to be used in the servo system described in any one of claims 1 to ~~8~~6.

CLAIMS

1. A servo system comprising:

a motor wherein a movable element is configured to move relative to a stator;

an encoder configured to detect at least one of a position and a speed of the movable element; and

a higher-level device configured to control an operation of the motor based on a detection result of the encoder; wherein

the higher-level device includes a first command transmission part configured to transmit a first command signal for changing a communication speed between the encoder and the higher-level device to a second speed higher than a present first speed to the encoder at the first speed;

the encoder includes:

a speed setting part configured to change the communication speed between the encoder and the higher-level device to the second speed after at least a first period elapses from the reception of the first command signal and when the communication speed between the encoder and the higher-level device is capable of being set of the second speed; and

a determination part configured to determine whether

or not the encoder receives a signal from the higher-level device before the first period elapses; and

the speed setting part is configured not to change the communication speed between the encoder and the higher-level device to the second speed, when the determination part determines that the signal is received from the higher-level device.

2. The servo system according to claim 1, wherein

the encoder further includes a command response part configured to transmit a first response signal to the higher-level device, when the first command signal is received and when the communication speed between the encoder and the higher-level device is capable of being set to the second speed;

the speed setting part is configured to change the communication speed between the encoder and the higher-level device to the second speed after at least the first period elapses from the reception of the first command signal, when the command response part transmits the first response signal to the higher-level device; and

the determination part is configured to determine whether or not the command response part receives a signal from the higher-level device before the first period elapses.

3. The servo system according to claim 2, wherein the higher-level device further includes a higher-level speed setting part configured to change the communication speed between the higher-level device and the encoder to the second speed, after at least a second period longer than the first period elapses from a point of time that the first command transmission part transmits the first command signal when the first response signal is received.

4. The servo system according to claim 3, wherein

the higher-level device further includes a second command transmission part configured to transmit a second command signal for confirming whether or not the speed setting part changes the communication speed between the encoder and the higher-level device to the second speed, after the higher-level speed setting part changes the communication speed between the higher-level device and the encoder to the second speed to the encoder; and

the command response part is configured to transmit a second response signal to the higher-level device, when the communication speed between the encoder and the higher-level device is set to the second speed when the second command signal is changed.

5. The servo system according to any one of claims 1 to 4, wherein

the higher-level device further includes a parameter setting part configured to set parameters containing the second speed; and

the speed setting part is configured to change the communication speed between the encoder and the higher-level device to the second speed expressed in the parameters included in the first command signal.

6. The servo system according to any one of claims 1 to 5, wherein the speed setting part includes a speed initializing part configured to initialize the communication speed between the encoder and the higher-level device to the first speed when a power source of the encoder is interrupted.

7. An encoder configured to be used in the servo system described in any one of claims 1 to 6.