TOSVERT VF-A7/P7
Instruction Manual for Parameter F 182

Thank you for purchasing the Toshiba industrial inverter "TOSVERT VF-A7/P7".
This manual describes the functions of the F 182 parameter for the inverter TOSVERT VF-A7/P7.

Title	Communication No.	Function	Adjustment range	Minimum setting unit (Panel/ Communication)	Default setting
F 182	0182	Motor switching mode selection	0 : standard, 1 : customized	1/1	0

Title	Write during running	Vector control			V/f Constant
		Speed control	Torque control	Position control	
F 182	Disabled	●/●	●/●	-/●	●

Sensorless vector / Vector with sensor (● : valid, - : invalid)

1. Functions
   a) Controlling multiple motor type (up to four motors with the same rated voltage, number of poles, and capacity) while switching from one to another.
      (Motor type : Toshiba standard motor, Toshiba VF motor, Toshiba V3 motor)
      (Especially when controlling them in vector control mode (V/f control mode selection (Pt): 2 to 9) for which motor constants need to be specified)
   b) Switching V/f control modes (V/f1 to V/f4) by sending a signal to input terminals, and performing operation in V/f2 to V/f4 modes under the same conditions specified for V/f1, using the V/f control mode selection parameter (Pt)

   For the operations described above, use this function along with the V/f switching signal 1 or 2.

   Note 1: The functions described in 6.4.1, “Switching among V/f characteristics #1, #2, #3 and #4 from input terminal,” of the inverter’s instruction manual are also activated when this function is used, so that the parameter selected needs to be set as required.

   Note 2: Motor constants 1, 2, 3 and 5 (F402, F403, F404 and F410), which need to be specified according to the motor used, cannot be changed.

   Note 3: V/f control mode selection parameter settings (Pt) cannot be switched on a motor-by-motor basis (V/f1 to V/f4).

2. Parameter setting

Title	Function	Adjustment range	Setting value
CMOd	Operation command mode selection	0~4	0
Pt	Motor control mode selection	0~9	0~9
F182	Motor switching mode selection	0 : standard, 1 : customized	1
F111 ~ F126	Input terminal selection	0~135	28 (V/f switching signal 1) and 30 (V/f switching signal 2) set for the two control circuit terminals used
F402	Motor constant #1 (primary resistance)	0.00~100000mΩ	Vary depending on whether input terminals are on or off. (Refer to table 1)
F403	Motor constant #2 (secondary resistance)	0.00~100000mΩ	
F404	Motor constant #3 (exciting inductance)	0.0~6500mH	
F410	Motor constant #5 (leak inductance)	0.0~650.0mH	
F411	Number of motor poles	2, 4, 6, 8, 10, 12, 14, 16	Set to 2, 4 or 6 according to the motor.
F412	Rated capacity of motor	0.1~[Model dependent] [kW]	Set according to the motor
F413	Motor type	0~4	No setting required (invariable)

3. Example of operation

To operate 3.7 kW four-pole motors in sensorless vector control mode while switching them by sending a signal to the S1 and S2 terminals

(1) Set the parameters as follows; CMOd=0, Pt=3, F182=1, F115=28, F116=30, F411=4, F412=3.7
(The parameters described in 6.4.1, “Switching among V/f characteristics #1, #2, #3 and #4 from input terminal,” of the inverter’s instruction manual also need to be set for each motor.)

(2) The settings of F402, F403, F404 and F410 are changed by turning on or off the S1 and S2 terminals, as described in Table 1 below, and motor data is according to the type of motor used.

Table 1

S1	S2	Settings of F402, F403, F404 and F410
OFF	OFF	TOSHIBA standard motor #1
ON	OFF	TOSHIBA VF motors
OFF	ON	TOSHIBA V3 motors
ON	ON	TOSHIBA standard motor #2

* If any number of poles or capacity other than those of the Toshiba motors is specified, an “Etn” trip will occur.