VF64 Series

Super Block Function Abstruct Manual

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TOYO ELECTRIC MFG.CO.,LTD

1. Summary of VF64 Super Block(SPB) function

VF64 has basic torque control function and speed control function, however there are cases of adopting the user's own control method according to the system.

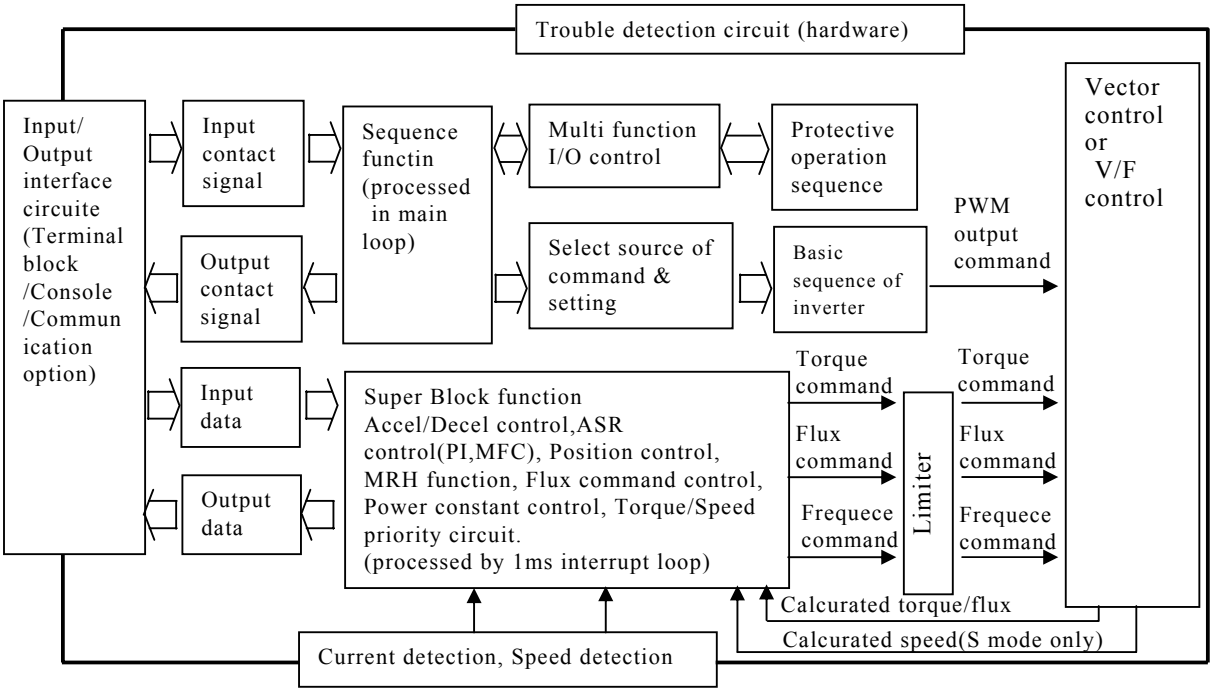
In such cases, we can supply VF64 installing the most suitable torque control function and speed control function to the user promptly in accordance with applied system.

Also, in the systems that such as the drive requires special control, and the system for which high speed and complicative control must be done, and the system where different controls are required at each section, we can install easily operation (arith.) circuit of the most suitable commands (speed command, torque command) to each section and each system.

Position of super block function in the configuration of control circuit of VF64 are shown in the Fig. 1 below.

Making the "data from terminal block, console, communication option, sequence function and data from current detection, speed detection and internal operation (arith.) data" as the input data, super block function acts as an operation (arith.) circuit for getting the required speed command and torque command, and outputs the result to basic control circuit of VF64.

Fig.1 Configration of VF64 Control Circuit



2. Specifications of SPB(Super Block) function (* = arith. operation)

Main specifications of control circuit to be structured by SPB function are as stated below.

1) Max. number of step: 64

Basic operation of SPB mentioned later can be used until 64 pcs.

however, quantity of same SPB which can be used at the same time is until 9 pcs.

2) Operation* cycle

Cycle from 1ms until 4ms can be set.

Cycle is set depending on the scale of control circuit to be installed.

3) Kind of super block

There are 31 kinds in all as shown in Table 1.

Block diagrams of each SPB are shown in Fig. 2.

Super block covers necessary function for motor drive system from transferring of data, simple calculation until high level control function which are widely used in classic control and modern control.

Table1: Table of SPB(Super Block)

No.	Block Type	Block Name	Function
0	00	BEND	SPB put at the end of SPB Array
1	04	BITJ	Transfer bit data (to output data area)
2	08	BITW	Transfer bit data (to designated address)
3	0C	JMPR	Transfer word data (to designated address)
4	10	JMPS	Transfer word data (to output data area)
5	14	DLRG	Diode priority
6	18	ADDR	Addition/Substraction
7	1C	MULT	Multiplication
8	20	CMPA	Comparater
9	24	LAG1	First order lag
10	28	DBAN	Dead band
11	2C	PI3A	PI amplifier (basic characteristics)
12	30	PI2A	PI amplifier (with window comparater)
13	34	PI1A	PI amplifier (with priority cicuite)
14	38	PI4A	PI amplifier (with priority & gain selecter)
15	3C	FFWD	Meed foward
16	40	MCAN	Motor side cancelation
17	44	FCAN	Flexible(load) side cancelation
18	48	EARC	Easy ARC
19	4C	SARC	S-pattern Accel/Decel
20	50	PCTQ	Reciprocal of torque generation coefficient
21	54	MRHF	MRH function
22	58	DSEL	Data selecter
23	5C	DRPC	Droop control
24	60	DLG3	Diode Priority (3-inputs)
25	64	HYSC	Hysteresis non linear control
26	68	PIDA	PID amplifier
27	6C	FUNC	Function
28	70	PAUS	Division point of super block
29	74	JMPW	Transfer word data(to designated address)
30	78	BSEL	One bit selection of data

3. Application example

Fig. 3 shows an example of applied circuit.

This example indicates that:-

1) Receive analog signal from terminal block as speed command.
2) Operate (arith.) the difference between above command and speed detection data.
3) Make speed control to meet the command.
4) Receive analog signal from isolation amplifier as torque limit command.
5) Set torque limit on speed control output, by Low priority circuit.

Each control constant can be set by console which is indicated as "P-xxx".

This is an example of very simple case.

Since high level or complicative control can also be structured using super block of Table 1, Fig. 2 , please let us have your inquiry without reserve.

Fig.3 Application Example(speed control circuit& torque limit)