PREFACE

1. It has been almost seven years since FATEK first introduced the FB series PLC's (OS editions are V1.xx and V2.xx) in 1993. With the brand new silicon chip (ASIC) redesigned from the original structure of FB-PLC V2.xx and doubling the PLC frequency, FATEK has come up with the new generation of FB-PLC of OS edition V3.xx in its response to the progress of PLC technology. It can be noticed that the process speed has been increased (from 0.65us/step up to 0.33us/step), the program capacity has been expanded (from 8K words up to 13K words) and the instruction functions have further been strengthened. Most importantly the communication integration functions have been promoted and the NC servo functions have also been increased. In terms of communication functions, the new V3.xx PLC does not only keep the original communication LINK function of V2.xx PLC, but also adds a RS-485 communication port with a communication speed up to 614.4Kbps. On top of this, the application of Binary codes, that have a speed twice as fast as the original ASCII codes, has increased its communication speed by 64 times from the V2.xx speed of 19.2Kbps. As far as NC servo control is concerned, a single V3.xx PLC can now provide as many as four axes with a maximum pulse command output frequency of 512KHz and four sets of 2-phase 512KHz hardware high speed counters. With respect to expansion peripherals, not only temperature measurement and PID temperature control have been added, but also several different types of digital and analog thin case expansion module have been introduced.

2. The configuration structures of V3.xx PLC and V2.xx PLC are exactly the same. The instructions are compatible as well. However, the main unit of V3.xx PLC has two types in general and NC servo control, the former named FB$_E$, and the latter named FB$_N$. Since V3.xx FB$_E$/FB$_N$-PLC and V2.xx FB-PLC are fully compatible, their expansion units/modules should also be compatible. The instructions of FB$_E$ and FB$_N$ are compatible except for the circuit and structure of I/O. In the circuit design, in order to approach 512KHz high speed counter input frequency and 512KHz NC pulse output frequency, the circuits of LINE RECEIVER and LINE DRIVER in FB$_N$ main units were designed in the structure, due to the increase in I/O wiring, we elected to use the higher density terminal blocks(7.62mm pitch) and reduce the total I/O to 19/26/36 points instead of 20/28/40 points in FB$_E$ main units. However the circuit and structure of FB$_E$ main unit and V2.xx FB-PLC are exactly the same, the high speed counter and NC pulse output frequency are 20KHz. Hence, FATEK will no longer provide the market with V2.xx FB-PLC, while the new V3.xx FB$_E$/FB$_N$-PLC will continue to use the type name of FB series. This means that FB series PLC's will have two types of main unit, FB$_E$ and FB$_N$.

3. There are two user manuals for the new FB series PLC's, the【Hardware/Basic Functions Edition】 and the 【Advanced Functions Edition】. The former is formed by using the original V2.xx FB-PLC User's Manual (Basic) as a basis and adding the 【Hardware Edition】manual that combines the necessary safety standards description and the related hardware information for CE approval. The latter consists of the description of newly added functions and instructions and the original V2.xx FB-PLC (Advance) User's Manual.

4. Both manuals 【Hardware / Basic】 and 【Advanced】are merely instruction manuals where descriptions are made in accordance with the functions and the instructions provided by FB series PLC's alone without covering control process design, program design or practical examples, that are compulsory for the actual application. Users will have to refer to the related books and documents themselves. Nevertheless, the function for some application examples will be included in the Advanced manual to help users master their application more easily.