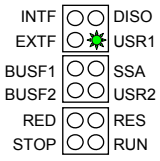
5.1 Installation of the AddFEM SoE

For installation and operating instructions, refer to the AddFEM manual for 6DL3100-8AC [1].

5.2 Error indicators of the AddFEM SoE

The general LED indicators relating to startup and operating states are the same as those described in the manual for 6DL3100-8AC [1].
As of FEF03 software version 05 (cross on the front FEF03-label), AddFEM SoE additionally features a display for the synchronization status.
This can be used for commissioning to check whether the optical synchronization pulse of the GPS time server typically sent every minute is fed correctly to the AddFEM.

On AddFEM LED USR 1, the quality of the received light pulse is shown as follows.

LED	Status	Display	Meaning
USR1	Quality of synchronization pulse		LED flashes in synch with the incoming pulse (by the second): The incoming optical pulses from the GPS time server are error-free and synchronization is possible. LED flickers (8 Hz): Pulses are arriving, but they cannot be decoded without error. Possible cause: Bad signal quality or no DFC77 encoding LED is off: The AddFEM detects no light pulse Possible cause: Defect in optical receiver of AddFEM or fault in the optical transmission route between GPS time server and AddFEM.

Caution: If you want to check the light pulse on the fiber optic cable 6DL9903-8AA/8AB that is plugged into the AddFEM, please do not look directly into the open end of the cable after disconnecting it from the AddFEM, because the pulse of light sent by the SoE repeater module is very bright.

5.3 Accessories for the AddFEM SoE

Description	**Order no.**
SoE repeater module including mounting rail bus connector	6DL9200-8AA
SoE repeater extension module including mounting rail bus connector	6DL9201-8AA
FOC GPS time server – > SoE repeater module	6DL9902-8AA 15 m 6DL9902-8AB 25 m
FOC SoE repeater –> AddFEM SoE (Plastic FOC)	6DL9903-8AA 1,5 m 6DL9903-8AB 2,5 m

Standard accessories such as the connector set are described in the AddFEM manual for 6DL3100-8AC [1].

5.4 Configuration of the AddFEM SoE

The Front-End Function SoE is configured based on GSD sources, using an appropriate engineering tool, such as HW Config. The GSD files "SiT580A3.GS?" or "SiT680A3.GS?" can be used to configure the SoE function. For further information about GSD files, refer to "readme.pdf" on the current AddFEM CD.

The SoE function is always programmed with the help of DPV1 services. Data records for the parameter set are transferred to AddFEM by means of write requests.

Each AddFEM supports the implementation of up to 31 binary SoE or high-speed IO channels.

The SoE channels should be enabled separately. A default order of procedures is not defined. Although channel operation as SoE input should preferably be enabled at system startup, the function may also be modified in online mode.

Configuration data not only define the monitored binary inputs, but also the signal edges (0 -> 1 or 1 -> 0) to be reported as "incoming" or "outgoing" event. The signal edge to evaluate is configured channel-specific to PROFIBUS standard.

Parameters of general SoE functionality		
Name	**Description**	**Default**
EVENT_BUF_TRANS_INTERVALL	Interval for transferring data from the partially filled event buffer (less than 17 events in the stack.) A buffer transfer is not initiated if the stack does not contain any events. Resolution 10 ms Adjustment range: 10 ms – 655.35 s (adjustable in steps of 10 ms) 0 = function disabled, no transfer of partially filled event buffer.	0
SOE_SIGN_OF_LIVE_INTERVALL	Interval within which the SoE function generates and reports a life-sign exception event. Resolution 10 ms Adjustment range: 10 ms – 655.35 s (adjustable in steps of 10 ms) 0 = function disabled, no transfer of life-sign events.	0
EVENT_NR	Max. number of events for intermediate storage in the internal buffer. The system reports Exception_Event BUFFER_OVERFLOW when this limit is reached. Adjustment range: 1 – 1800	64

Table 5-1 Parameters of general SoE functionality

Parameters of digital inputs (channel-specific)		
Name	**Description**	**Default**
SOE_CTRL_ON	Toggles between standard and SoE functions 0 = standard function 1 = SoE functionality	0
SOE_SIGFLANK	0 = Signal transition 0 -> 1 = incoming Signal transition 1 -> 0 = outgoing 1 = Signal transition 0 -> 1 = outgoing Signal transition 1 -> 0 = incoming Note: The incoming/outgoing event trigger is saved to the data record for Delta_Trigger_Discrete_Events.	0
FL_MON_ON	Flutter monitoring on 0 = flutter suppression off 1 = flutter suppression on	0
FL_NUM_OF_SIG	Flutter suppression: number of signal changes Adjustment range: 2 to 255	5
FL_MON_WIN	Flutter suppression: monitoring window Resolution 10 ms Adjustment range: 10 ms – 655.35 s (in steps of 10 ms)	10 s

Table 5-2 Parameters of digital inputs (channel-specific)