

F 8650X (0606)



F 8650X



F 8650X: Central module

Use in the PES H51q-MS, -HS, -HRS,

Safety-related, applicable up to SIL 3 according to IEC 61508

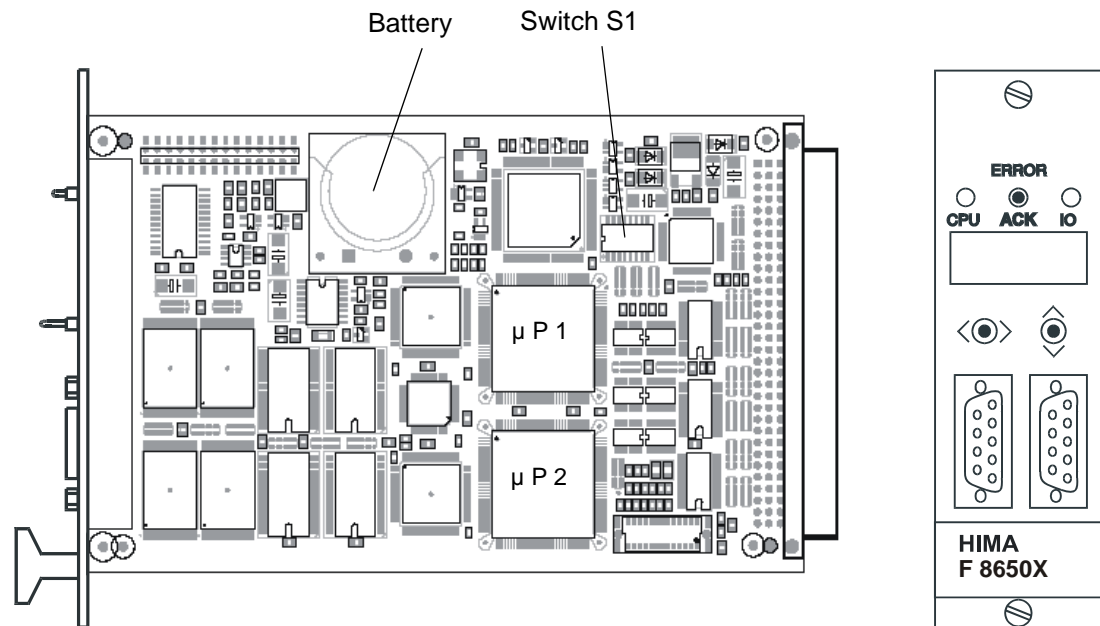


Figure 1: View

Central module with two clock-synchronized microprocessors

Microprocessors	INTEL 386EX, 32 bits
Clock frequency	25 MHz
Memory per microprocessor	
Operating System	Flash-EPROM 1 MB
User program	Flash-EPROM 1 MB *
Data	SRAM 1 MB *
	* Degree of utilization depending on operating system version
Interfaces	Two serial interfaces RS 485 with electric isolation
Diagnostic display	Four digit matrix display with selectable information
Shutdown on fault	Safety-related watchdog with output 24 V, loadable up to 500 mA, short-circuit proof
Construction	Two European standard PCBs, one PCB for the diagnostic display
Space requirement	8 SU
Operating data	5 V / 2 A

Setting of the bus station no. via switches S1-1/2/3/4/5/6/7:

Position switch no. 6 7
 On Off

Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5
0	On	Off	Off	Off	Off	not admissible	8	On	Off	Off	Off	16	On	Off	Off	Off	Off	24	On	Off	Off	Off	Off
1	On	Off	Off	Off	Off		9	On	Off	Off	Off	17	On	Off	Off	Off	Off	25	On	Off	Off	Off	Off
2	On	Off	Off	Off	Off		10	On	Off	Off	Off	18	On	Off	Off	Off	Off	26	On	Off	Off	Off	Off
3	On	Off	Off	Off	Off		11	On	Off	Off	Off	19	On	Off	Off	Off	Off	27	On	Off	Off	Off	Off
4	On	Off	Off	Off	Off		12	On	Off	Off	Off	20	On	Off	Off	Off	Off	28	On	Off	Off	Off	Off
5	On	Off	Off	Off	Off		13	On	Off	Off	Off	21	On	Off	Off	Off	Off	29	On	Off	Off	Off	Off
6	On	Off	Off	Off	Off		14	On	Off	Off	Off	22	On	Off	Off	Off	Off	30	On	Off	Off	Off	Off
7	On	Off	Off	Off	Off		15	On	Off	Off	Off	23	On	Off	Off	Off	Off	31	On	Off	Off	Off	Off

Position switch no. 6 7
 On Off

Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5
32	On	Off	Off	Off	Off	40	On	Off	Off	Off	Off	48	On	Off	Off	Off	Off	56	On	Off	Off	Off	Off
33	On	Off	Off	Off	Off	41	On	Off	Off	Off	Off	49	On	Off	Off	Off	Off	57	On	Off	Off	Off	Off
34	On	Off	Off	Off	Off	42	On	Off	Off	Off	Off	50	On	Off	Off	Off	Off	58	On	Off	Off	Off	Off
35	On	Off	Off	Off	Off	43	On	Off	Off	Off	Off	51	On	Off	Off	Off	Off	59	On	Off	Off	Off	Off
36	On	Off	Off	Off	Off	44	On	Off	Off	Off	Off	52	On	Off	Off	Off	Off	60	On	Off	Off	Off	Off
37	On	Off	Off	Off	Off	45	On	Off	Off	Off	Off	53	On	Off	Off	Off	Off	61	On	Off	Off	Off	Off
38	On	Off	Off	Off	Off	46	On	Off	Off	Off	Off	54	On	Off	Off	Off	Off	62	On	Off	Off	Off	Off
39	On	Off	Off	Off	Off	47	On	Off	Off	Off	Off	55	On	Off	Off	Off	Off	63	On	Off	Off	Off	Off

Position switch no. 6 7
 On Off

Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5	Station no.	1	2	3	4	5
64	On	Off	Off	Off	Off	72	On	Off	Off	Off	Off	80	On	Off	Off	Off	Off	88	On	Off	Off	Off	Off
65	On	Off	Off	Off	Off	73	On	Off	Off	Off	Off	81	On	Off	Off	Off	Off	89	On	Off	Off	Off	Off
66	On	Off	Off	Off	Off	74	On	Off	Off	Off	Off	82	On	Off	Off	Off	Off	90	On	Off	Off	Off	Off
67	On	Off	Off	Off	Off	75	On	Off	Off	Off	Off	83	On	Off	Off	Off	Off	91	On	Off	Off	Off	Off
68	On	Off	Off	Off	Off	76	On	Off	Off	Off	Off	84	On	Off	Off	Off	Off	92	On	Off	Off	Off	Off
69	On	Off	Off	Off	Off	77	On	Off	Off	Off	Off	85	On	Off	Off	Off	Off	93	On	Off	Off	Off	Off
70	On	Off	Off	Off	Off	78	On	Off	Off	Off	Off	86	On	Off	Off	Off	Off	94	On	Off	Off	Off	Off
71	On	Off	Off	Off	Off	79	On	Off	Off	Off	Off	87	On	Off	Off	Off	Off	95	On	Off	Off	Off	Off

Position switch no. 6 7
 On Off

Station no.	1	2	3	4	5
96	On	Off	Off	Off	Off
97	On	Off	Off	Off	Off
98	On	Off	Off	Off	Off
99	On	Off	Off	Off	Off

Legend:

Positions white switch:	
On <input checked="" type="checkbox"/> Bit is set	On <input type="checkbox"/> Bit is not set
White switch in position OFF	White switch in position ON

Setting of the transmission rate with switch S1-8:

1 2 3 4 5 6 7 8	S1-8 ON = 9600 bps	1 2 3 4 5 6 7 8	S1-8 OFF = 57600 bps
On <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off		On <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off <input type="checkbox"/> Off	

Pin	RS 485	Signal	Meaning
1	-	-	not used
2	-	RP	5 V, decoupled by diodes
3	A/A'	RxD/TxD-A	Receive/Transmit Data A
4	-	CNTR-A	Control signal A
5	C/C'	DGND	Data Ground
6	-	VP	5 V, positive pole of power supply
7	-	-	not used
8	B/B'	RxD/TxD-B	Receive/Transmit Data B
9	-	CNTR-B	Control signal B

Table 1: Pin assignment of the interface RS 485, 9-pole

For the serial interface only the bus station no. 1-31 can be set. Within an Ethernet network the bus station no. can be set from 1 to 99. Therefore the switches S1-6/7 must be set in addition to the switches S1-1/2/3/4/5. The number of the communication partners within a network is still limited to 64. This enhanced setting of the bus station no. is only possible from operating system BS41q/51q V7.0-8 (05.31) of the central module.

Applications with the communication module F 8627X:

- connection of the central module to a PADT (ELOP II TCP)
- connection to other communication partners within an Ethernet network (safeethernet, Modbus TCP)

The communication runs from the central module via the backplane bus to the communication module F 8627X and from the Ethernet ports of the F 8627X into the Ethernet network and vice versa.

Special features of the central module:

- Self-education: from operating system BS41q/51q V7.0-8 (05.31)
- ELOP II TCP: from operating system BS41q/51q V7.0-8 (05.31)

Further informations about the bus station no., ELOP II TCP, loading of operating systems and application programs (self-education) et al. corresponding to the central module you will find in the data sheet of the F8627X as well as the operating system manual of H41q/H51q and the safety manual of H41q/H51q.



Before removing a central module its fixing screws must be completely loosened and freely movable. Remove the module from the bus board by pushing the ejection lever (front label) top down and quickly removing in an upward motion to ensure that faulty signals are not triggered within the system!

To attach the module, place it on the terminal block and press it inwards as far as it will go. This action should be performed quickly to ensure that faulty signals are not triggered within the system!

Function of the ejection lever with front label

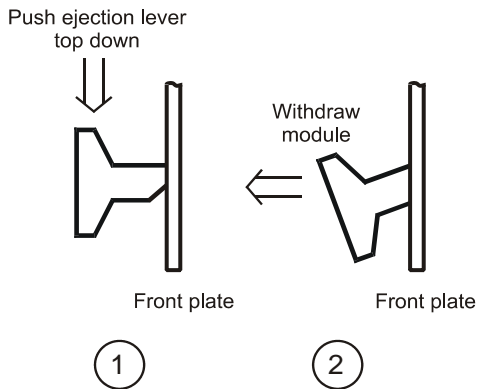


Figure 2: Function of the ejection lever

Diagnostic display of the central module

- Four digit alphanumerical display,
- two LEDs for the general display of errors (CPU for the central modules, IO for the testable input/output modules),
- two toggle switches to request detailed error information,
- push-button ACK resets the error indication;
in failure stop ACK behaves like restarting the system.

For further information on the diagnostic display and lists of error codes, refer to the documentation "Functions of the operational system BS 41q/51q" (also on ELOP II CD).

Notes for start-up and maintenance

- Lifetime of the buffer battery (*without* voltage feeding):
1000 days at $T_A = 25\text{ °C}$
200 days at $T_A = 60\text{ °C}$
- It is recommended to change the buffer battery (CPU in operation) at the latest after 6 years, or with display BATI within three months (Lithium battery, e.g. type CR 2477N, HIMA part no. 44 0000018)
- Check the bus station no. and transmission rate at switch S1 for correct settings
- **Important:** When upgrading an F 8650 to an F 8650X module the fan concept has also to be changed!

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