Model EP7601 - Access Control PIFA

EP7601 is an EFX channel-connected PIFA that primarily is designed for use in access control systems for controlling and monitoring of one door environment. In access control applications the unit is used together with some of the program blocks for **EXOsecure 3.0**. The PIFA unit may either be installed directly in an EXOflex housing or in a separate housing intended for mounting near the door environment. This external version of EP7601 is called ***EX7601*** and is described later in this chapter.

An extensive description of the program blocks for **EXOsecure 3.0** is found in **EXOsecure 3.0** Handbook.

EP7601 can however also be used for controlling and monitoring in other types of projects.

Observe that the electrical specifications for this PIFA unit in some aspects differ from what is normal Exomatic standard.

- EP7601 has the following, for access control applications, important characteristics:
  - Powered by 24 V AC or DC.
  - 2 sabotage-monitored inputs for monitoring of door contacts etc.
  - 1 digital input for a micro switch in a door unit. Is used for generating sabotage alarms at attempts of breaking the door open.
  - 1 insulated digital input for door maneuver, e.g. push-button functionality.
  - 1 insulated digital input for general use.
  - 2 relay outputs for controlling securing plates in doors, etc. The outputs can be connected to a relay switch which is either normally open or closed (NO, NC, C). For automatic doors and turnstiles the same output is used, but with the difference that the output is pulsed
  - 3, from the rest of the electronics galvanically separated, digital outputs for LED indication in certain card readers.
  - 2, from the rest of the electronics galvanically separated, outputs for activation of an external summer for indication of, for example, an open or broke open door, and premonition for buy-time function.
  - 2, from the rest of the electronics galvanically separated, communication ports for connecting card readers with open collector output, so called Data & Clock outputs. The hardware is prepared for connection of other types of card readers through option cards.
  - 12 or 5 V DC current-limited outputs for power supply of card readers and for power supply of digital outputs for LED indication in card readers.
  - 24 V DC current-limited output for power supply of digital outputs, e.g. for summer control and buy-time function.
  - Digital in- and outputs, and relay outputs have LED indications in the panel.
  - 1 communication port for connecting to the Processor unit through the EFX channel (only for EX7601).

Electrical Specifications

Main Power Supply, Terminals 19 & 20

Voltage ..... 24 V AC or DC
tolerance 20-30V
power consumption at maximum load ..... electronically fused to 2.5A
power consumption without load 50mA

Internal power consumption

5 V ..... 100mA, only for EP7601

Digital inputs, DI1-2 2

Type ..... ***Standard DI***

Internal digital input, DI3 1

Type ..... for 24 V DC floating switch in cabinet, cable length max 3 m
current when closed connection ..... 5.2 mA

Sabotage-monitored inputs, SAI1-2 2

Type ..... Secure AI, galvanically connected to ***+-C***, any other floating
Max input voltage ..... 15 V DC
Measuring range ..... 0.5-12 V DC

Relay outputs, DO1-2 2

Type ..... Alternating, NO, NC, CO

Contact data:

Maximum switching voltage ..... 48 V AC/DC
Minimum switching voltage ..... 12 V AC/DC
Maximum continuous current ..... 6 A
Maximum inrush current ..... 30 A
Minimum switching currenrt ..... 10 mA

AC-connection:

Maximum switching power, resistive load ..... 300 VA

Maximum switching power for DC connection and resistive load:

48 V switching voltage ..... 20 W
24 V switching voltage ..... 140 W

Insulation, coil-contact ..... 4000 V_{RMS}
Transient protection ..... Varistor, 250 V_{RMS}

Optoisolated, galvanically floating, digital outputs, DO3-4 2

Type ..... current-sourcing, externally power supplied through ***DO3-4in+*** and ***DO3-4 in-***
Output voltage ..... depending on the external power supply
driving capacity/level ..... max 500 mA and depending on chosen power supply
Common mode voltage ..... +-100 V
DO3-4 in+, DO3-4 in- ..... max input voltage 32 V DC

Optoisolated, galvanically floating, digital outputs, DO5-7 3

Type ..... current-sourcing, externally power supplied through ***DO5-7 in+*** and ***DO5-7 in-***
Output voltage ..... depending on the external power supply
driving capacity/level ..... max 500 mA and depending on chosen power supply
Common mode voltage ..... +-100 V
DO5-7 in+, DO5-7 in- ..... max input voltage 32 V DC

Available output voltages

Output voltage 1 .....+12 V DC +-5 %, from terminal 30 (***12 V out***) and 32 (***0 V***)
Output voltage 2 .....+5.5 V DC +-2 % from terminal 31 (***5 V out***) and 32 (***0 V***)
  Usage .....Primarily for power supplying ***DO5, 6*** & ***7*** och CR
  Type .....Galvanically floating outputs with common 0 V (terminal 32)
    current limit, 12 V.....250 mA
    current limit, 5 V.....500 mA
  Common mode-voltage..... +-100 V

Output voltage 3 .....24 V DC, from terminal 2 (+***C***) and 3 (-C)
  Usage .....Primarily for power supplying ***DO3*** & ***4***
Type.....Galvanically connected with terminal 25. All other galvanically floating
  tolerance.....+-5 %
  current limit.....100 mA
Common mode voltage..... +-100 V

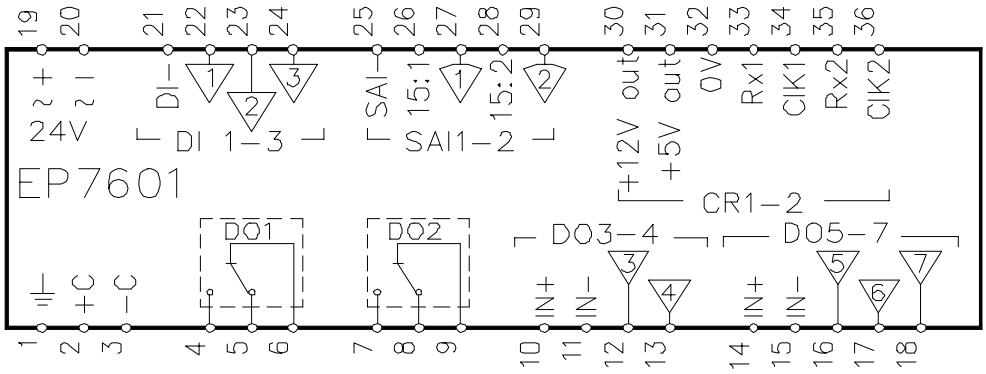
Communication ports, galvanically floating, for card reader, CR.....2

Type.....Open Collector, Clock & Data
Insulation .....Galvanically connected to ***Output voltage 1& 2***, all other floating
Communication speed.....max 9600 bps
  standard.....
Common mode voltage..... +-100 V
Option .....contact Exomatic

Reserve power see Model EP1011 and 9035

Connections

See table below for instructions on process connections.



Connecting terminal no.:	Designation	LED indication. Designation/ color.	Functionality description when used with access control block
1	⏚		Function ground. Must be connected to ground point!.
2	+C		+24 V DC output, fused for 100 mA, for powering of digital outputs. Is normally connected to DO3-4 IN+ (terminal 10) if 24 V DC level is required on DO3-4
3	–C		Zero reference for +C. Is normally connected to DO3-4 IN- (terminal 11) and to DI– (terminal 21)
4,5,6	DO1 NO, NC, CO	DO1, yellow	Relay output with NO, NC, and CO. Used for controlling securing plates in doors, alternately for turnstiles.
7,8,9	DO2 NO, NC, CO	DO2, yellow	Relay output with NO, NC, and CO. Used for: 1. Bypass function 2. Alarm output for buy time 3. Alarm output for on/off alarm 4. Turnstile output 2 (push button/CR2)
10	DO3-4 in+		Plus input for external power supply for DO3 and 4
11	DO3-4 in–		Reference input for external power supply for DO3 and 4
12	DO3	DO3, yellow	Warning output for buy-time function
13	DO4	DO4, yellow	Summer control for open, or broke open, door
14	DO5-7 in+		Plus input for external power supply for DO5, 6, and 7

15	DO5-7 in–		Reference input for external power supply for DO5, 6 and 7.
16	DO5	DO5, yellow	Output for LED control in card readers, red (orange)
17	DO6	DO6, yellow	Output for LED control in card readers, green (orange)
18	DO7	DO7, yellow	Output for LED control in card readers, yellow
19	24V in + ~	P, yellow (only EX7601)	24 V AC/DC input for main power supply + input for DC feed Phase for AC-feed
20	24V in – ~		24 V AC/DC input for main power supply + input for DC feed Zero for AC feed
21	DI–		Reference input for power supply of DI1, 2, and 3. Is normally connected to –C, terminal 3
22	DI1	DI1, yellow	Input for push button
23	DI2	DI2, yellow	Extra input
24	DI3		Input for sabotage alarm in door unit. Only for “internal use”. Is connected to a micro switch in the lid of the door unit or in a cabinet door. Maximum cable length 3 m.
25, normally not used!	SAI–		Zero reference for SAI1 and SAI2. Is not used in access control applications!
26	15:1		Power supply output for door sensor 1
27	SAI1		Sabotage-secured input for door sensor 1
28	15:2		Power supply output for door sensor 2
29	SAI2		Sabotage-secured input for door sensor 2
30	12V out		12 V DC power supply output for card reader
31	5V out		5 V DC power supply output for card reader
32	0V		Zero reference for 12 V out (terminal 30) and 5 V out (terminal 31)
33	Rx1	Rx, CR1 / yellow	Input for data signal from card reader 1, CR1. The signal is often called DATA in Omron-compatible readers.
34	Clk1	Clk, CR1 / yellow	Input for clock signal from card reader 1, CR1. The signal is often called CLOCK in Omron-compatible readers.
35	Rx2	Rx, CR2 / yellow	Input for data signal from card reader 2, CR2. The signal is often called DATA in Omron-compatible readers.
36	Clk2	Clk, CR2 / yellow	Input for clock signal from card reader 2, CR2. The signal is often called CLOCK in Omron-compatible readers.

EX7601

- EX7601 is functionally more or less identical to EP7601. Only the differences are covered below.
- EX7601 is enclosed in an IP44-classed plastic casing.
- Sabotage protection is fitted as standard.

Electrical Specifications

Main Power Supply, Terminals 19 & 20

Voltage ..... 24 V AC or DC
tolerance 20-30V
power consumption at maximum load ..... electronically fused to 1 A
power consumption without load ..... 110 mA

Port for Communicating with Processor, EFX channel 1

Type RS485
Communication speed ..... 115200 bps

Casing

Size, L*W*H ..... 180*135*60 mm
Material, color ..... ABS, Gray
Cable inlets ..... 1 of type FEM 3-5, 3 of type FEM 7-10
Mounting ..... wall mounted

Address Settings

The address settings for the EX7601 unit are made using so-called dip switches, according to the table below. (The ON position is indicated on the dip switch.)

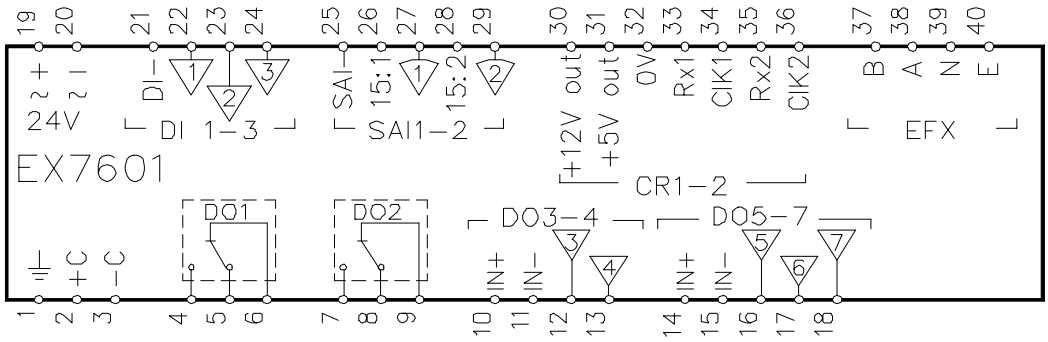
Address	Switch					
	1	2	3	4	5	6
0	Address 0 can not be used.					
1	Address 1 should not be used.					
2	On	On	On	Off	On	On
3	On	On	On	On	Off	On
4	On	On	On	Off	Off	On
5	Off	On	On	On	On	On
6	Off	On	On	Off	On	On
7	Off	On	On	On	Off	On
8	Off	On	On	Off	Off	On
9	On	Off	On	On	On	On
10	On	Off	On	Off	On	On
11	On	Off	On	On	Off	On
12	On	Off	On	Off	Off	On
13	Off	Off	On	On	On	On
14	Off	Off	On	Off	On	On
15	Off	Off	On	On	Off	On
16	Off	Off	On	Off	Off	On
17	On	On	Off	On	On	On
18	On	On	Off	Off	On	On
19	On	On	Off	On	Off	On
20	On	On	Off	Off	Off	On
21	Off	On	Off	On	On	On
22	Off	On	Off	Off	On	On
23	Off	On	Off	On	Off	On
24	Off	On	Off	Off	Off	On
25	On	Off	Off	On	On	On
26	On	Off	Off	Off	On	On
27	On	Off	Off	On	Off	On
28	On	Off	Off	Off	Off	On
29	Off	Off	Off	On	On	On
30	Off	Off	Off	Off	On	On
31	Off	Off	Off	On	Off	On

When setting the address you have to consider the addresses of the other PIFA units, also the ones in the EXOflex housing.

Connections

In addition to the terminals found on EP7601, EX7601 has another four terminals for the EFX channel.

Figure 85 Connections for EX7601

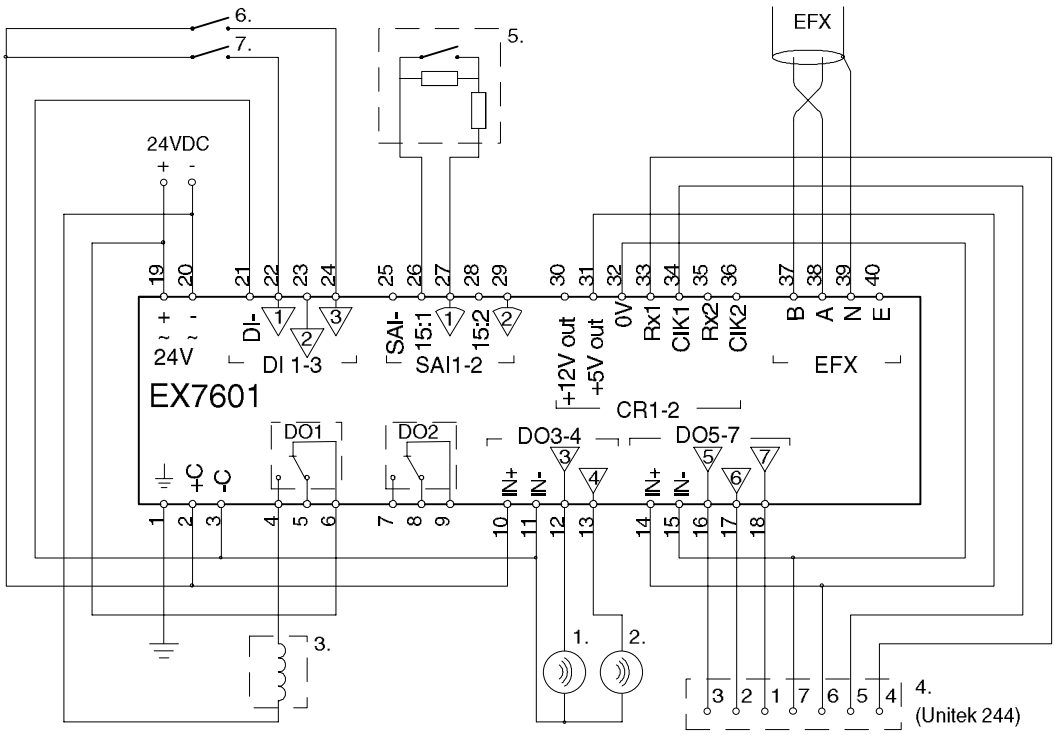


Connecting the EFX channel in EX7601

Connection terminal no.:	Designation	LED Indication. Designation/ color.	Functionality description
37	B		EFX: B
38	A	EFX/yellow	EFX: A
39	N		EFX: N
40	E		EFX: E

Wiring Exemple

Figur 1. Wiring example with 24 V DC power supply and 5 V connected Unitek reader



In the wiring example above the following refered functions are found:

1. Summer for buy time
2. Summer open or forced open door
3. Securing plate
4. Connection of Unitek 244 cerd reader
5. Door switch
6. Micro switch
7. Push button