

**techfass**

**WREM 80 ThanGH**

**WREM 80 LithGH**

*Standard readers with Wiegand output for Thangram and Lithos entry panels*

*User's guide*



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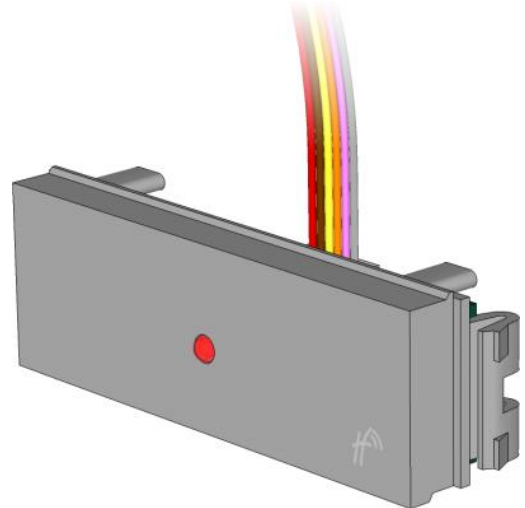
## 2 Product Description

The **WREM 80 ThanGH** and **WREM 80 LithGH**<sup>1)</sup> readers (125 kHz readers with WIEGAND data output) are designed for connection to controllers or WIEGAND interfaces of the **APS** access control systems or for general use. Readers feature configurable WIEGAND protocol data output, which is suitable for use in most of third party systems.

The readers are designed for installation in **Thangram** / **Lithos** entry panels of **BPT** audio and video systems, where they occupy only one button space.

### 2.1 WREM 80 ThanGH

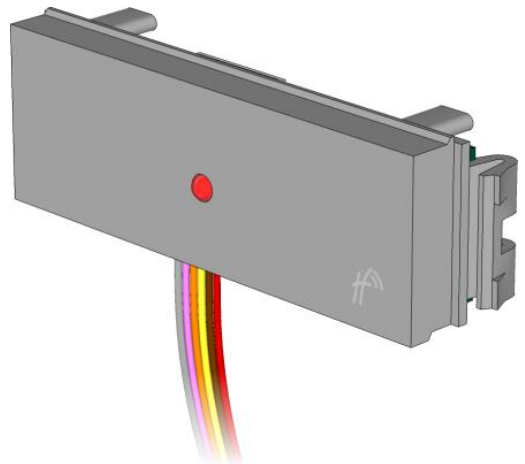
The readers are designed for installation in **Thangram** entry panels of **BPT** audio and video systems and come in **GH** (greyhound) color version of the buttons.



Pic. 1a: WREM 80 ThanGH

### 2.2 WREM 80 LithGH

The readers are designed for installation in **Lithos** entry panels of **BPT** audio and video systems and come in **GH** (greyhound) color version of the buttons.



Pic. 1b: WREM 80 LithGH

<sup>1)</sup> Commercial designation of available versions is described in *table 1*.

### 3 Technical parameters

#### 3.1 Product version

Product version	Product designation	Reader designed for panel	Catalogue number	Reader features <sup>2)</sup>	
				TF	EM
	WREM 80 ThanGH	Thangram	51480001	✓	✓
	WREM 80 LithGH	Lithos	51480401	✓	✓

Table 1: Product version

<sup>2)</sup> **TF** – TECHFASS factory ID media reading; **EM** – EM Marin ID media reading;

#### 3.2 Technical features

Technical features	Supply voltage		8 ÷ 15 VDC
	Current demand	Typical	75 mA
		Maximal	80 mA
	Version with keypad		N/A
	ID technology, typical reading range	EM Marin	4 cm (with ISO card)
	Inputs		1x buzzer control 1x yellow / green LED control
	Output		N / A
	Signalization		1x LED 1x PIEZO
	Tamper protection		N / A
	Alternative data output		WIEGAND (configurable without software)

Table 2: Technical features

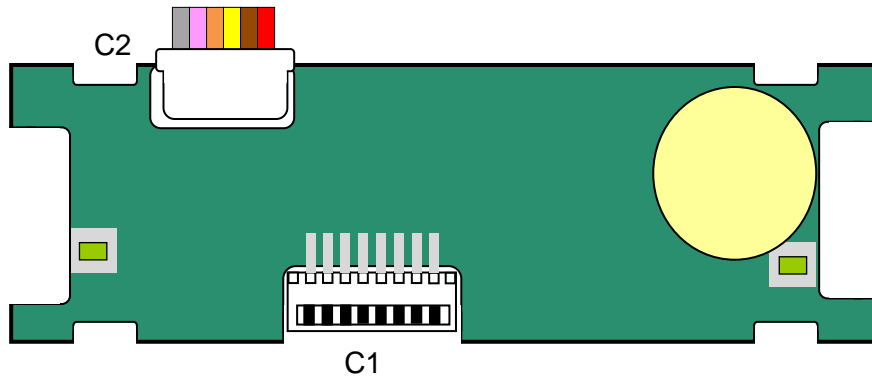
#### 3.3 Mechanical design

Mechanical design	Weight	0,017 kg
	Operating temperature	-25 ÷ 60 °C
	Humidity	Max. 95%, non-condensing
	Housing	IP 54 (built in the entry panel)
	Cable length	0,4 m
	Color	Greyhound
	Dimensions	17 x 53 x 13 mm

Table 3: Mechanical design

## 4 Installation

### 4.1 Connectors description



Pic. 2: Connectors for cable connection

Connectors	Connector	Purpose
	C1	Connector for connecting configuration device
	C2	Connector for C2 cable connection

Table 4: Connectors description

### 4.2 Wiring description – C2 cable

Wiring	Cable C1		Cable C2	
	Color	Purpose	Color	Purpose
	Red	+8 ÷ +15 VDC	Yellow	WIEGAND data 0
	Grey	GND (0V)	Pink	WIEGAND data 1
	Brown	Buzzer control	Orange	Yellow / green LED control

Table 5: Wiring description – C2 cable

### 4.3 Indicators description

Indication	LED – red	Reader powered
	LED – green	ID media reading, can be controlled by the input status (0V = active)
	LED – yellow	Can be controlled by the input status (0V = active)
	Buzzer	Controlled by the input status (0V = active)

Table 6: Indicators description

#### **4.4 Installation instructions**

The reader uses passive RF/ID technology, which is sensitive to RF noise sources. Noise sources are generally of two types: radiating or conducting.

Conducted noise enters the reader via wires from the power supply or the host. Sometimes, switching power supplies generate enough noise to cause reader malfunction, it is recommended to use linear system power supplies.

Radiated noise is transmitted through the air. It can be caused by computer monitors or other electrical equipment generating electromagnetic fields.

Consequently, a short distance between the readers themselves can cause reading malfunctions – for correct operation it is necessary to keep a minimum distance of 50 cm. Various metallic constructions may have a negative influence on this distance; if there are any doubts, it is recommended to perform a practical test before final mounting.

Nearby metal surfaces may cause a decrease in reading distance and speed. This is caused by the combined effects of parasitic capacitance and conductance.

Mutual disturbance of a couple of TECHFASS devices (standard 125 kHz system reader module + Wiegand output reader) can be avoided by setting up the reading synchronization (see reader configuration chapter). The synchronization is ensured by periodic sending of a special signal via Wiegand interface from the Wiegand output reader to the standard system reader module. There is no need to connect any other wires or make any special configuration on the TECHFASS system reader module.
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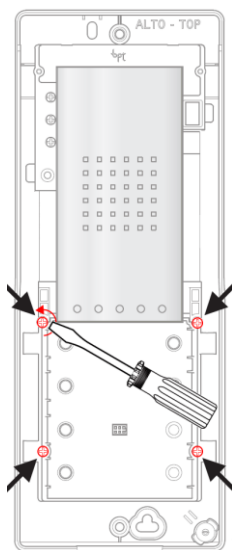
## 4.5 Mounting and removal the WREM 80 ThanGH reader

### 4.5.1 Reader mounting

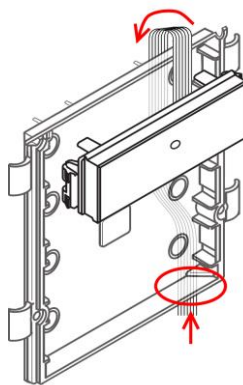
The first step is to unscrew all four screws holding the plastic lower cover for placing push buttons (thereinafter cover) of the *Thangram* panel (pic. 3a), then remove the cover. *Cut off the arrest* located at the bottom side of the cover as shown in the *picture 3c*. Then *place the reader in desired position* and lead the cables as shown in *picture 3b*, that is *bend the cable over the top edge of the cover* and lead it behind the cover downwards. It is not necessary to place the reader in the top position of the cover, it can be placed at any position of buttons; the cable must be lead similarly as shown in the picture. Then place the cover back to the panel with cable lead as shown in *picture 3d*. It is handful to lead appropriate wires *along the walls* of the panel upwards to the *power supply* and *door lock* contacts, and the rest of the wires *through the back side* of the panel. The last step is reassembling the cover in the installation box and screwing it in (*pic. 3e*).

### 4.5.2 Reader removal

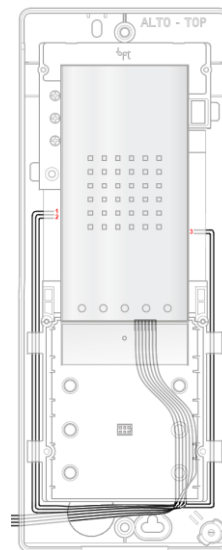
When disassembling the reader use a similar procedure as described in the previous chapter, just remember to *unplug the panel and the reader from the power supply first!*



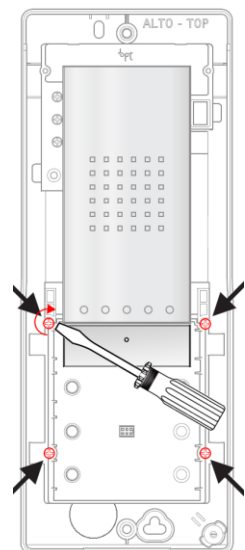
Pic. 3a



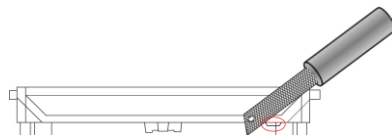
Pic. 3b



Pic. 3d



Pic. 3e



Pic. 3c

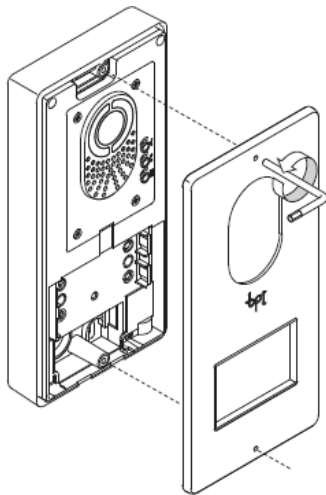
## 4.1 Mounting and removal the WREM 80 LithGH reader

### 4.1.1 Reader mounting

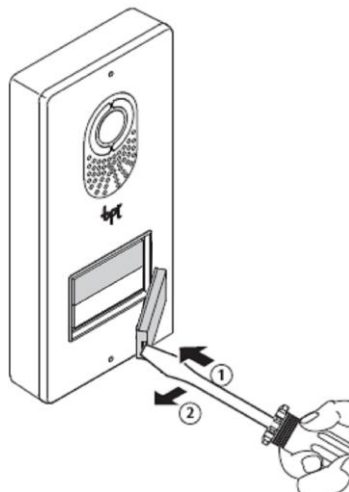
When mounting the reader it is necessary to unscrew the *front metal plate* of the *Lithos* panel (pic. 4a). Then remove the *bottom pushbutton* (pic. 4b). *Uncover the plastic strip* (pic. 4c) and connect the appropriate wires according to the instructions for standard reader connection. Lead the rest of the wires through the rear part of the panel (pic. 4d). Connect the cable in the way to be placed under the plastic strip, *insert the reader* in the *bottom pushbutton position* (pic. 4e) and place the plastic strip back again. Fasten the front metal plate of the panel back again (pic. 4a – screw in the opposite way).

### 4.1.2 Reader removal

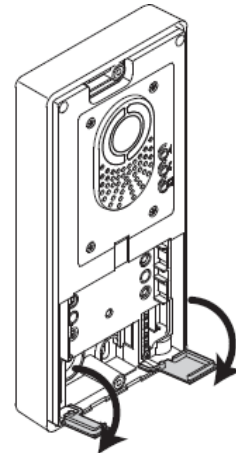
When disassembling the reader use a similar procedure as described in the previous chapter, just remember to *unplug the panel and the reader from the power supply first!*



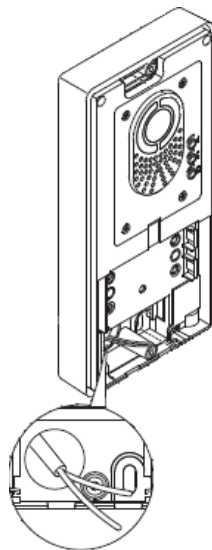
Pic. 4a



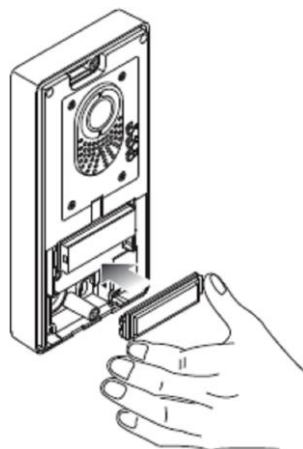
Pic. 4b



Pic. 4c



Pic. 4d



Pic. 4e



## 5 Reader setting and functioning

### 5.1 Operating test and control

After powering up the reader, it indicates preset *setting* (see *table 7*) by parallel *beeping* and *red LED flashing*. *Number* of beeps and flashes indicates the selected *setting type*. After that the *red LED* is active permanently. Reading a card is indicated with a flash of the *green LED* and a *single beep*. The card code is sent using the *WIEGAND output* in preset format. The *yellow / green LED* and *beeper* are active when putting the *0 V* signal to the relevant controlling inputs.

Reader configuration modes	Beeps count	WIEGAND protocol	LED control	Synchronization
	1x	42 bits	Yellow	No
	2x	42 bits	Green	No
	3x	42 bits	Yellow	Yes
	4x	42 bits	Green	Yes
	5x	26 bits	Yellow	No
	6x	26 bits	Green	No
	7x	32 bits	Yellow	No
	8x	32 bits	Green	No
	9x	44 bits	Yellow	No
	10x	44 bits	Green	No

Table 7: Reader configuration modes

Note: WIEGAND 26bit (24 bits of code + start and end parity bit); WIEGAND 42bit (40 bits of code + start and end parity bit); WIEGAND 32bit (32 bits of code); WIEGAND 44bit (40 bits of code + 4 XOR parity bits); Yellow/green LED – selection of LED controlled by bringing 0 V signal to relevant input; Synchronization – cancels mutual disturbance of TECHFASS devices (standard 125 kHz system reader module + Wiegand output reader)

### 5.2 Changing reader configuration

For the change of the *reader configuration* connect the configuration device to the *C1 connector* (*pic. 2*). After the reader is restarted, the configuration mode is entered – it is indicated by *slow beeping* and *flashing* with *red LED*. The configuration is accomplished by *removing the device after the required number of beeps* (flashes), the meaning of the beeps count corresponds with the specifications from *table 7*. If the time for the configuration expires, the device must be removed and the reader restarted – in that case the configuration is not changed. After finishing the configuration *do not put the device back* to the connector!