

AUTOMATED LIGHTING CONTROL

IN WAREHOUSES AND INDUSTRIAL FACILITIES
ENERGY SAVING 80%



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WHY SHOULD WE DO THE LIGHT MANAGEMENT IN A WAREHOUSE?

- High ceiling (12-14 m) = powerful lighting system
- 24/7 operation
- Light is the biggest consumption among other engineering systems
- No inertia. Easy ROI calculation



HOW MUCH DOES ELECTRICITY COST?

- Today 1 kW*h costs = 5P (~0,07€).
- In summer 2014 it was ~0,1€.
- What is the forecast for 2018?

	2011	2012	2013
EU-28	0.179	0.188	0.199
Euro area (EA-17)	0.190	0.198	0.211
Belgium	0.214	0.233	0.217
Bulgaria	0.083	0.085	0.092
Czech Republic	0.150	0.150	0.153
Denmark	0.291	0.300	0.300
Germany	0.253	0.260	0.292
Estonia	0.097	0.110	0.135
Ireland	0.190	0.216	0.230
Greece	0.125	0.139	0.156
Spain	0.198	0.219	0.223
France	0.138	0.139	0.147
Croatia	0.114	0.121	0.137
Italy	0.199	0.213	0.229
Cyprus	0.205	0.278	0.276
Latvia	0.117	0.138	0.138
Lithuania	0.121	0.126	0.137
Luxembourg	0.168	0.170	0.167
Hungary	0.168	0.155	0.140
Malta	0.170	0.170	0.170
Netherlands	0.174	0.186	0.192
Austria	0.199	0.198	0.208
Poland	0.147	0.142	0.148
Portugal	0.165	0.199	0.208
Romania	0.108	0.105	0.132
Slovenia	0.144	0.154	0.161

WHAT KIND OF LIGHTS ARE GOOD FOR A WAREHOUSE?



- LED is the best choice (from well-known suppliers).



- Fluorescent lamps with E-ballasts are still OK.



- Mercury-vapor lamp will not be energy efficient.

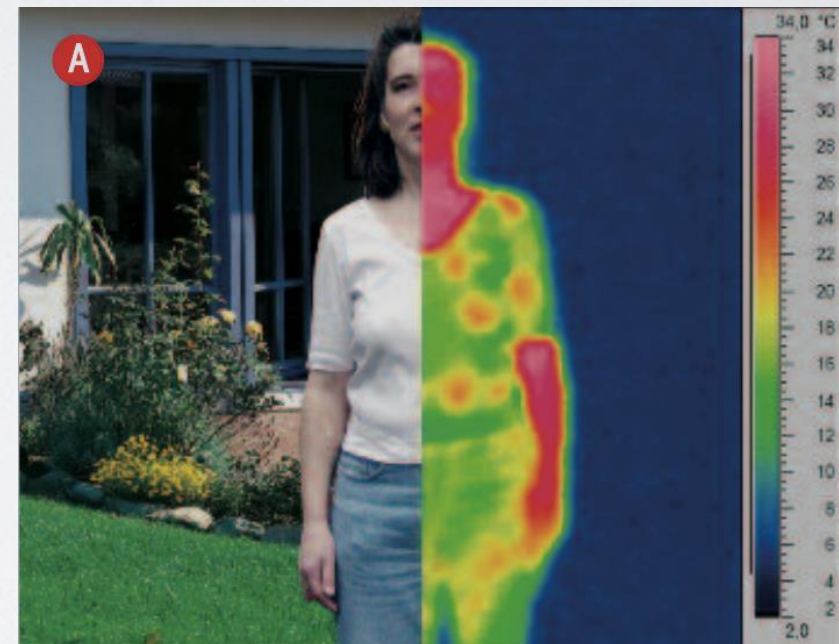
HOW MUCH CAN WE SAVE IN A WAREHOUSE?

- Switching OFF the light when not needed is the most efficient lights regulation.
- By this we can save ~80% from annual light kW*h expense.



HOW IT WORKS?

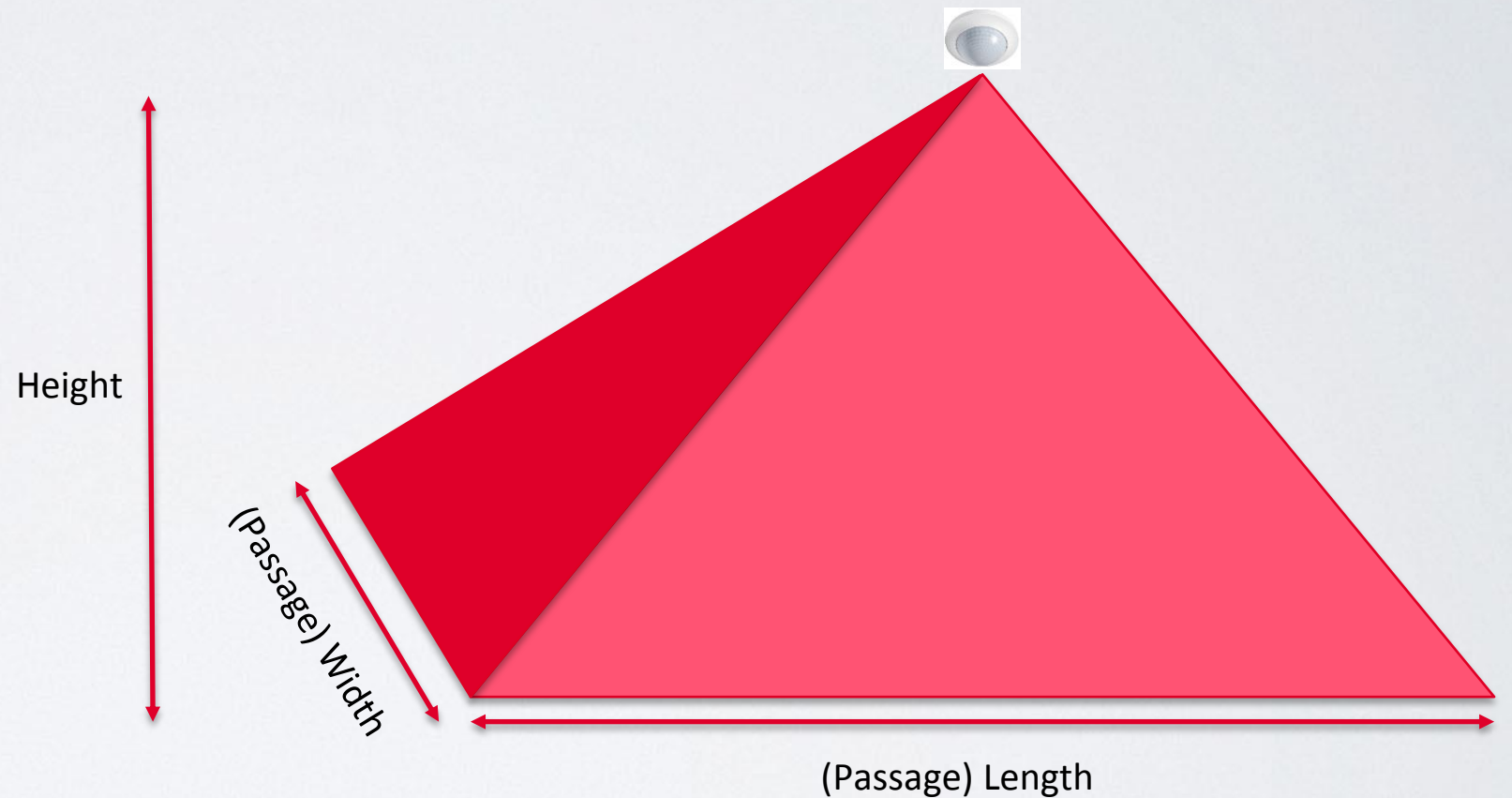
PIR - PASSIVE INFRARED



Special array of 3 PIRs with overlapping detection areas makes it possible to detect persons & open vehicles very fast and reliable.

HOW IT WORKS?

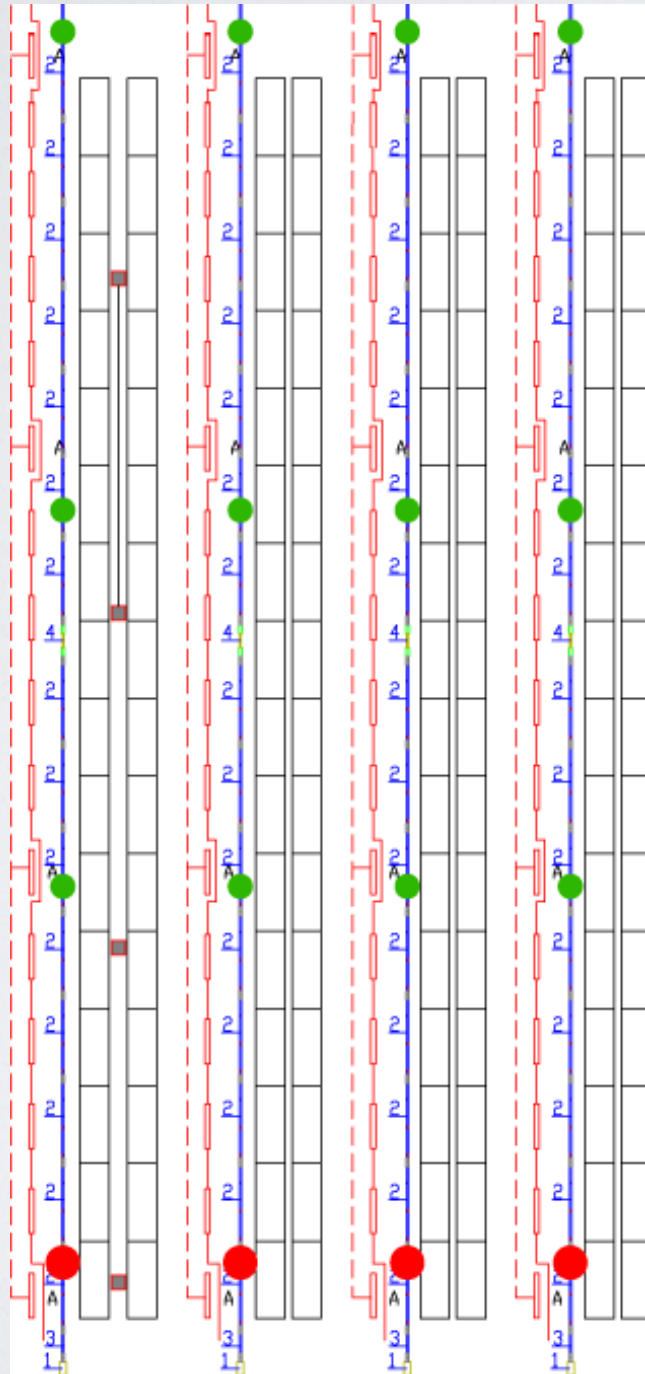
Height	Length	Width
15m	40m	6m
12,5m	34m	5m
10m	32m	4m
7,5m	21m	3m
5m	14m	2m



RUSSIAN APPROACH

Slave-
detectors

Master-
detectors



ENERGY SAVING > 80%

1) До установки датчиков движения.
Показания счетчика электроэнергии за 5 дней:

02.12.2012 (08:00) 32 007 кВт*ч

06.12.2013 (15:30) 32 146 кВт*ч

Недельное потребление электроэнергии:
139 кВт*ч

!

2) После установки датчиков движения.
Показания счетчика электроэнергии за 5 дней:

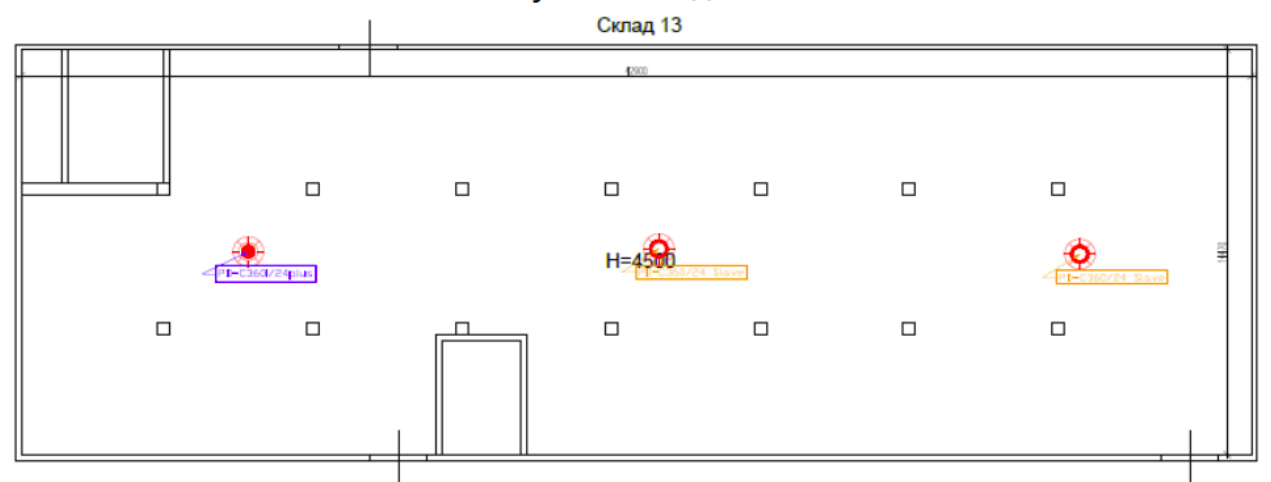
10.12.2013 (08:00) 32 153 кВт*ч

16.12.2013 (16:00) 32 178 кВт*ч

Недельное потребление электроэнергии:
25 кВт*ч



Схема установки датчиков.



WHERE IT WORKS?



RETURN ON INVESTMENT



$ROI < 3 \text{ years}$



ROI

QUESTIONS?



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