



#### Indicative image

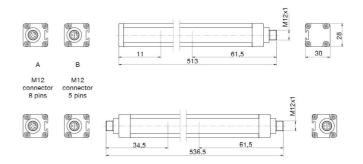






# LIGHT CURTAINS TYPE 4 ACCORDING TO IEC 61496-1 AND IEC 61496-2

- Compact housing (28 x 30 mm) and no dead zone on cap side
- Resolution 14 mm for finger protection, 20, 30, 40 mm for hand protection, 50, 90 mm for presence control and 2, 3, 4 beams for body protection/access control
- Controlled distance up to: 3, 4, 6, 10, 12 m
- Base, Standard versions and Master, Slave version to connect up to 3 sets in cascade configuration
- Selectable Automatic/Manual Restart and EDM integrated functions (Standard models)
- Selectable controlled distance
- IP69K protection models (LS4\_K) and models with integrated heating system to reach -25°C operating temperature (LS4\_H)
- Standard M12 da 5 and 8 poles connectors



#### **Detection properties**

Nominal sensing distance	≤ 12m	
Resolution	30mm	
controlled height	460mm	
number of rays	23	
Effective Aperture Angle	±5°	

#### **Application**

Function Principle

Type	Available functions	Manual/Automatic Restart, EDM
SILE	Safety parameters	
SILCE         3           PE         e           PFHd         9.45E-08           Deavg         97.20%           MTTFd         100           OFF         80%           Output Value           0.00 per ating voltage           2 × FNF-NO (OSSD eafsty curput)           Response time           7,6ms           Bectrical data           0.00 per ating voltage           192 28.0 Vac           Load current         ± 400mA           Time delay before availability         2 s           1 mer delay before availability         2 s         0 mer delay before availability	Туре	4
FL         e           PFHd         9,46E-09           Dearg         97,20%           MTFH         100           CFF         80%           Output         2 × PNF-NDIOSSD safety output)           Response time         7,5ms           Electrical data         7,5ms           Coperating Voltage         19,228,8 vcc           Load current         ≤ 400mA           Time delay before availability         2a           Interference to external light         3ccoording to IEC 61496-2           Power Consumption - Receive         2W (no load)           Power Consumption - Emitter         1W           Equivalent Restorive Load         ≥ 60 Q           Capacitive Load         ≥ 0.82 μF           Cabil Length (Power Supply/Output)         ≤ 100m           Cabil Length for Master Slave Interconnections         28mm (Front x 30mm)           Mechanical data         28mm (Front x 30mm)           Connections         MT-5 poles (emitter) MT-8 poles (receiver)           Operating temperature         10°C + 455°C (no condensation)           Storage temperature         10°C + 455°C (no condensation)           Load (Load)         25°C + 70°C (no condensation)           Very Power Contensions         25°C + 7	SIL	3
PFHd         9.45E-09           Dowg         97.20%           MTTFd         100           CFF         80%           Output         0.00 (0.	SILCL	3
MTTFd	PL	е
MTFId	PFHd	9,45E-09
CFF         80%           Output type         2 x PNP-NO (OSSD safety output)           Response time         7.5ms           Electrical date         7.5ms           Operating Voltage         19.2 28.8 Vec           Load current         < 4.00mA           Time delay before availability         2s           Interference to external light         according to IEC 61496-2           Power Consumption - Receiver         2W(no load)           Power Consumption - Fmitter         1W           Equivalent Resistive Load         2 80 Ω           Capacitive Load         > 0.82 μF           Cabel Length (Power Supply/Output)         < 100m           Cabel Length for Master Slave Interconnections         ± 50m           Interconnections         M12-5 poles (emitter) M12-8 poles (receiver)           Operating temperature         -10°C + +55°C (no condensation)           Storage temperature         -25°C + +70°C (no condensation)           humidity         95% (no condensation)           Text/Approvals         CF, cULus, TÜV           EMC compatibility         According to 2014/30/EU Directive	Dcavg	97,20%
Output type         2 x PNP-ND (OSSD safety output)           Response time         7.5ms           Electrical data         7.5ms           Operating Voltage         19.2 28.8 Vcc           Load current         < 400mA           Time delay before availability         2s           Interference to external light         according to IEC 81496-2           Power Consumption - Receiver         2W (no load)           Power Consumption - Emitter         1W           Equivalent Resistive Load         \$ 60 Ω           Capacitive Load         \$ 0.82 μF           Cabel Length (Power Supply/Output)         \$ 100m           Cable Length for Master Slave Interconnections         \$ 50m           Mechanical data         28mm (front) x 30mm           Connections         M12-5 poles (emitter) M12-8 poles (receiver)           Operating temperature         -10°C + +55°C (no condensation)           Storage temperature         -25°C + 70°C (no condensation)           humidity         95% (no condensation)           Test/Approvals         CE, cUL us, TÜV           EMC compatibility         According to 2014/30/EU Directive	MTTFd	100
Output type       2 x PNP-NQ (QSSD safety output)         Response time       7,5ms         Electrical data       Formal Published         Operating Voltage       19,2 28,8 Vcc         Load current       ≤ 400mA         Time delay before availability       2s         Interference to external light       according to IEC 61496-2         Power Consumption - Receiver       2W (no load)         Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0,82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections       28mm (front) x 30mm         Mechanical data       28mm (front) x 30mm         Connections       M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C + +55°C (no condensation)         Storage temperature       -25°C + +70°C (no condensation)         humidity       95% (no condensation)         Test/Approvals       CE, cULus, TÜV         EMC compatibility       According to 2014/30/EU Directive	CFF	80%
Response time     7.5ms       Electrical data       Operating Voltage     19.2 28.8 Vcc       Load current     ≤ 400mA       Time delay before availability     2s       Interference to external light     according to IEC 61496-2       Power Consumption - Receiver     2W(no load)       Power Consumption - Emitter     1W       Equivalent Resistive Load     ≥ 60 Ω       Capacitive Load     ≥ 0.82 μF       Cabel Length (Power Supply/Output)     ≤ 100m       Cable Length for Master Slave Interconnections     ≤ 50m       Mechanical data     28mm (front) x 30mm       Connections     M12-5 poles (emitter) M12-8 poles (receiver)       Operating temperature     -10°C + +55°C (no condensation)       Storage temperature     -25°C + +70°C (no condensation)       humidity     95% (no condensation)       Test/Approvals     CF, cULus, TÜV       EMC compatibility     According to 2014/30/EU Directive	Outputs	
Electrical data  Operating Voltage  Load current  ≤ 400mA  Time delay before availability  2s  Interference to external light  according to IEC 61496-2  Power Consumption - Receiver  Power Consumption - Emitter  1W  Equivalent Resistive Load  ≥ 60 Ω  Capacitive Load  ≥ 0,82 μF  Cabel Length (Power Supply/Output)  Cable Length for Master Slave Interconnections  **Rechanical data**  Dimensions  28mm (front) x 30mm  Connections  **M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C + +55°C (no condensation)  Storage temperature  -25°C + +70°C (no condensation)  **Test/Approvals**  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Output type	2 x PNP-N0 (OSSD safety output)
Operating Voltage       19,2 28.8 Vcc         Load current       ≤ 400mA         Time delay before availability       2s         Interference to external light       according to IEC 61496-2         Power Consumption - Receiver       2W(no load)         Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0,82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections         Interconnections       28mm (front) x 30mm         Mechanical data         Dimensions       28mm (front) x 30mm         Connections         M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C + +55°C (no condensation)         Storage temperature       -25°C + +70°C (no condensation)         humidity       95% (no condensation)         Test/Approvals         Approvals       CE, cULus, TŪV         EMC compatibility       According to 2014/30/EU Directive	Response time	7,5ms
Load current       ≤ 400mA         Time delay before availability       2s         Interference to external light       according to IEC 61496-2         Power Consumption - Receiver       2W (no load)         Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0.82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections       28mm (front) x 30mm         Mechanical data       Dimensions         Connections       M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C + +55°C (no condensation)         Storage temperature       -25°C + +70°C (no condensation)         Interconnections       CE, cULus, TÜV         Condensation       CE, cultus, TÜV         Conpetibility       According to 2014/30/EU Directive	Electrical data	
Time delay before availability     2s       Interference to external light     according to IEC 61496-2       Power Consumption - Receiver     2W(no load)       Power Consumption - Emitter     1W       Equivalent Resistive Load     ≥ 60 Ω       Capacitive Load     ≥ 0.82 μF       Cabel Length (Power Supply/Output)     ≤ 100 m       Cable Length for Master Slave Interconnections     ≤ 50 m       Mechanical data       Dimensions     28mm (front) x 30mm       Connections     M12-5 poles (emitter) M12-8 poles (receiver)       Operating temperature     -10°C ÷ +55°C (no condensation)       Storage temperature     -25°C ÷ +70°C (no condensation)       Test/Approvals     CE, cULus, TÜV       EMC compatibility     According to 2014/30/EU Directive	Operating Voltage	19,2 28,8 Vcc
Interference to external light       according to IEC 61498-2         Power Consumption - Receiver       2W (no load)         Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0.82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections         Mechanical data         Dimensions       28 mm (front) × 30 mm         Connections       M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C ÷ +55°C (no condensation)         Storage temperature       -25°C ÷ +70°C (no condensation)         humidity       95% (no condensation)         Test/Approvals         Approvals       CE, cULus, TÜV         EMC compatibility       According to 2014/30/EU Directive	Load current	≤ 400mA
Power Consumption - Receiver       2W (no load)         Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0.82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections         Interconnections       28mm (front) × 30mm         Mechanical data         Dimensions       28mm (front) × 30mm         Connections       M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C ÷ +55°C (no condensation)         Storage temperature       -25°C ÷ +70°C (no condensation)         humidity       95% (no condensation)         Test/Approvals         Approvals       CE, cULus, TÜV         EMC compatibility       According to 2014/30/EU Directive	Time delay before availability	2s
Power Consumption - Emitter       1W         Equivalent Resistive Load       ≥ 60 Ω         Capacitive Load       ≥ 0.82 μF         Cabel Length (Power Supply/Output)       ≤ 100m         Cable Length for Master Slave Interconnections       ≤ 50m         Mechanical data         Dimensions       28mm (front) x 30mm         Connections       M12-5 poles (emitter) M12-8 poles (receiver)         Operating temperature       -10°C ÷ +55°C (no condensation)         Storage temperature       -25°C ÷ +70°C (no condensation)         humidity       95% (no condensation)         Test/Approvals         Approvals       CE, cULus, TÜV         EMC compatibility       According to 2014/30/EU Directive	Interference to external light	according to IEC 61496-2
Equivalent Resistive Load  ≥ 0.02  Capacitive Load  ≥ 0.82 μF  Cabel Length (Power Supply/Output)  ≤ 100m  Cable Length for Master Slave Interconnections  Mechanical data  Dimensions  28mm (front)×30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Power Consumption - Receiver	2W (no load)
Cabel Length (Power Supply/Output)  Cable Length for Master Slave Interconnections  Mechanical data  Dimensions  28mm (front) × 30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Power Consumption - Emitter	1W
Cable Length (Power Supply/Output)  Cable Length for Master Slave Interconnections  Mechanical data  Dimensions  28mm (front) x 30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Equivalent Resistive Load	≥ 60 Ω
Cable Length for Master Slave Interconnections  Mechanical data  Dimensions  28mm (front) x 30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Capacitive Load	≥ 0,82 µF
Interconnections  Mechanical data  Dimensions  28mm (front) × 30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Cabel Length (Power Supply/Output)	≤ 100m
Dimensions  28mm (front) x 30mm  Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive		≤ 50 m
Connections  M12-5 poles (emitter) M12-8 poles (receiver)  Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Mechanical data	
Operating temperature  -10°C ÷ +55°C (no condensation)  Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Dimensions	28mm (front) x 30mm
Storage temperature  -25°C ÷ +70°C (no condensation)  humidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Connections	M12-5 poles (emitter) M12-8 poles (receiver)
humidity 95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Operating temperature	-10°C ÷ +55°C (no condensation)
Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive	Storage temperature	-25°C ÷ +70°C (no condensation)
Approvals CE, cULus, TÜV  EMC compatibility According to 2014/30/EU Directive	humidity	95% (no condensation)
EMC compatibility  According to 2014/30/EU Directive	Test/Approvals	
	Approvals	CE, cULus, TÜV
Shocks and vibrations according to IEC 61496-1	EMC compatibility	According to 2014/30/EU Directive
	Shocks and vibrations	according to IEC 61496-1

IP65, IP67

Degree of protection

Supplied Accessories ST 204 4S

#### **Generical Data**

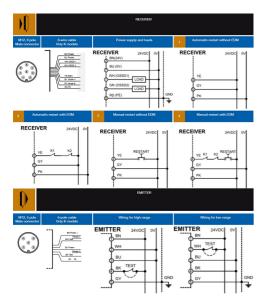
Dimensions 28mm (front) x 30mm

Operating Temperature  $-10^{\circ}\text{C} \div +55^{\circ}\text{C}$  (no condensation)

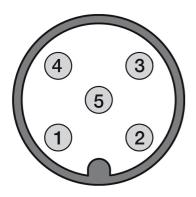
Humidity 95% (no condensation)

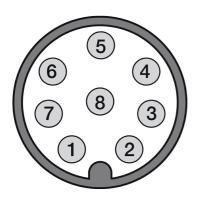
Mechanical Protection IP65, IP67

### **ELECTRICAL DIAGRAMS OF THE CONNECTIONS**



## **CONNECTOR**





#### **Datasensing S.r.l.**

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