



Indicative image

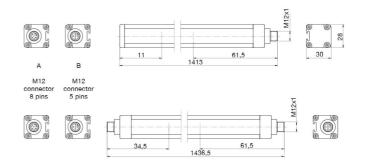






# LIGHT CURTAINS TYPE 4 ACCORDING TO IEC 61496-1 AND IEC 61496-2

- 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 | ≤ 20 m |  |
|--------------------------|--------|--|
| Resolution               | 30mm   |  |
| controlled height        | 1360mm |  |
| number of rays           | 68     |  |
| Effective Aperture Angle | ±5°    |  |

#### **Application**

Function Principle Emitter + Receiver

| Type  SIL  SILCL  3  SILCL  4  PL  e  PFHd  1.31E-08  Dexeg  38,99%  MTTFd  100  CFF  80%  Detailed  Department of the steel of the s | Available functions                | Manual/Automatic Restart, EDM                |
|--|------------------------------------|--|
| SIL  | Safety parameters                  |  |
| PER  | Туре                               | 4  |
| PFL         e           PFHd         1.91E-08           Deavg         93,99%           MTFd         100           CFF         80%           Dutput         2 x PNP-N0 (CSSD safety output)           Response time         10ms           Electrical data         30ms           Operating Voltage         18.2 28.8 Voc           Load current         ≤ 400mA           Time delay before availability         2s           Interference to external light         according to IEC 68498-2           Power Consumption - Receiver         2W/mo load           Power Consumption - Emitter         1W           Equivalent Restrive Load         ≥ 80 Q           Capacitive Load         ≥ 0.82 μF           Cabel Length for Master Slave Interconnections         ± 100m           Cable I ength for Master Slave Interconnections         28mm (front) x 30mm           Processor         28mm (front) x 30mm           Connections         M17-8 poles (meitter) M17-8 poles (meceiver)           Operating temperature         -10°C + +55°C (no condensation)           Storage temperature         -10°C + +55°C (no condensation)           Interchange temperature         -25°C + 70°C (no condensation)           Power Consumptible  | SIL                                | 3  |
| PFHd   | SILCL                              | 3  |
| Description         83,80%           MTTFd         100           CFF         80%           Dutputs         According to Master Stave Interesting   | PL                                 | е  |
| MTFIG         100           CFF         80%           Dutputs         0utput type         2 x PNP-NO (DSSD safety output)           Response time         10 ms           Electrical data         10 ms           Deparating Voltage         19.2 28,8 Vcc           Load current         ≤ 400 mA           Time delay before availability         2s           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)         ≤ 100 m           Cabel Length (Power Supply/Output)         ≤ 50 m           Mechanical data         2mm (front) x 30 mm           Connections         M12-6 poles (emitter) M12-8 poles (receiver)           Operating temperature         -10°C + 455°C (no condensation)           Storage temperature         -25°C + 470°C (no condensation)           Test/Approvals         QE, ULus, TÜV           EMC compatibility         According to 2014/30/EU Directive  | PFHd                               | 1,91E-08                                     |
| CFF         80%           Output type         2 x PNP-NO (DSSD safety output)           Response time         10ms           Electrical data         10ms           Operating Voltage         18.2 28.8 Vcc           Load current         < 400mA           Time delay before availability         2s           Incerference to external light         according to IEC 61498-2           Power Consumption - Receiver         2W (no load)           Power Consumption - Emitter         1W           Equivalent Resistive Load         ≥ 82 µF           Cabel Length (Power Supply/Output)         ≤ 100 m           Cabel Length for Master Slave interconnections         2 B0m           Mechanical data         Dimensions         2 Bmm (front) × 30 mm           Connections         M12-6 poles lemitter) M12-6 poles (receiver)           Operating temperature         -10°C + +55°C (no condensation)           Storage temperature         -25°C + +70°C (no condensation)           Test/Approvals         CE, cULus, TŪV           EMC compatibility         According to 2014/30/EU Directive  | Dcavg                              | 93,90%                                       |
| Dutput type         2 × PNP-NO (DSSD safety output)           Response time         10ms           Electrical data         19.2 28,8 Vcc           Deparating Voltage         19.2 28,8 Vcc           Load current         ≤ 400mA           Time delay before availability         2s           Interference to external light         according to IEC 61488-2           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) × 30mm           Connections         M12-6 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           Rest/Approvals         CE, cULus, TÜV   | MTTFd                              | 100  |
| Dutput type         2 x PNP-NO (OSSD safety output)           Response time         10ms           Electrical data         10ms           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)         ≤ 50m           Rechanical data         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)           Interference         Power Consumption (Power Supply/Output)         CE, cULus, TŪV           Emet/Approvals         CE, cULus, TŪV   | CFF                                | 80%  |
| Dutput type         2 x PNP-NO (OSSD safety output)           Response time         10ms           Electrical data         10ms           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)         ≤ 50m           Rechanical data         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)           Interference         Power Consumption (Power Supply/Output)         CE, cULus, TŪV           Emet/Approvals         CE, cULus, TŪV   | 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 IW  Equivalent Resistive Load ≥ 60 Ω  Capacitive Load ≥ 0.82 μF  Cabel Length (Power Supply/Output) ≤ 100m  Cable Length for Master Slave Interconnections  Michanical 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)  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       ≤ 50m         Interconnections       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)         Intert/Approvals       CE, cULus, TŪV         Approvals       CE, cULus, TŪV         EMC compatibility       According to 2014/30/EU Directive   | Response time                      | 10ms   |
| 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 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)   Interct/Approvals CE, cULus, TÜV   EMC compatibility 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) ≤ 100m   Cable Length for Master Slave Interconnections ≤ 50m   Mechanical data 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)   Intercolors 95% (no condensation)   According to 2014/30/EU Directive    **Ext/Approvals  According to 2014/30/EU Directive   | Operating Voltage                  | 19,2 28,8 Vcc                                |
| Interference to external light  Power Consumption - Receiver  Power Consumption - Emitter  Power Consumption - Emitter  IW  Equivalent Resistive Load  ≥ 80 Ω  Capacitive Load  ≥ 0.82 μF  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)  **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         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  | 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  ≥ 0,82 μF  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)  tumidity  95% (no condensation)  Test/Approvals  Approvals  CE, cULus, TÜV  EMC compatibility  According to 2014/30/EU Directive  | Power Consumption - Receiver       | 2W (no load)                                 |
| Capacitive Load ≥ 0.82 μF   Cabel Length (Power Supply/Output) ≤ 100 m   Cable Length for Master Slave Interconnections ≤ 50 m   Mechanical data 28mm (front) × 30 mm   Dimensions 28mm (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 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) × 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                                    |
| 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   |                                    | ≤50m   |
| 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

#### **Accessories**

Supplied Accessories ST 204 6S

#### **Generical Data**

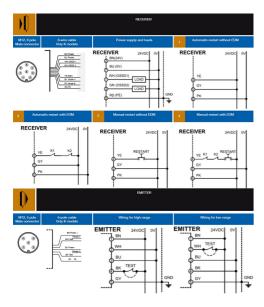
Dimensions 28mm (front) x 30mm

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

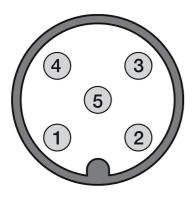
Humidity 95% (no condensation)

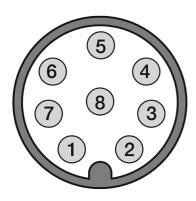
Mechanical Protection IP65, IP67

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



## **CONNECTOR**





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