## 1. GENERAL DESCRIPTION

This specification defines supply of folding photoelectric glass door, control circuit, features and options for controlled access and preserving temperature at desired level in shopping centers, supermarkets, stores, hotels, hospitals, public department, offices etc.

## 2. SYSTEM CONFIGURATION

### 2.1 Photoelectric Glass Door

2.1.1 The rear height of the photoelectric glass door frame should be maximum 9 cm.

2.1.2 The outpouching part of the photoelectric glass door frame should be no greater than 19 cm.

2.1.3 The lid height of the photoelectric glass door should be maximum up to 13 cm from the front looking.

2.1.4 The photoelectric glass door frame should have a bearing capacity of 250 kg for a double-wing door.

2.1.5 The photoelectric glass door frame, cover and wing profiles should be coated with matt eloxal material.

2.1.6 The wing pillar profile of the photoelectric glass door should be in 30x40 mm dimensions of minimum 2 mm wall thickness, upper-lower skirt profile of the wing should be in 30x81 mm dimensions of minimum 2 mm wall thickness.

2.1.7 The wing profile of photoelectric glass door should be supported with a plastic piece to ensure the wing erects firmly and the screw is not loose as it moves.

2.1.8 There should be sealing fuses at points where folding wings joint with the stationery wings; elastic coupling fuses should be in place where the two wings meet and overlap. The hair brush at the bottom should be capable of moving at least 8 mm upwards to prevent deformation on rough surface conditions.

2.1.9 The photoelectric glass door wings should be equipped with minimum 4+4 laminated glass.

2.1.10 The moving wing of the photoelectric glass door should have a dust-deterrent brush.

2.1.11 Aluminium wings should have original self-locking covers, which should be removable for maintenance.

2.1.12 Each of the moving wings should be connected to the frame through 2 pcs of trio wheel sets. Two out of three wheels in the wheel set should be aligned back to back while the remaining one should contact the upper rail to prevent displacement of the wing in case of an impact.

2.1.13 The lower rail of the photoelectric glass door where the wheel set slides should me made of rigid aluminium, stand-alone and replaceable in case of wear and tear. There should be a sound proofing fuse between the rail and the frame.

2.1.14 Motor of the photoelectric glass door system should be a DUNKER brand, and minimum 24V DC 100 W power. The encoder system should be integrated with the motor.

2.1.15 The photoelectric glass door system should be capable of operating at 110-240V AC/ 50-60Hz mains voltage.

2.1.16 Door motor and frame should feature power and capacity to slide open the single wing at 1200 mm.

## 2.2 CONTROL AND LOGIC CIRCUIT

2.2.1 Control circuit should be equipped with a structure together with any other necessary equipment needed for controlling the motor and all necessary accessories; and it should ensure smooth operation of the system.

2.2.2 Electronic system of the door should be preserved in a closed box. Electronic card should have an LCD panel.

2.2.3 Control card should be equipped with a high performing RISC processor, which should be supported by NanoWatt XLP, capable of extremely low power management.

2.2.4 The photoelectric door should have a self-control mechanism of motions; switch from high to low speed should be moderate, avoiding abrupt and strong motions. It should be capable of self-preserving against all kinds of usage errors (short circuit etc.).

2.2.5 There should be a cable-free function selector to select and control all functions of the photoelectric glass door. User functions should be as follows: auto on and off, interior radar cancel, exterior location, lock the door, keep the door open, manual opening, fully closed, wide open. Cable-free function selector should be capable of operating at 25 MT distance on average, it should allow mounting at any desired spot.

2.2.6 Control circuit should operate at 24V DC. There should be an internal supply outlet of 12-24V Dc for accessories and equipment.

2.2.7 An optocoupler should be used for inlet and outlet on the electronic card against external disturbance.

2.2.8 Voltage inlet clamp of the control board will be a PCB with rocker switches. The clamp should have CB IEC 61984, CSA C22.2, KEMA EN 61984, UR UL 1977 certificates for electrical safety.

2.2.9 The door should be equipped with an accumulator system that is capable of operating minimum 250 times in case of power cut. the given operation time can be increased up to 1250-2000 by an additional accumulator backup. The accumulator will enable operating manually once it is discharged or power turns off, the mechanism will automatically resume and operate on when the power is back on after failure.

2.2.10 Function settings of the control panel will be available and present on an integrated LCD display, which should be set in Turkish or English.

2.2.11 Control panel should have a disabled button inlet, allowing the disabled to enter and exist easily and conveniently. When the button is set, the door should operate in disabled mode.

2.2.12 The control panel should be equipped with an air curtain outlet. The door and the air curtain should operate synchronously thanks to the outlet.

2.2.13 Control panel should have a Hall Effect current Sensor.

2.2.14 Control panel should have a counter of operating hours, showing on the LCD display how many times the photoelectric door has been used.

2.2.15 Control circuit should be capable of controlling motions and safeguard soft operation. Switching from high to low speed should also be soft and moderate.

2.2.16 Opening and closing speed setting of the control circuit should be adjustable separately.

2.2.17 Standby current of the photelectric glass door should not exceed 0.1 A on average, and the operating current should not exceed 4.5 ampers on average.

2.2.18 The control board should be equipped with an integrated buzzer. The user should hear an audio warning in case of potential failures or mode selection.

2.2.19 Opening slow-down and closing slow-down points of the control circuit should be adjustable separately.

2.2.20 Opening and closing speed, break at opening and closing, stay open time should be adjustable by using the buttons on the control board.

2.2.21 Closing jamming precision should be selectable on the control circuit.

2.2.22 Radar should enable opening by using button or similar systems, and it should close automatically. If the single radar will be opened manually in cancel or fully closed modes, the door should not allow opening by pushing in the motor's direction. There should be a separate button inlet on the control circuit, enabling opening by a remote control or a password panel externally.

2.2.23 The control circuit should have an auto off time set.

2.2.24 Half opening distance should be adjustable on the control circuit.

2.2.25 Average power consumption of the control circuit should be no greater than 2 W in standby mode and 105 W in operating (opening and closing) on average.

2.2.26 The control circuit will have a PCB print. The control board shall contain interior radar, exterior radar, safety photoelectric mechanism, button, disabled button inlets.

2.2.27 Control circuit should have motor, electronic lock,12V and 24V supply outlets.

2.2.28 Necessary measures should be already taken on the control circuit against potential external disturbance.

2.2.29 Control circuit should be adaptable to any and all kinds of control systems.

2.2.30 Electronic card should have interior and exterior radar, photoelectric mechanism, button, fire exit and function selector inlets onboard.

2.2.31 Electronic card should have a fire exit and it should operate in compliance with the emergency fire protocol of the institutions for fire safety.

2.2.32 It should enable connection to any and all kinds of external control elements (emergency alarm off card system, password panel etc.).

2.2.33 The door (radar and photoelectric mechanism excluded) should retract automatic motion if it detects an object or obstacle in front of or behind it when opening or closing.

**2.3 ACCESSORY EQUIPMENT** (One or all selectable)

2.3.1. The system should come along with 1 set of accumulators (made of 2 pieces).

2.3.2. The system should come along with at least 1 set of safety photoelectric mechanism.

2.3.3. The system should come along with 1 cable-free function selector.

2.3.4. There should be 2 radar (motion sensor) systems that automatically detects and opens the door. (Optional)

2.3.5. 2 card reader boards should be provided to prevent unauthorised access or to follow up personnel entrance or exit. (Optional)

2.3.6. 2 fingerprint scanners should be provided for prevent unauthorised access at high-security checkpoints. (Optional)

2.3.7. 1 receiver and remote control should be provided with the system. (Optional)

2.3.8. 1 electromagnetic locking mechanism should be provided in order to manually open the photoelectric door or for locking it at night. (Optional)

2.3.9. Audio system should be enabled, and say “WELCOME” upon entrance, and “GOOD BYE” upon exit – alternatively any word can be preferred). (Optional)

2.3.10. Photoelectric door mechanism and the wings should enable painting in any desired RAL colour as may be chosen by the institution in question. (Optional)

2.3.11. The photoelectric door should have a Windows-based software pack to check with the on-off, location info, operation efficiency, maintenance time etc. in a computerized medium. (Optional)

## 3. PERFORMANCE

### 3.1. Opening Speed and Stay-Open Time

3.1.1. Stay-open time should enable setting from 0 to 4 seconds.

3.1.2. Door opening and closing speed should enable setting at 18 cm/sec to 70 cm/sec for a single wing door, and from 36 cm/sec to 140 cm/sec for a double wing door.

### 3.2. Operation Sustainability and Life

3.2.1. Photoelectric glass door should have minimum 2 (two) years of warranty by the manufacturer, and spare parts availability for a period of 10 (ten) year.

3.2.2. Operating sustainability of the photoelectric glass door should be 100%.

3.2.3. Photoelectric glass door mechanism should have IP44 protection class.

3.2.4. Photoelectric glass door system should be capable of operating at -20 / +70 degrees.

## 4. MANUFACTURER EXPERIENCE

4.1.1. Photoelectric glass door manufacturer should have minimum 13 years of experience. Experience in manufacturing should be proven with official registration documents of the company.

4.1.2. Manufacturer should be employing at least 1 mechanical engineer, 1 electronic engineer, 1 mechatronics engineer. Manufacturer should prove this on a documentary basis.

4.1.3. Photoelectric glass door product should have a CE certificate.

4.1.4. Manufacturer should have TUV CERT ISO 9001-2015, TUV CERT ISO 14001 and TUV CERT OHSAS 18001 quality management certificates and Service Area Compliance Certificate.

4.1.5. Manufacturer should have a capacity report, Made in Turkey certificate or Domestic Production certificate for photoelectric glass door.

4.1.6. Manufacturer should have TS 21 HYB, TS 12540 HYB, TS 12870 HYB and TS 13406 HYB certificates so as to be eligible for providing service to safety products.

## 5. QUALITY CONTROL TERMS

5.1.1. Photoelectric door and equipment should be carefully packed.

5.1.2. FA tests will be performed after photoelectric glass door is manufactured and before it is dispatched to the site; a certified FAT certificate will be delivered upon delivery of the product.

5.1.3. Once the photoelectric glass door system is complete, it will be fully tested before installing.

5.1.4. Photoelectric glass door and its sub systems should be masterfully and carefully made.

5.1.5. Master dimensions should be compared with drawings and order dimensions.

5.1.6. Photoelectric door should come up with assembling and user manuals in European standards.