



1. Application

The double sheet detector consists of the amplifier IT 04SZ and a pair of sensors SIZ 16 (Pair) (1 transmitter- and 1 receiver sensor), arranged according Fig. 1. The sheet must not touch the sensors. Both, moving as well as not moving sheets can be monitored. The sensors are fixed opposite each other in axial alignment. They are for example fixed between a sheet destacker and the in feed of a sheet working machine, watching each passing sheet for double sheets, before entering the sheet working machine. The sensors may be fixed in any kind of material, also steel. The two wire cables of the sensors are connected to the amplifier by screw terminals. The amplifier is designed to snap on 35 mm DIN rails in cabinets / enclosures. The single sheet thickness calibration is made by a teach in process either local on the amplifiers push-button switch or remote via a potential free N.O contact or from an PLC / IPC via a simple +24 VDC pulse as shown in fig.1.. For this a single sample sheet is placed between both sensors and the "Teach in" push button must be pressed for approx. 1 sec. The "Teach in" can also be made remote either by bridge screw terminal R1 to screw terminal R2 with a simple NO-contact or by connecting R2 screw terminal to +24V DC for app. 1sec. The teach in sheet thickness value is internally stored into a non volatile EEPROM and therefore also automatically loaded again into the amplifier after a power interrupt/ reset. The double sheet conditions are shown on a dual color LED on the amplifier according table 4. The amplifier has 2 High Side switching transistor outputs (NPN) that switch also according table 4. The sensors are both mechanical and electrical identical and can be used either as transmitter or as receiver sensor i.e. sensor 1 or sensor 2. They are both fitted with 1 wire shielded cable = 2 connection wires: white + red with 3 or 6 m length that can be shortened to smaller length if needed.

2. Setup

Fix the sensor SIZ 16 with clamps or in a holder with blocking screws, so that the monitored sheets can pass in the middle between both sensors, touchless. To fix amplifier IT 04SZ snap it on 35 mm DIN rails. To remove the amplifier from that 35 mm DIN rails release the black blocking lever on the lower side of the amplifier. To put the amplifier into first operation and also after sheet thickness changes or distance changes between the sensors a teach-in process is necessary. For this put a sample sheet from the same material and same sheet thickness as the sheets that shall be later monitored in the middle between both sensors. The sample sheet shall be at least 3 times larger than the sensors active area. Switch on power supply and press the teach in button for app. 1 sec. or give a remote + 24 VDC pulse on screwterminal R2. The amplifiers LED must show green. Remove the sample sheet from the sensors, the LED must turn off, put 2 sheets = double sheets between the sensors, the LED turns red. (See also table 4).

Fig.2



3. Specifications

Sensors	SIZ 16(Pair)3m	SIZ 16(Pair)6m
max.Thickness (mm)	Dist. A= 20 mm: Al= 1,0 mm FE= 0,40 mm	
Sens.Diameter (mm)	16	
Sens.Length (mm)	17	
Cable length (m)	3	6
Protection class	IP 65	

Amplifier	IT 04SZ
Thickness teach-in	Local:Push-Button/Remote:Contact:+Puls
Protection class	IP 00
Output	2 Transistors, High Side Switches, PNP
Max Load	24V DC 3A
Dimensions (mm)	45 X 75 X 109,5
Power supply	24V DC
Power draw	ca. 3VA
Temperature	0- 50 grd. C

4. Output relations

Sensor conditions	Out 1	Out 2	LED
No sheet	H	H	Off
One sheet	H	L	Green
Double sheet	L	H	Red

