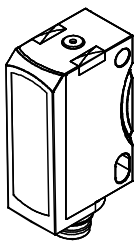
DATALOGIC

Manuale di utilizzo • Operating instructions
Instructions de service • Betriebsanleitung



S45-...-M03/-M13
S45-...-C03

Sensore di prossimità
Photoelectric proximity sensor
Détecteur de proximité
Reflexionslichttaster

IP 67 | IP 69K | ECOLAB [1] | c UL us LISTED [2]

821003850 Rev.01 X1610
www.datalogic.com

DATI TECNICI | TECHNICAL DATA | DONNÉES TECHNIQUES | TECHNISCHE DATEN (TYP.)

S45				-PR-2-M03 [A] -PR-5-M03-PH [A]	-PR-2-M03-NH [A] -PR-5-M03-NH [A]	-PR-2-M13-PH [A] -PR-5-M13-PH [A]	-PR-2-M13-NH [A] -PR-5-M13-NH [A]	-PR-2-C03-PH -PR-5-C03-PH	-PR-2-C03-NH -PR-5-C03-NH	-PH-5-M03-PH [A]	-PH-5-M03-NH [A]	-PH-5-C03-PH	-PH-5-C03-NH
(I) Uscita di commutazione Q	(GB) Switching output Q	(F) Sortie de commutation Q	(D) Schaltausgang Q	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN
Distanza di rilevamento (TW) [3]	Scanning distance (TW) [3]	Distance de détection (TW) [3]	Tastweite (TW) [3]	1...200 mm		3...400 mm		0...800 mm		4...120 mm		1...250 mm	
Distanza di regolazione	Adjustment range	Plage de réglage	Einstellbereich	10...200 mm		30...400 mm		20...800 mm		10...120 mm		25...250 mm	
Tipo di emissione	Used light	Type de lumière	Lichtart	632 nm, LED rosso I red I rouge I rot						Laser Classe 1 (IEC 60825-1)			
Dimensione dello spot	Size of light spot	Taille du spot de détection	Lichtfleckgröße	vedere grafici sul retro | see back | voir verso | s. Rückseite									
Tensione di alimentazione +V [4]	Operating voltage +V [4]	Tension d'alimentation +V [4]	Betriebsspannung +V [4]	10 … 30V DC									
Corrente di assorbimento I_0	No-load supply current I_0	Courant hors charge I_0	Leerlaufstrom I_0	≤ 30 mA									
Corrente di uscita I_e	Output current I_e	Courant de sortie I_e	Ausgangsstrom I_e	≤ 100 mA									
Ingresso di Teach in IN [5]	Control input IN [5]	Entrée de contrôle IN [5]	Steuereingang IN [5]	+V = Teach in / -V= 🔒 / non connesso = funzionamento normale									
Frequenza operativa (ti/tp 1:1)	Switching frequency (ti/tp 1:1)	Fréquence de commutation (ti/tp 1:1)	Schaltfrequenz (ti/tp 1:1)	≤ 1000 Hz								≤ 1500 Hz	
Grado di protezione [6]	Enclosure rating [6]	Degré de protection [6]	Schutzart [6]	IP 67 / IP 69K									
Temperatura di funzionamento [2]	Ambient air temperature: operation [2]	Température ambiante : fonctionnement [2]	Umgebungstemperatur: Betrieb [2]	-20 ... +60 °C									
Temperatura di immagazzinamento	Ambient air temperature: storage	Température ambiante : stockage	Umgebungstemperatur: Lager	-20 ... +80 °C									
Peso con connettore / con cavo	Weight plug-/ cable device	Poids Capteur avec connecteur/-câble	Gewicht Stecker-/ Kabelgerät	10 g / 40 g									
Configurazione di fabbrica	Factory setting	Configuration d'origine	Werkseinstellung	max. TW, N.O.									

[1] (I) eccetto i tipi: S45-PR-5-C03/-M03/-M13.. S45-PH-5-C03/-M03-..
[2] UL: -20 ... +50 °C
[3] Su bianco 90%
[4]) massima variazione residua del 10% della tensione di alimentazione, ~50Hz/100Hz
[5] vedere il grafico I; sul retro
[6] con connettore inserito IP 67 / IP 69K

[1] (GB) except for types S45-PR-5-C03/-M03/-M13.. S45-PH-5-C03/-M03-..
[2] UL: -20 ... +50 °C
[3] Reference material white, 90% reflectance
[4] max. residual ripple 10%, within U_B, approx. 50Hz/100Hz
[5] see illustration I; back
[6] with connected IP 67 / IP 69K plug

[1] (F) sauf les types S45-PR-5-C03/-M03/-M13.. S45-PH-5-C03/-M03-..
[2] UL: -20 ... +50 °C
[3] Matériau de référence blanc, 90% réflexion
[4] Ondulation résiduelle maxi 10 % à l'intérieur de U_B, env. 50Hz/100Hz
[5] voir illustration I; verso
[6] avec connecteur IP 67 / IP 69K raccordé

[1] (D) ausgenommen Typen S45-PR-5-C03/-M03/-M13.. S45-PH-5-C03/-M03-..
[2] UL: -20 ... +50 °C
[3] Bezugsmaterial Weiß, 90% Remission
[4] max. 10% Restwelligkeit, innerhalb U_B, ~50Hz/100Hz
[5] siehe Grafik I; Rückseite
[6] mit angeschlossenem IP 67 / IP 69K Stecker

[A] (I) con soppressione dello sfondo | [A] (GB) with background suppression | [A] (F) avec suppression d'arrière-plan | [A] (D) mit Hintergrundausblendung

🔒 = Tasto bloccato | 🔒 = button locked | 🔒 = bouton verrouillée | 🔒 = Taste verriegelt

(I) INDICAZIONI SDI SICUREZZA

Leggere attentamente le istruzioni prima della messa in servizio del sensore.
Connessione, Montaggio e messa in servizio devono essere eseguite da personale qualificato.
Non è un dispositivo di sicurezza in accordo con la direttiva macchine EU (non deve essere utilizzato per la protezione delle persone).
Non utilizzare in ambiente esterno.
S45-PH-5-M03: ⚠, classe 1; lunghezza d'onda: 650nm; frequenza: 5kHz; ampiezza dell'impulso: 3µs; valore limite dell'impulso: ≤ 2,5mW (IEC 60825-1).
S45-PH-5-C03: ⚠, classe 1; lunghezza d'onda: 650nm; frequenza: 11,7kHz; ampiezza dell'impulso: 0,7µs; valore limite dell'impulso: 8,5mW (IEC 60825-1).
Conforme alla norma 21 CFR 1040.10 y 1040.11, eccetto le differenze conformi alla nota del laser n. 50 del 24 Giugno 2007.
Per l'uso dei sensores con connettore: Connettore M8 metallico dritto o 90° Zoccolo di connessione R/C (CYJV2).
ATTENZIONE - tutto ciò che riguarda l'utilizzo nel controllo o regolazione eseguito diversamente da quanto descritto in questo manuale può provocare una esposizione pericolosa alla radiazione del laser.

USO CORRETTO

Questo sensore è utilizzato per la rilevazione ottica e non di contatto di oggetti.

MONTAGGIO

Montare il sensore con accessori compatibili. (vedere il sito www.datalogic.com).

CONNESSIONE

Inserire il connettore senza alimentazione ed avvitarlo fino in fondo.
Conettere il cavo come in figura B.
Vedere figura C per connessione PNP/NPN.
Tensione presente → LED Verde acceso.
Logica di uscita N.O. ↔ N.C. vedi figura H sul retro.
N.O. Normalmente Aperto; N.C. Normalmente Chiuso.

(GB) SAFETY INSTRUCTIONS

Read operating instructions before start-up.
Connection, assembly, setting and start-up only by trained personnel.
No safety component according to EU machinery directives (not suited for the protection of personnel).
Not for outdoor use.
S45-PH-5-M03: ⚠, class 1; wavelength: 650nm; frequency: 5kHz; pulse duration: 3µs; limit value pulse: ≤ 2.5mW (IEC 60825-1).
S45-PH-5-C03: ⚠, class 1; wavelength: 650nm; frequency: 11.7kHz; pulse duration: 0.7µs; limit value pulse: 8.5mW (IEC 60825-1).
Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to laser Notice No. 50 dated June 24, 2007.
For use with sensors with connector: Straight or L-shaped M8 metal connector, connector base is made of R/C (CYJV2).
CAUTION - Use of Controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

INTENDED USE

Sensor is used for the optical non-contact detection of objects.

ASSEMBLY

Fix sensor on suitable mounting component (bracket see www.datalogic.com).

CONNECTION

Insert plug tension-free and screw it tightly.
Connect cable according to the connection diagram (see illustration B) .
For PNP/NPN (see illustration C).
Apply voltage → green LED lights up.
Switching N.O. ↔ N.C. (see illustration H; back).
N.O. = normally open; N.C. = normally closed.

(F) INSTRUCTIONS DE SÉCURITÉ

Lire les instructions de service avant mise en service.
Raccordement, assemblage, réglage et mise en service ne doivent être effectués que par du personnel qualifié.
Il ne s'agit pas de pièces de sécurité selon les directives européennes en vigueur concernant les machines (inappropriées à la protection de personnes).
Nepas utiliser à l'extérieur.
S45-PH-5-M03 : ⚠, classe 1 ; longueur d'onde: 650nm ; fréquence : 5kHz ; largeur d'impulsion : 3µs ; valeur limite impulsion : ≤ 2,5mW (IEC 60825-1).
S45-PH-5-C03 : ⚠, classe 1 ; longueur d'onde : 650nm ; fréquence : 11,7kHz ; longueur d'impulsion : 0,7µs ; valeur limite impulsion : 8,5mW (IEC 60825-1).
Correspond à 21 CFR 1040.10 et 1040.11 à l'exception des différences conformément à la notice du laser n° 50 du 24 juin 2007.
Pour une utilisation avec capteurs avec connecteur : Connecteur métallique M8 droit ou en forme de " L ", socle de raccordement en R/C (CYJV2).
ATTENTION - L'utilisation de commandes, de réglages ou de consignes autres que ceux spécifiés présente un risque d'exposition dangereuse aux radiations.

UTILISATION CONFORME

Le capteur est utilisé pour la détection optique des objets sans contact.

MONTAGE

Monter le capteur sur une équerre de fixation appropriée (support voir www.datalogic.com).

RACCORDEMENT

Insérer le connecteur hors tension et visser.
Connecter le câble selon le schéma de raccordement (voir illustration B).
Pour PNP/NPN (voir illustration C).
Mettre sous tension → LED verte est allumée.
Inversion N.O. ↔ N.C. (voir illustration H ; verso).
N.O. = ouverture; N.C. = fermeture.

(D) SICHERHEITSHINWEISE

Vor Inbetriebnahme die Betriebsanleitung lesen.
Anschluss, Montage, Einstellung und Inbetriebnahme nur durch Fachpersonal.
Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie (nicht zum Schutz von Personen geeignet).
Einsatz nicht im Aussenbereich.
S45-PH-5-M03: ⚠, Klasse 1; Wellenlänge: 650nm; Frequenz: 5kHz; Pulsbreite: 3µs; Grenzwert Puls: ≤ 2,5mW (IEC 60825-1).
S45-PH-5-C03: ⚠, Klasse 1; Wellenlänge: 650nm; Frequenz: 11,7kHz; Pulsbreite: 0,7µs; Grenzwert Puls: 8,5mW (IEC 60825-1).
Entspricht 21 CFR 1040.10 und 1040.11 mit Ausnahme der Abweichungen gemäß Laser Notiz Nr. 50 vom 24. Juni 2007.
Zur Verwendung mit Sensoren mit Stecker: Gerader oder L-förmiger M8 Metallstecker, Anschlusssockel aus R/C (CYJV2).
ACHTUNG - Durch Verwendung von Bedienelementen oder Einstellungen sowie Durchführung von Verfahren, die nicht hier angegeben sind, kann es zum Austritt gefährlicher Strahlung kommen.

BESTIMMUNGSGEMÄSSE VERWENDUNG

Sensor wird zum optischen berührungslosen Erfassen von Objekten eingesetzt.

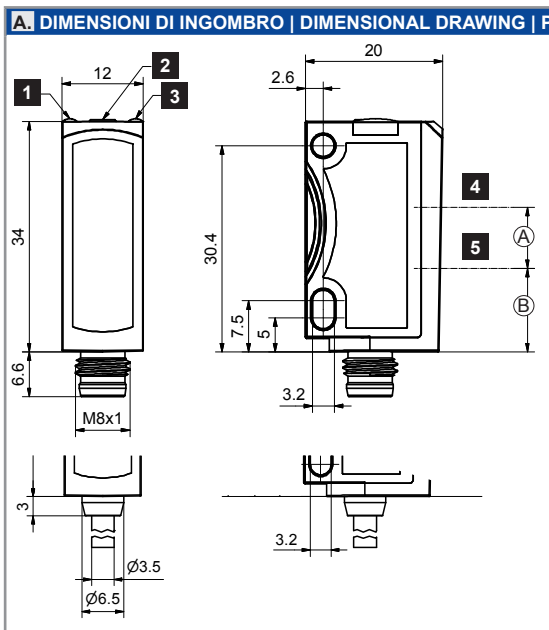
MONTAGE

Sensor an geeignetem Halter befestigen (Halter s. www.datalogic.com).

ANSCHLUSS

Stecker spannungsfrei aufstecken und festschrauben.
Leitung anschliessen. Es gilt das Anschlussschema (s. Grafik B).
Für PNP/NPN gilt (s. Grafik C).
Spannung anlegen → LED grün leuchtet.
Umschaltung N.O. ↔ N.C. (s. Grafik H; Rückseite).
N.O. = Schließer; N.C. = Öffner.

A. DIMENSIONI DI INGOMBRO | DIMENSIONAL DRAWING | PLAN COTES | MASSBILD

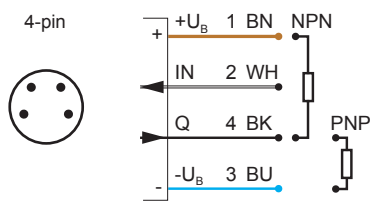


	(I)	(GB)	(F)	(D)
1	LED Giallo [1]	Yellow LED [1]	LED jaune [1]	LED gelb [1]
2	Tasto	Button	Bouton	Taste
3	LED Verde [2]	Green LED [2]	LED verte [2]	LED grün [2]
4	Asse di ricezione	Receiver axis	Axe de récepteur	Empfängerachse
5	Asse di emissione	Emitter axis	Axe d'émetteur	Senderachse

1) Indicatore dello stato di uscita | switching output indicator | afficheur sortie de commutation | Schaltausgangsanzeige
2) Indicatore della tensione di alimentazione attiva | operating voltage indicator | afficheur tension de service | Betriebsspannungsanzeige

	S45-PR-2(5)-M03	S45-PR--2(5)-M13	S45-PR-2(5)-C03	S45-PH-5-M03	S45-PH-5-C03
A	9	11.75	10.8	8.8	8.8
B	12.3	11	11.5	12.5	13.5

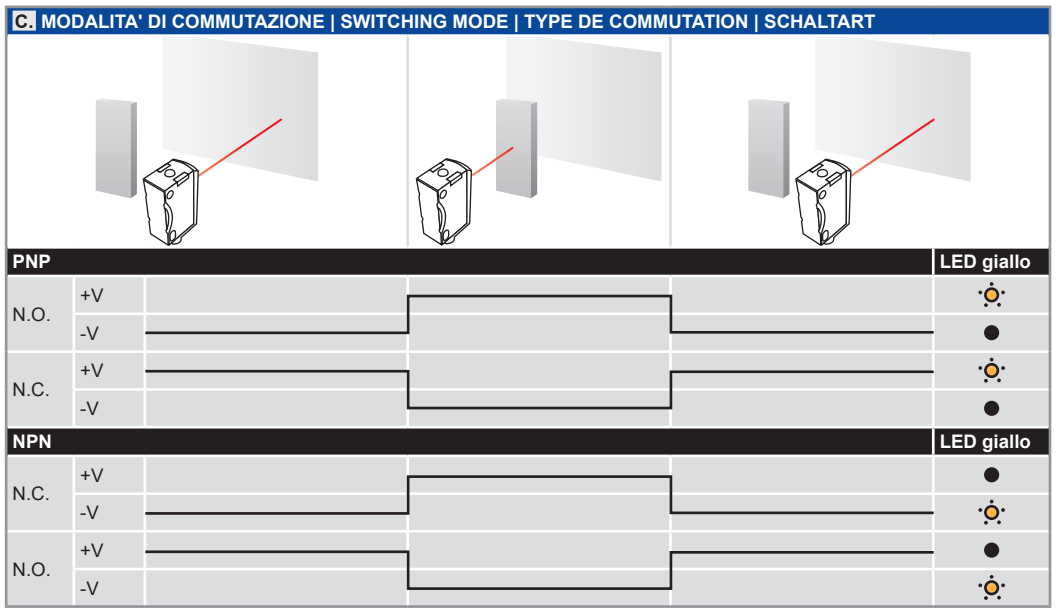
B. CONNESSIONE | CONNECTION | RACCORDEMENT | ANSCHLUSS



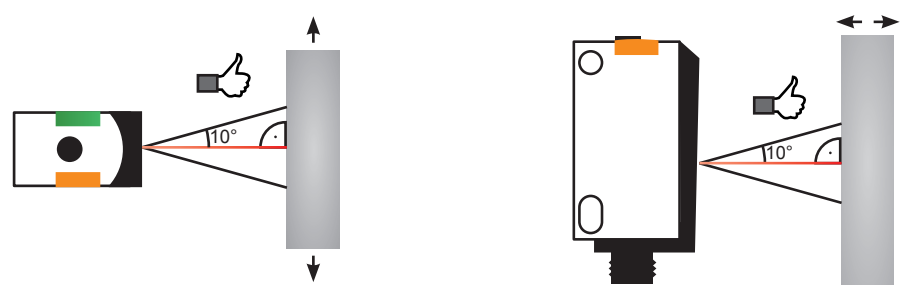
S45	-	PR	-	2	-	C03	-	PH	Example
S45	-	xx	-	2	-	xxx	-	**PH**	4-pin
S45	-	xx	-	2	-	xxx	-	**NH**	
S45	-	xx	-	5	-	xxx	-	**PH**	
S45	-	xx	-	5	-	xxx	-	**NH**	

2 is not available for S45-PH-...

C. MODALITA' DI COMMUTAZIONE | SWITCHING MODE | TYPE DE COMMUTATION | SCHALTART



D. POSIZIONAMENTO | ADJUSTMENT | AJUSTEMENT | JUSTAGE



(I) POSIZIONAMENTO (VEDI FIGURA D)

Allineare bene il sensore di fronte all'oggetto da rilevare.

Verificare che l'oggetto passi di fronte al sensore nel verso preferenziale di rilevazione.

CONFIGURAZIONE

Il sensore dispone di 3 metodi differenti di Teach-in.
Standard Teach-in (STI): utilizzato nella maggior parte delle applicazioni. La regolazione viene effettuata prima sull'oggetto poi sullo sfondo (vedi figura E).
Oggetto su Oggetto (OTI): utilizzata in tutti i casi in cui lo sfondo non è raggiungibile per l'apprendimento. La regolazione si effettua facendo l'apprendimento 2 volte sull'oggetto da rilevare (vedi figura F).
Apprendimento Dinamico (DTI): utilizzato per apprendere l'oggetto durante il processo attivo (in marcia) ed in particolare per oggetti piccoli (vedi figura G).

MANUTENZIONE

Il sensore è libero da manutenzione.

(GB) ADJUSTMENT (SEE ILLUSTRATION D)

Align sensor to the target object.

Observe the preferential direction of proximity switches.

SETTING

The sensor has 3 differerent Teach-in modes.
Standard Teach-in (STI): is suited for nearly all applications. Setting is made on object and background (see illustration E).
Object-Object Teach-in (OTI): is suited for applications where the background cannot be taught in. Setting is made 2x on the object. (see illustration F).
Dynamic Teach-in (DTI): is suited for setting the sensor in the running process, particularly for small objects (see illustration G).

MAINTENANCE

Sensors are maintenance-free. We recommend to cyclically clean the optical surfaces and check the screw connections and plug connections.

(F) AJUSTEMENT (VOIR ILLUSTRATION D)

Aligner le capteur sur l'objet à détecter.

Observer la direction préférencielle des capteurs optiques de proximité.

RÉGLAGE

Le capteur a 3 modes différents d'apprentissage (Teach-in).
Standard Teach-in (STI) : est adapté à presque toutes les applications. Apprentissage sur l'objet puis sur l'arrière plan (voir illustration E).
Object-Object Teach-in (OTI) : est approprié pour les applications où l'arrière-plan ne peut être enseignée. Le réglage est fait 2x sur l'objet (voir illustration F).
Dynamic Teach-in (DTI) : est approprié pour régler le capteur pendant qu'il est en service, particulièrement pour les petits objects (voir illustration G).

ENTRETIEN

Les capteurs ne demandent aucun entretien. Nous recommandons de nettoyer les surfaces optiques et vérifier les raccordements et les fixations régulièrement.

(D) JUSTAGE (S. GRAFIK D)

Sensor auf das zu erfassende Objekt ausrichten.

Vorzugsrichtung bei Tastern beachten.

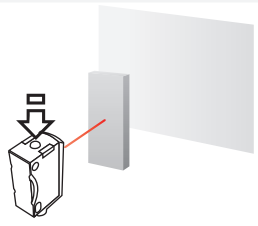
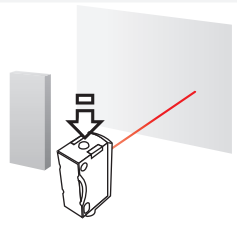
EINSTELLUNG

Der Sensor verfügt über 3 unterschiedliche Teach-in-Modi.
Standard Teach-in (STI): ist für nahezu jede Anwendung geeignet. Einstellung erfolgt auf das Objekt und den Hintergrund (s. Grafik E).
Object-Object Teach-in (OTI): ist geeignet für Anwendungen bei denen der Hintergrund nicht eingelernt werden kann. Einstellung erfolgt 2x auf das Objekt (s. Grafik F).
Dynamic Teach-in (DTI): ist geeignet den Sensor im laufenden Prozess einzustellen, speziell bei kleinen Objekten (s. Grafik G).

WARTUNG

Sensoren sind wartungsfrei. Es wird empfohlen in regelmäßigen Intervallen die optischen Flächen zu reinigen und Verschraubungen und Steckverbindungen zu überprüfen.

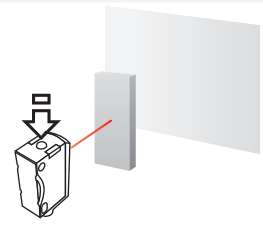
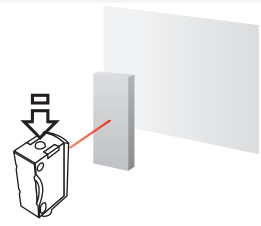
E. STANDARD TEACH-IN (STI) | TEACH IN STANDARD

Step 1: Teach-in object / Apprendimento oggetto	Step 2: Teach-in background / Apprendimento Sfondo
	
press > 3 s until green & yellow LED flash at the same time / fino a che il LED verde e giallo non lampeggiano assieme	**press > 1 s**

ok

External Teach-in / Teach in Esterno → I.

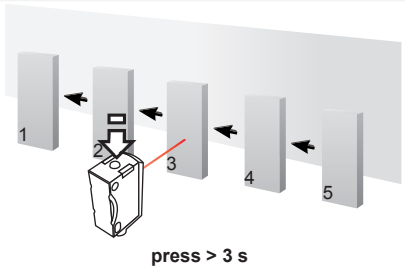
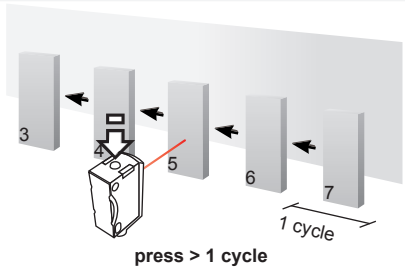
F. OBJECT-OBJECT TEACH-IN (OTI) | APPRENDIMENTO OGGETTO SU OGGETTO

Step 1: Teach-in object / Apprendimento oggetto	Step 2: Teach-in object / Apprendimento oggetto
	
press > 3 s until green & yellow LED flash at the same time / fino a che il LED verde e giallo non lampeggiano assieme	**press > 1 s**

ok

External Teach-in / Teach in Esterno→ I.

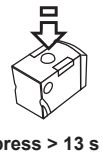
G. DYNAMIC TEACH-IN (DTI) | APPRENDIMENTO DINAMICO

Step 1: During running process / Durante il processo avviato	Step 2: Teach-in object during running process / Apprendimento oggetto con processo avviato
	
press > 3 s until green & yellow LED flash at the same time / fino a che il LED verde e giallo non lampeggiano assieme	**press > 1 cycle**

ok

External Teach-in / Teach in Esterno → I.

H. SELEZIONE N.O. / N.C. | SWITCHING N.O. / N.C. | INVERSION N.O. / N.C. | UMSCHALTUNG N.O. / N.C.



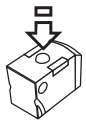
press > 13 s

until green & yellow LED flash alternately / fino a che il LED verde e giallo lampeggiano alternativamente

→ **N.O.**

green LED flashes yellow LED ON / LED verde lampeggia LED giallo ON

↓ **wait 10 s** ↓ ok

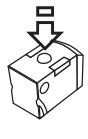
→ 

press

→ **N.C.**

green LED flashes yellow LED OFF / LED verde lampeggia LED giallo OFF

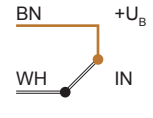
↓ **wait 10 s** ↓ ok

- - → 

press

- - → **N.O. ...**

I. EXTERNAL TEACH-IN | TEACH IN ESTERNO



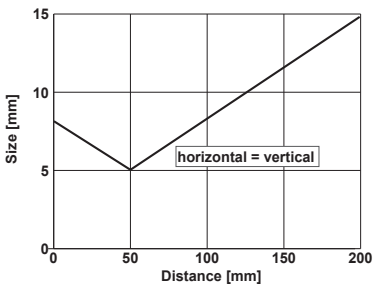
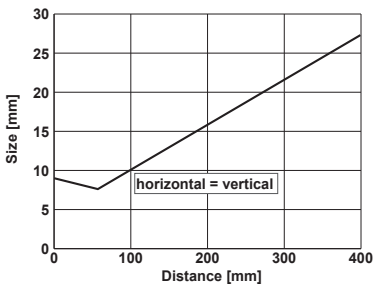
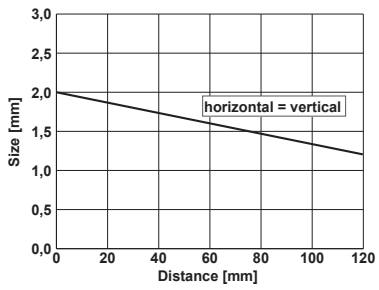
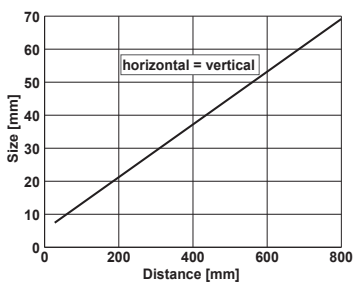
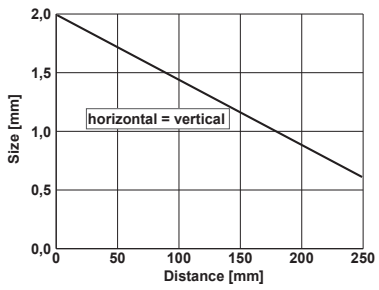
(I) **Regolazione con TEACH IN esterno:** Comandare l'ingresso con le stesse tempistiche del pulsante di teach in.

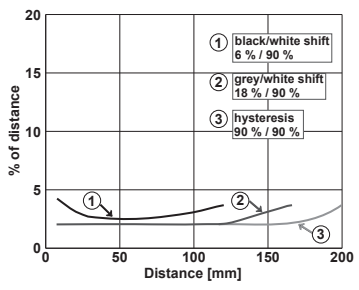
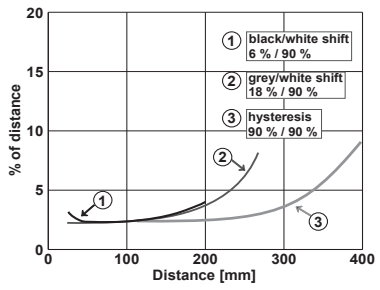
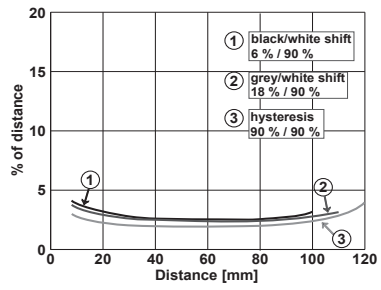
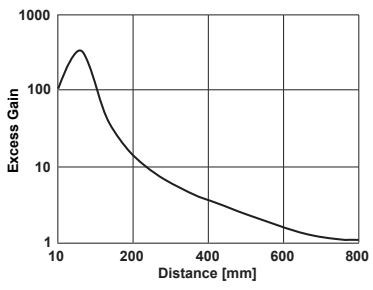
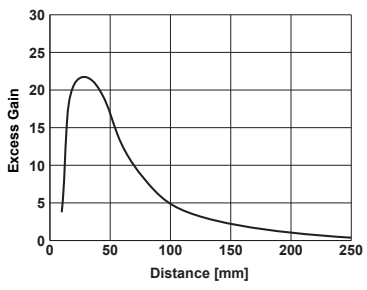
(GB) **Setting via control input IN:** Closing and opening times according to the corresponding indications for the button.

(F) **Réglage par entrée de contrôle IN :** Temps de fermeture et d'ouverture selon l'indication correspondante de la bouton.

(D) **Einstellung über Steuereingang IN:** Schließ- und Öffnungsdauer analog den jeweiligen Angaben für die Taste.

DIMENSIONE DELLO SPOT | SIZE OF LIGHT SPOT | TAILLE DU SPOT DE DÉTECTION | LICHTFLECKGRÖSSE (TYP.)

S45-PR-2(5)-M03-..	S45-PR-2(5)-M13-..	S45-PH-5-M03-..	S45-PR-2(5)-C03-..	S45-PH-5-C03-..
				

CARATTERISTICHE DI RILEVAZIONE | SCANNING PROPERTIES | PROPRIÉTÉS DE DÉTECTION | TASTEIGENSCHAFTEN (TYP.)

S45-PR-2(5)-M03-..	S45-PR-2(5)-M13-..	S45-PH-5-M03-..	S45-PR-2(5)-C03-..	S45-PH-5-C03-..