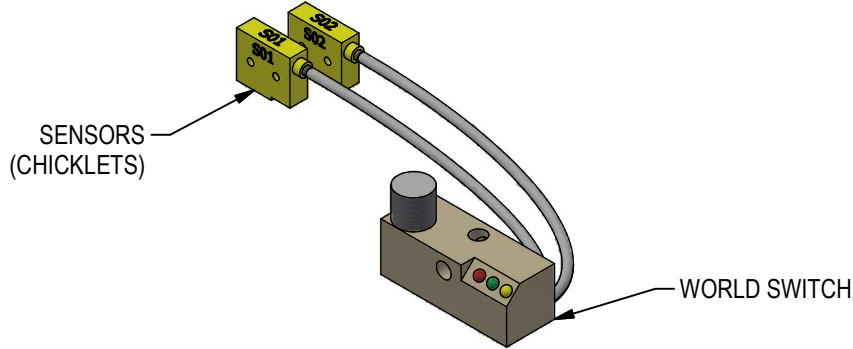


## WORLD SWITCHES

WELD FIELD IMMUNE, AC or DC. SENSORS SET TO EXTEND OR RETRACT POSITION.  
CHECK PRODUCT CATALOGS FOR AVAILABILITY



Order Number SO1 EXTEND / SO1 RETRACT	Switch Reorder Part Number	Part Number	Manufacturer	Description All switches Quick Disconnect
ZE / ZR	SWITCH SWZ	WWS001A	WELKER	4-Wire, 4-Pin, DC M12 X 1 (PNP)
<b>Standard Switch Option - All other options may affect price and delivery</b>				
<b>Non-stocked switches (effective 1-2-2023):</b>				
AE / AR	SWITCH SWA	Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP)
BE / BR	SWITCH SWB	Ni2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.)
CE / CR	SWITCH SWC	Ni2-Q6.5-AN6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (NPN)
DE / DR	SWITCH SWD	NBN2-F581-100S6-E8-V1	Pepperl & Fuchs	4-Wire, 4-Pin, DC M12 X 1 (PNP)
EE / ER	SWITCH SWE	BES-Z02KR2-PSC20F-P100-S04-V	Balluff	3-Wire, 4-Pin, DC M12 X 1 (PNP)
HE / HR	SWITCH SWH	Ni2-Q6.5-0.1-BDS-2AP6X3-H1141/S34	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP)
JE / JR	SWITCH SWJ	IN5374	Efactor	3-Wire, 4-Pin, DC M12 X 1 (PNP)
SE / SR	SWITCH SWS	Ni2-Q6.5-AP6-0.16-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP)
TE / TR	SWITCH SWT	Ni2-Q6.5-ADZ32-0.16-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.)
UE / UR	SWITCH SWU	Ni2-Q6.5-AN6-0.16-FS 4.4X3/S304	Turck	3-Wire, 4-Pin, DC M12 X 1 (NPN)
VE / VR	SWITCH SWV	NBN2-F581-160S6-E8-V1	Pepperl & Fuchs	4-Wire, 4-Pin, DC M12 X 1 (PNP)
WE / WR	SWITCH SWW	BES-Z02KR2-PSC20F-P165-S04-V	Balluff	3-Wire, 4-Pin, DC M12 X 1 (PNP)
YE / YR	SWITCH SWY	IN5375	Efactor	3-Wire, 4-Pin, DC M12 X 1 (PNP)

RELEASED 01/17/2024

# WORLD SWITCH INFORMATION

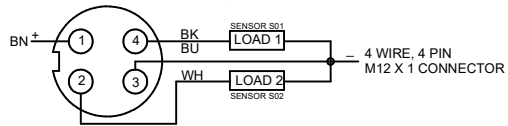


WORLD SWITCH ASSEMBLY

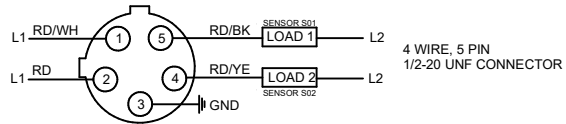
WORLD SWITCH SENSOR POSITION

Refer to manufacturer's datasheets for more information.

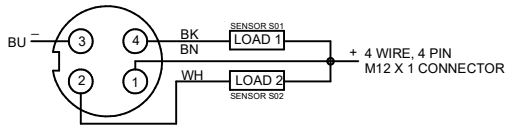
**A** DC TURCK 4-PIN (PNP)  
#Ni2-Q6.5-AP6-0.1-FS 4.4x3/S304



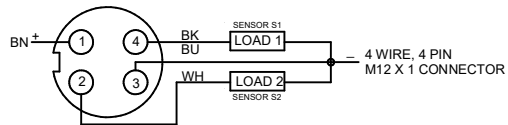
**B** AC/DC TURCK 5-PIN (N.O.)  
#Ni2-Q6.5-ADZ32-0.1-FSB 5.4x4/S304



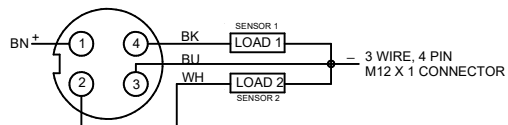
**C** DC TURCK 4-PIN (NPN)  
#Ni2-Q6.5-AN6-0.1-FS 4.4x3/S304



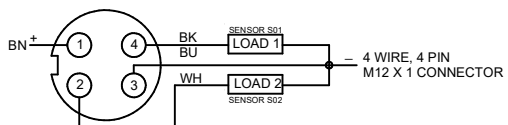
**D** DC PEPPERL & FUCHS 4-PIN (PNP)  
#NBN2-F581-100S6-E8-V1



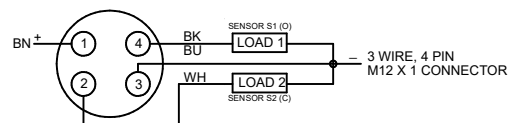
**E** DC BALLUFF 4-PIN (PNP)  
#BES-Z02KR2-PSC20F-P100-S04



**H** DC TURCK 4-PIN (PNP)  
#Ni2-Q6.5-0.1-BDS-2AP6X3-H1141/S34



**J** DC EFFECTOR 4-PIN (PNP)  
#IN5374



## SENSOR POSITION

**E** Sensor 01-Unclamped (Pin Extended, Load/Unload Position)  
Sensor 02-Clamped (Pin Retracted)

**R** Sensor 01-Clamped (Pin Retracted)  
Sensor 02-Unclamped (Load/Unload Position)

Note: Sensor 01 displays an amber LED. Sensor 02 displays a red LED

(DO NOT SCALE DRAWING)



# WORLD SWITCH INFORMATION

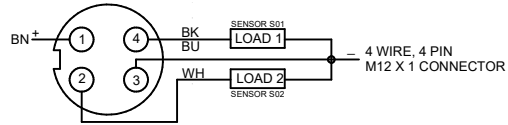
(PART NUMBER) **S E** (PART NUMBER)

WORLD SWITCH ASSEMBLY

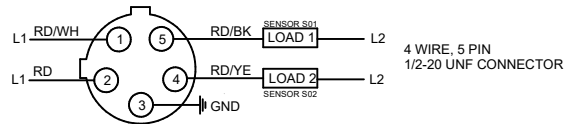
WORLD SWITCH SENSOR POSITION

Refer to manufacturer's datasheets for more information.

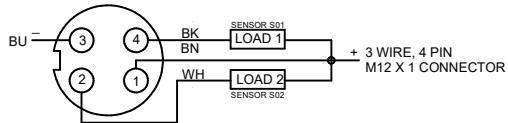
**S** DC TURCK 4-PIN (PNP)  
Ni2-Q6.5-AP6-0.16-FS 4.4X3/S304



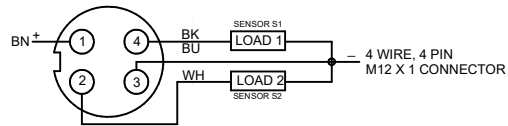
**T** AC/DC TURCK 5-PIN (N.O.)  
Ni2-Q6.5-ADZ32-0.16-FSB 5.4X4/S304



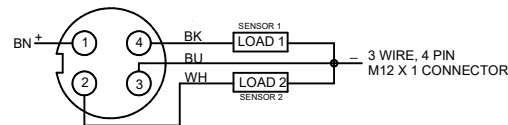
**U** DC TURCK 4-PIN (NPN)  
Ni2-Q6.5-AN6-0.16-FS 4.4X3/S304



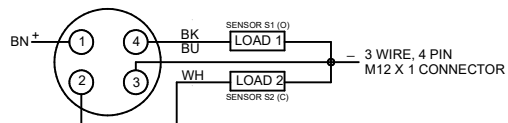
**V** DC PEPPERL & FUCHS 4-PIN (PNP)  
NBN2-F581-160S6-E8-V1



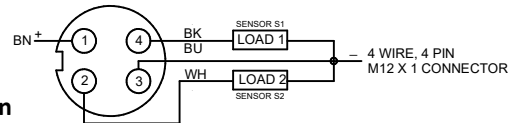
**W** DC BALLUF 4-PIN (PNP)  
BES-Z02KR2-PSC20F-P165-S04-V



**Y** DC EFECTOR 4-PIN (PNP)  
IN5375



**Z** DC WELKER 4-PIN (PNP)  
WWS001A  
See Sheet 4 & 5 for more technical information



## SENSOR POSITION

**E** Sensor 01-Unclamped (Pin Extended, Load/Unload Position)  
Sensor 02-Clamped (Pin Retracted)

**R** Sensor 01-Clamped (Pin Retracted)  
Sensor 02-Unclamped (Load/Unload Position)

Note: Sensor 01 displays an amber LED. Sensor 02 displays a red LED

(DO NOT SCALE DRAWING)

**WELKER**  
ENGINEERED PRODUCTS  
800-229-0890 [www.welkerproducts.com](http://www.welkerproducts.com)

# Welker World Switch Technical Data, #WWS001A

## General Specifications

Switching function	2 x normally open (NO)
Output type	PNP
Rated operating distance, $s_n$	2 mm
Installation	non-flush
Output polarity	DC
Assured operating distance $s_a$	0 ... 1.62 mm
Reduction factor $r_{Al}$	0.45
Reduction factor $r_{Cu}$	0.35
Reduction factor $r_{304}$	0.75
Output type	4-wire

## Nominal Ratings

Operating voltage, $U_B$	10 ... 30 V DC
Switching frequency, $f$	0 ... 25 Hz
Reverse polarity protection	reverse polarity protected
Short-circuit protection	pulsing
Voltage drop, $U_d$	$\leq 3$ V
Operating current, $I_L$	0 ... 100 mA
Off-state current, $I_r$	$\leq 10$ $\mu$ A
No-load supply current, $I_0$	$\leq 15$ mA
Constant magnetic field, B	100 mT
Alternating magnetic field, B	100 mT

## Functional safety related parameters

MTTF <sub>d</sub>	1445 a
Mission Time ( $T_M$ )	20 a
Diagnostic Coverage (DC)	0%

## Indicators/operating means

LED POWER	LED, green
Switching state	"Closed" = LED red (S02)/C "Open" = LED yellow (S01)/C

## Ambient Conditions

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

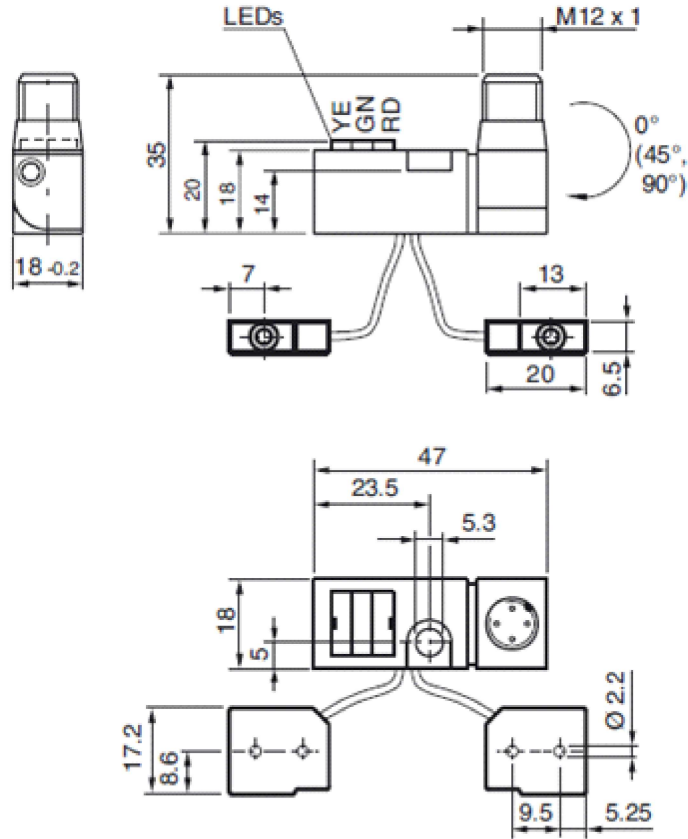
## Mechanical Specifications

Connection type Connector plug	M12 x 1 , 4-pin
Flexible lead, housing-sensor	(160 $\pm$ 5) mm, PUR (halogen-free)
Housing material	amplifier; PBT, PA6 + GD-ZN AL4 oscillators; PBT
Degree of protection	IP65

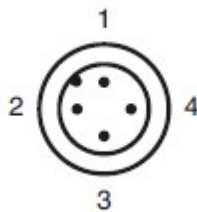
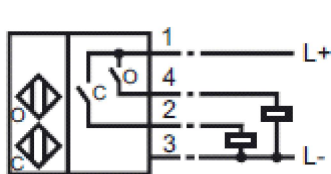
(DO NOT SCALE DRAWING)



Dimensions - WWS001A



Wiring Diagram - WWS001A



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

(DO NOT SCALE DRAWING)

