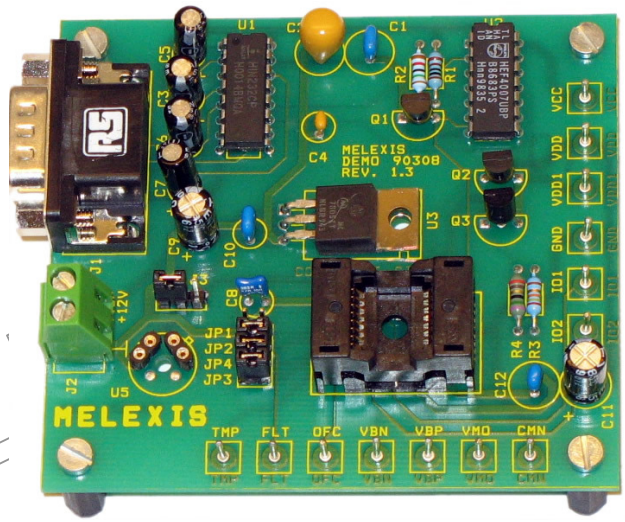
Application Note

DK90308 / DK90314 Evaluation Kit

Scope

The DK90308 and DK90314 provide a communications interface between the device and PC. All necessary components for implementing the three application circuits with the user's bridge sensor are on board. This document describes the board itself and setup of the common application circuits for the DK90308 and DK90314 Evaluation kit.



Applications

Absolute Voltage Output Mode: The device uses an external FET to regulate the supply voltage. The supply voltage is supplied from J2 thru JP3 to VDD1, then the device regulates +5V on VDD using the onboard FET giving a stable output over varied supply voltage.

Ratiometric Voltage Output Mode: In this application the output follows the supply voltage; this is used when the device output is tied to an A/D converter sharing the same supply and ground reference. A 4.5V to 5.2V supply voltage is supplied thru VDD and VDD1 tied together.
JP3 must be open for this mode to avoid permanent damage to the chip.

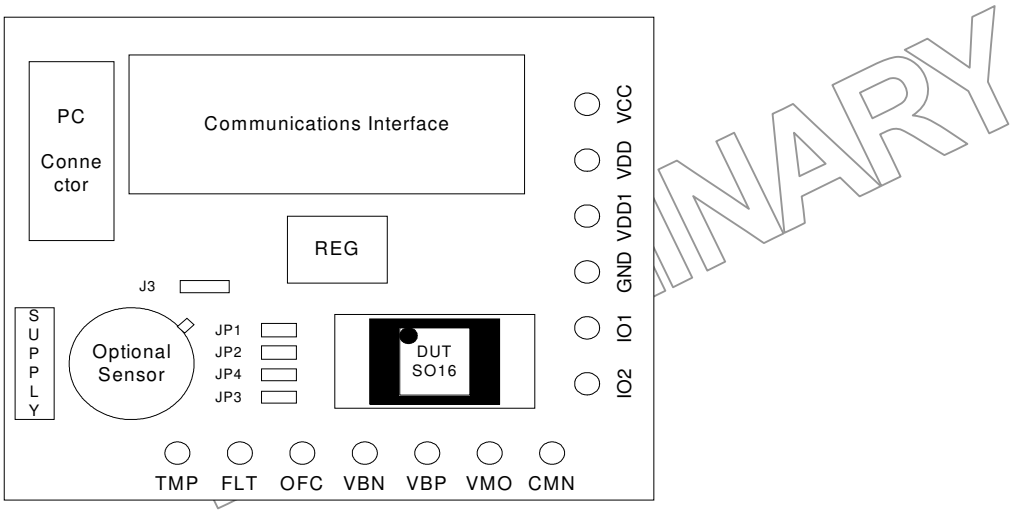
Current Output Mode: In Current Mode the device supplies a 4 to 20mA current range for use as a 2-wire analog sensor. VDD is regulated by the onboard FET from the supply (7V to 35V) thru VDD1. JP3 must be open to separate the interface circuit supply thru J2 from the device current supply thru VDD1. The device supply ground must be floating with respect to the interface circuit ground. DO NOT CONNECT CMN to GND.

The DK90308 and DK90314 can also be used to communicate with the MLX90308 and MLX90314 in custom external circuits. For more information about the MLX90308 and MLX90314 consult the device datasheet.

Related Melexis Products

MLX90308 Programmable Sensor Interface
MLX90314 Programmable Sensor Interface
SW90308 Software for MLX90308CCC and MLX90314AB
90308CCC90314AB UsersManual.pdf

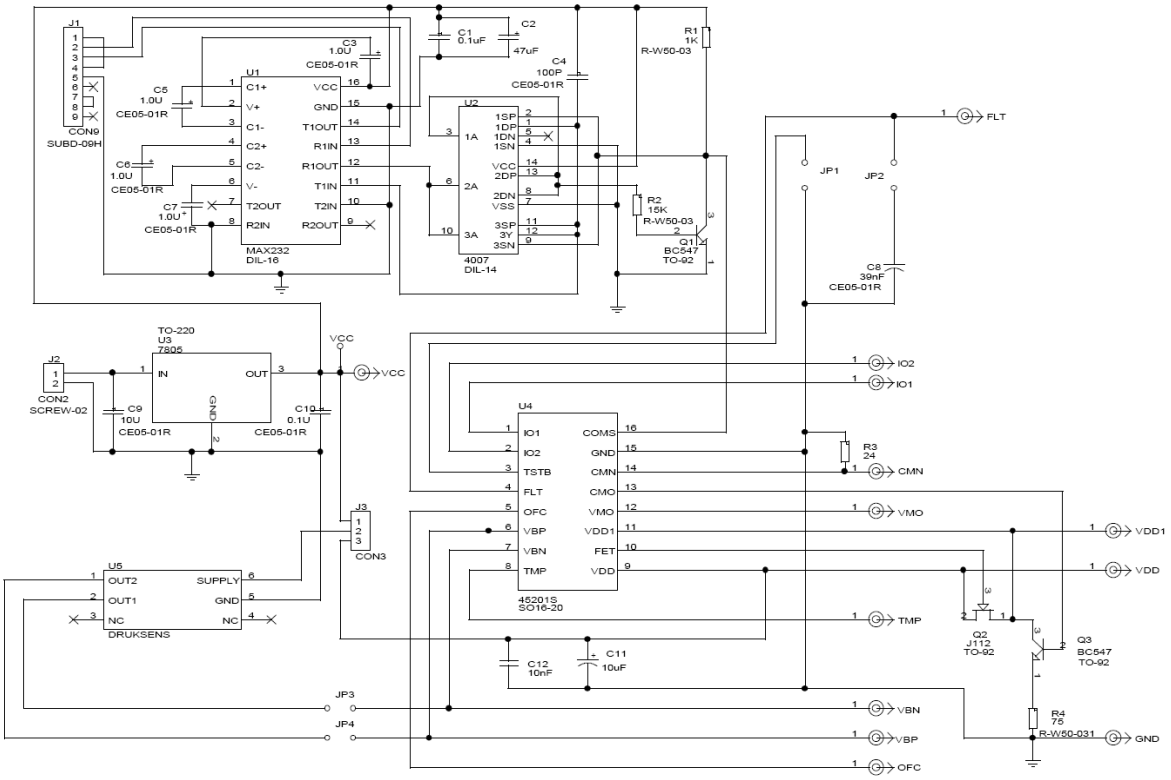
Hardware Description



Component side view:

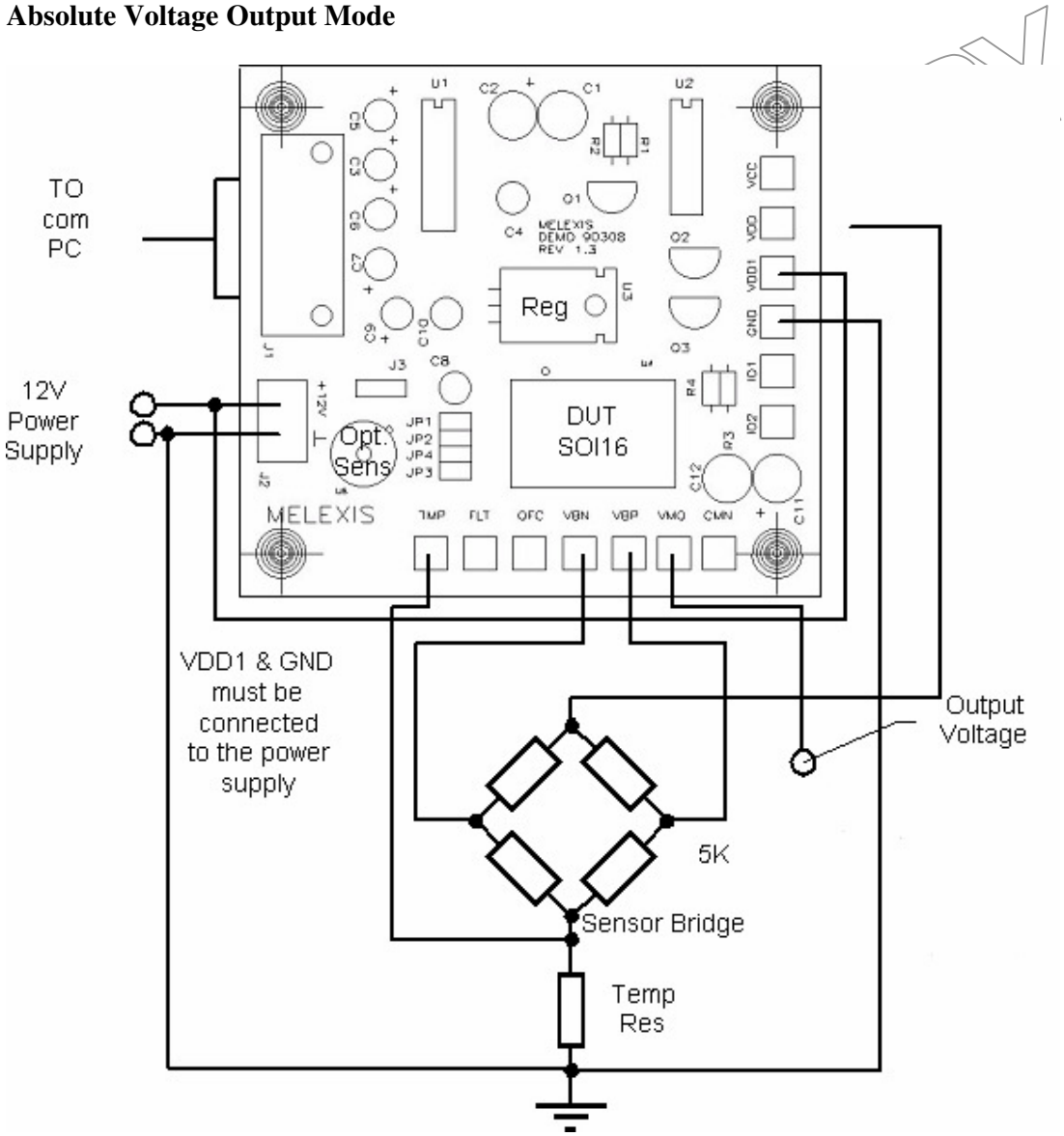
Connector	Function	SO16W Pin No
COM	SERIAL connection to PC	-
12V	+ 12V Power Connector	-
GND	General Ground Connector	15
VBN	Negative Bridge Input	7
IO1	Bidirectional I/O	1
IO2	Bidirectional I/O	2
FLT	Filter Pin	4
VBP	Positive Bridge Input	6
TMP	Temperature sensor Input	8
OFC	Offset Control Output	5
VDD	Regulated Supply Voltage	9
VDD1	Unregulated Supply Voltage	10
CMN	Current Mode Negative Rail	14
VMO	Voltage Mode Output	12
COMS	Communication	16
VCC	Power Supply	-
JP1	TSTB to GND (Jumper open)	
JP2	FLT to 39nF (Jumper closed)	
J3	**+12V Supply to VDD1** ➢ Absolute Voltage Mode (Jumper closed) ➢ Ratiometric Mode (Jumper open) VDD1 will be shorted to VDD ➢ Current Mode (Jumper Open)	
JP4	Shorten U5 pads to VBN (closed)	
JP3	Shorten U5 pads to VBP (closed)	

Schematic

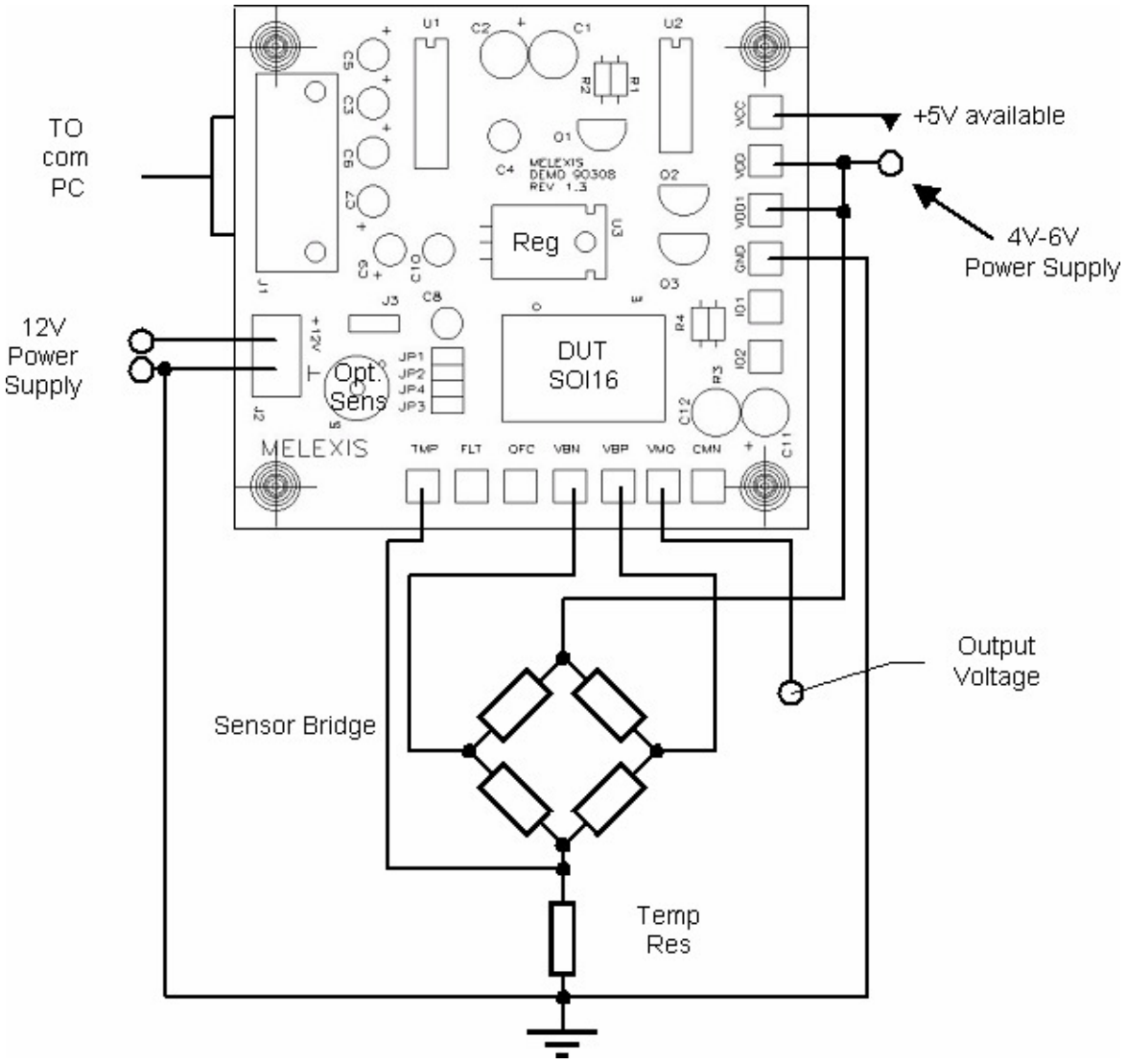

J1
CON9
SUBD-09H
U1
MAX232
DIL-16
C1+
V+
C1-
C2+
C2-
V-
T2OUT
R2IN
VCC
GND
T1OUT
R1IN
R1OUT
T1IN
T2IN
R2OUT
C1 0.1uF
C2 47uF
C3 1.0U CE05-01R
C4 100P CE05-01R
C5 1.0U CE05-01R
C6 1.0U CE05-01R
C7 1.0U CE05-01R
U2
4007
DIL-14
R1 1K R-W50-03
R2 15K R-W50-03
Q1 BC547 TO-92
C8 39nF CE05-01R
JP1
JP2
FLT
J2
CON2 SCREW-02
U3 7805
TO-220
IN
OUT
GND
C9 10U CE05-01R
C10 0.1U CE05-01R
VCC
U4
46201S SO16-20
IO1
IO2
TSTB
FLT
OFC
VBP
VBN
TMP
COMS
GND
CMN
CMO
VMO
VDD1
FET
VDD
R3 24
CMN
VMO
VDD1
VDD
TMP
J3
CON3
U5
DRUKSENS
OUT2
OUT1
NC
SUPPLY
GND
NC
C12 10nF
C11 10uF
Q2 J112 TO-92
Q3 BC547 TO-92
R4 75 R-W50-031
GND
JP3
JP4
VBN
VBP
OFC

Typical Applications

Absolute Voltage Output Mode



Ratiometric Voltage Output Mode



Current Output Mode