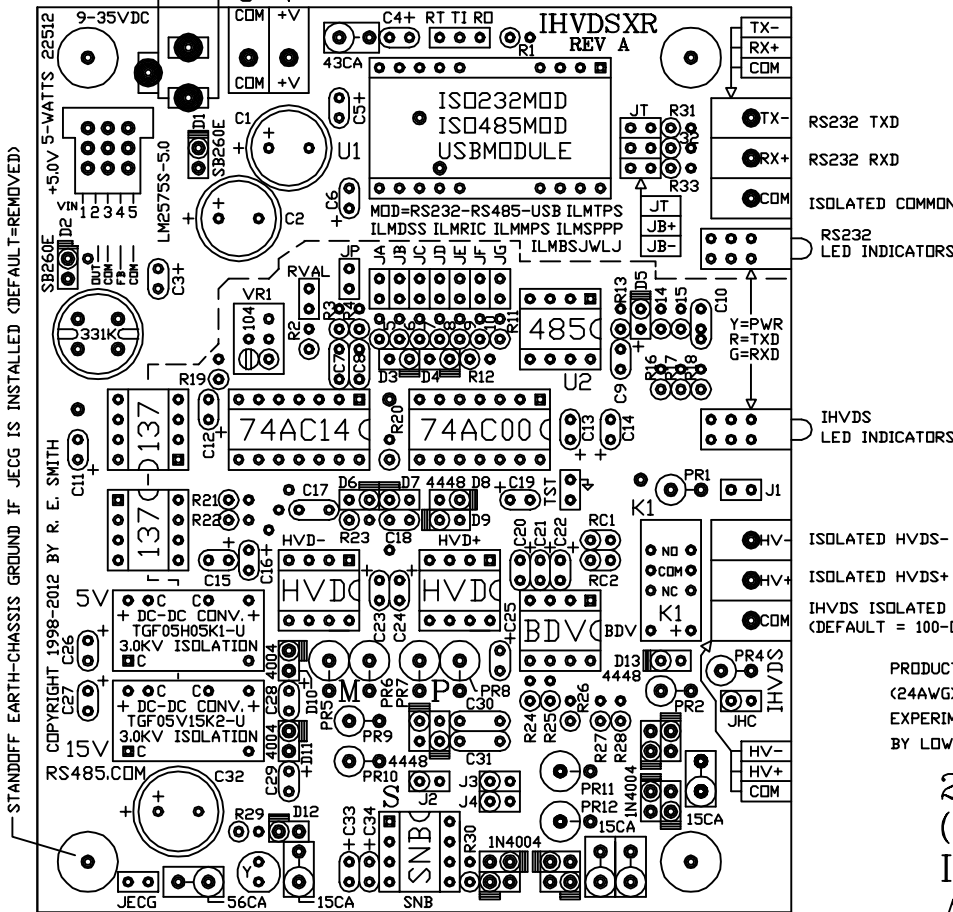


# MODEL IHVDSXR REV A

ISOLATED RS232/RS485 or USB<=>3.0KV IHVDS\*\*  
 PROPRIETARY DESIGN ELIMINATES ISI\* ERRORS  
 (\* INTER SYMBOL INTERFERENCE)

9-35VDC VIN (CENTER+) COMMON 9-35VDC VIN  
 LINK: [rs485.com/pihvdsxr.html](http://rs485.com/pihvdsxr.html)



STANDOFF EARTH-CHASSIS GROUND IF JECG IS INSTALLED (DEFAULT=REMOVED)

\*\*3.0KV ISOLATED HIGH VOLTAGE  
 DIFFERENTIAL SIGNAL (15V DRIVE)

ADDITIONAL INFORMATION CONTACT  
 RON SMITH 513-638-0228 CELL

DYNAMIC DIFFERENTIAL TERMINATION

JUMPER SUMMARY:

- J1 = OPTIONAL 4.7K OHM TERMINATION RESISTOR = INSTALLED
  - J2 = ENABLE 'DYNAMIC TERMINATION MODE' = INSTALLED
  - J3 = SHUNT 0.1uF INTERNAL CAP TO RECEIVER FROM HVD+ = INSTALLED
  - J4 = SHUNT 0.1uF INTERNAL CAP TO RECEIVER FROM HVD- = INSTALLED
  - JB = 10K TIMING RESISTOR FOR 38,400bps (57,600bps MAX.) = INSTALLED
- NOTE: J1=J2=J3=J4=JB=INSTALLED ON PRODUCTION UNITS

- JHC = SHUNT 100-OHM RESISTOR TO HVD COMMON TERMINAL = REMOVED
- JECG = INSTALL TO CONNECT STANDOFF TO EARTH-CHASSIS GROUND THRU 56V BACK-TO-BACK TRANSORB, DEFAULT = REMOVED

- (THE FOLLOWING JUMPERS OR TEST POINTS ARE FOR R E SMITH USE ONLY)
- JP = INSTALL TO ENABLE VRI POT FOR VARIABLE PULSE WIDTH CONTROL
  - RVAL = TEST POINTS, DO NOT INSTALL JUMPER AT THIS LOCATION
  - TEST = TEST POINTS FOR RT TI RD, DO NOT INSTALL ANY JUMPERS
  - TST = TEST POINT TO MONITOR PULSE DURATION ('O' SCOPE)

- PULSE WIDTH TIMING CONTROL (PRELIMINARY VALUES)
- JA = INSTALL TO ENABLE FIXED 8.2K RESISTOR
  - JB = INSTALL TO ENABLE FIXED 10K RESISTOR
  - JC = INSTALL TO ENABLE FIXED 15K RESISTOR
  - JD = INSTALL TO ENABLE FIXED 22K RESISTOR
  - JE = INSTALL TO ENABLE FIXED 33K RESISTOR
  - JF = INSTALL TO ENABLE FIXED 56K RESISTOR
  - JG = INSTALL TO ENABLE FIXED 100K RESISTOR
- APPROX 5.0uS FOR 115.2KBPS @ 3.4 MILES  
 APPROX 60uS FOR 9600BPS @ 8 MILES EST.
- NOTE: JB/10K RESISTOR IS INSTALLED - OTHER JUMPERS AND RESISTORS ARE NOT

PRODUCTIONS UNITS WILL BE CONFIGURED FOR 38,400BPS OPERATION @ 16,000FT (2.9 MILES) USING CAT5E WIRE (24AWG) AND WILL NOT HAVE ANY OPTIONAL SETTINGS. 20AWG WIRE SHOULD IMPROVE OPERATIONAL DISTANCES. EXPERIMENTAL UNITS CAN BE PROVIDED WITH JUMPERS AND ADDITIONAL COMPONENTS FOR TESTING/TRAINING PURPOSES. BY LOWERING THE MAXIMUM DATA RATE, UNITS CAN BE CONFIGURED FOR LONGER DISTANCES (EG 9600 @ 8 MILES)

2.0KV ISOLATED RS232<=>HALF DUPLEX 3.0KV  
 (2.5KV ISO. RS485 & USB MODULES UP TO 921.6Kbps)  
 ISOLATED HIGH VOLTAGE DIFFERENTIAL SIGNAL  
 AT DATA RATES FROM 1200bps TO 460.8Kbps

THE IHVDSXR BOARD HAS A CROSS POINT RELAY ON-BOARD. WHEN POWER IS APPLIED THE RELAY ENERGISES CONNECTING THE HVDS SIGNALS TO THE HVDS TERMINALS. IF POWER IS LOST THE LOAD AT THE TERMINALS WILL BE REDUCED TO 2.4K-OHMS. NO EXTERNAL TERMINATION SHOULD BE APPLIED FOR PROPER OPERATION. MINIMUM OPERATING DISTANCE IS APPROX. 4000-8000FT. PLEASE CALL US !!!

L1 = 4.5" X 3.75"

THE IHVDSXR UNIT USES A PULSE TECHNIQUE TO CONTROL THE AMOUNT OF ENERGY IN THE TRANSMISSION LINE, THIS WILL LOOK UNUSUAL ON AN 'O' SCOPE; HOWEVER, THIS METHOD IS VERY EFFECTIVE AND ALLOWS FOR RELIABLE COMMUNICATIONS AT HIGHER SPEEDS & LONGER DISTANCES THAN RS485 USING HV DRIVE & ELIMINATING ISI\* ERRORS.  
 (\* INTER SYMBOL INTERFERENCE)



This drawing is the property of R. E. SMITH and shall not be used except with the written permission of R. E. SMITH, no copies shall be made of it and all proprietary rights in the matter contained in this drawing are the property of R. E. SMITH. COPYRIGHT - R. E. SMITH, 2000-2014		DRAWN BY RES	SUBJECT RS232/485/USB<=>IHVDS	
DATE 12-7-12 REV 10-29-13		FOR AUTOMATIC REPTR.		
SCALE NONE		R. E. SMITH 10330 CHESTER ROAD CINCINNATI, OHIO 45215		
SHEET 1 OF 1	IHVDSXR-SS	CHKD. BY RES	RES	DWG. NO. IHVDSXR-SS REV. A