P2P-I

Wireless Input Node

The P2P-I Wireless Input Node is part of the Define Instruments Twin Link point-to-point system. It offers an ideal starting point for wireless transmission of a range of digital and analogue input signals.

- **2x Isolated Universal Inputs** Thermocouple, RTD, mA, V, mV, potentiometer, digital pulse and AC current sensors
- **4x digital inputs, 2x digital outputs, and 2x relays** Flexible IO enables a range of setpoint functions
- **Transmit up to 1.5km (0.9mi) Line Of Sight**
- **Simple USB setup using Define ToolBox** Free download from defineinstruments.com/toolbox

FCC ID 2ACTT-1409 CE E2180

Specifications

General

Power supply 9–36V DC, 2.5VA max

Isolation 1500V AC between power supply and input channels

Simple software programming using Define ToolBox Bridge Key required, sold separately

2x Isolated universal input channels (Full input specifications below)

Transmission

RF data rate 250Kb/s

RF frequency range 2405-2475MHz

RF receiver sensitivity -110dBm

RF transmission power +20dBm (Optional low power setting [10dBm] selectable in software)

Transmission range Up to 1.5km (0.9mi) LOS with supplied antenna (WG-3DBI). All nodes must be set to full power [+20dBm] for max range.

Number of RF channels 15

Up to 17 wireless nodes per mesh Twin Link (P2P-I & P2P-O) plus up to 15x Repeaters (P2P-R)

Spreading method Direct sequence

Modulation O-QPSK

Relay Outputs

2x Relay outputs Form A relays (5A 250V AC / 5A 30V DC)

Isolation to sensor and user input commons 2300Vrms for 1min. Working voltage 250V AC

Life expectancy 100K cycles min at full load rating

Digital IO's

4x Digital inputs Max rate 1Hz. Selectable sink/source. Suitable for clean contacts, NPN, PNP and voltage inputs (low input <1.4V DC, high input 1.4–30V DC)

Max continuous input 20V DC

Not isolated to power supply common

2x Digital outputs Open drain (1A, 30V DC max)

Construction

35mm DIN rail mount casing IP20 rated. Install in a protective enclosure. Installation Category II; Pollution Degree 2; Flame resistant

Dimensions (H x W x D)
101 x 23 x 120mm (3.98 x 0.91 x 4.72")
With included antenna:
150 x 23 x 146mm (5.91 x 0.91 x 5.75")

Single unit weight 154g (5.4oz), with included antenna and plugs

Environmental conditions

Operating temp -20 to 55°C (-4 to 131°F)

Storage temp -20 to 65°C (-4 to 149°F)

Operating humidity 0–85% non-condensing

Altitude 2000m (6561ft)

Thermocouple input

Thermocouple types & ranges

J	-200 to 1000°C	(-328 to 1832°F)
K	-200 to 1260°C	(-328 to 2300°F)
B	400 to 1800°C	(752 to 3272°F)
E	-200 to 700°C	(-328 to 1292°F)
N	-200 to 1300°C	(-328 to 2372°F)
R	0 to 1700°C	(32 to 3092°F)
S	0 to 1700°C	(32 to 3092°F)
T	-200 to 400°C	(-328 to 752°F)

Input impedance >500KΩ min

TC lead resistance 100Ω max

Cold junction comp. -10 to 60°C

CJC drift <0.02°C/C typical for all inputs

Sensor open Upscale

Accuracy 0.1% of FSO±1°C typical

RTD input

3-wire RTD Pt100 (DIN 43760:1980) or Pt1000 (3-wire RTD standard)

Calibrated ranges -200 to 300°C (-328 to 572°F), 0.01°C res; -200 to 800°C (-328 to 1472°F), 0.1°C res

Sensor current 0.6mA continuous

Lead resistance 10Ω/lead max recommended

Sensor fail Upscale

Accuracy 0–300°C= ±0.1°C
0–800°C= ±0.3°C

Ambient drift 0.003°C/C typical

Voltage input

Ranges ±200mV, –200mV to 1V, 0–10V, 0–18V

Input impedance >500KΩ (all ranges)

Maximum over-voltage 24V DC

Accuracy 0.1% FSO max

Linearity and repeatability
0.05% FSO max

Channel separation 0.001% max

Ambient drift 0.003%/°C

Current input

Range 0/4–20mA

Input resistance 45Ω

Max over-range
Protected by PTC to 24V DC

Linearity and repeatability
0.1% FSO max

Accuracy 0.1% FSO max

Channel separation 0.001% max

Ambient drift <50ppm/°C of FS input

Response 100msec

Digital pulse

Frequency range 0–2500Hz

Sensors Open collector (NPN, PNP)

Frequency resolution 0.1Hz

Software modes General frequency, Flow rate, or RPM

Accuracy ±0.5%

Potentiometer input

Potentiometer input 3-wire

Potentiometer resistance Low range (<2KΩ) or High range (>2kΩ)

Excitation voltage Variable

Field prog. zero 0–90% of span

Field prog. span 0.1–100%

Linearity and repeatability
<±0.05% FSO typical

Response time 100msec

Temperature drift <50ppm/°C

AC current sensor input

Sensor type Current transformer (Define Instruments ACCS-420/010)

Amperage range
Header selectable 100/150/200A;
Overload 175/300/400A respectively (continuous)

Output (Representing 0–100% of full scale input range)
ACCS-420 = 4–20mA DC loop powered
ACCS-010 = 0–10V DC

Power supply
ACCS-420 = Loop powered, 15–36V DC
ACCS-010 = Self powered

Accuracy 1% of full scale

Response time 250ms (10–90%)

Isolation voltage 2000V

Frequency 50–60Hz

Compliances

FCC ID: 2ACTT-1409 47 Code of Federal Regulations; Part 15 - Radio Frequency Devices; Subpart C - Intentional Radiators, including Section 15.247 - Operation in the band 2400 –2483.5MHz

AS/ANS 4268:2012 Radio equipment and systems - Short range devices - Limits and methods of measurement

ETSI EN 300 440-2, V1.4.1, 2010 Electromagnetic compatibility and Radio spectrum matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 1GHz to 40GHz frequency range; Part 2: Harmonised EN under article 3.23 of the R&TTE Directive

EN 301 489-3, V1.6.1, 2013 Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short Range Devices (SRD) operating on frequencies between 9kHz and 40GHz

P2P Product Codes

P2P-TWIN-LINK	Point-to-Point paired I/O units
P2P-R	Point-to-Point Repeater Node
P2P-I*	Point-to-Point Universal Input Node
P2P-O*	Point-to-Point Output Node

** Not sold separately unless for replacement*

Accessories (Sold Separately)

FCC approved 3DBi monopole antenna included with all P2P units. All other accessories are not FCC approved.

WG-8DBI	8DBi Monopole antenna (Range= 2.7km [1.7mi] LOS)
WG-AEC	Antenna extension cable 30cm
WG-PSU	Power adaptor for 9–36V DC supply
BRIDGE-KEY	USB Bridge Key for PC programming

Easy USB setup in minutes! Visit defineinstruments.com/toolbox

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