# TRANSCOM INSTRUMENTS Product Brochure







### A6 Vector Signal Analyzer

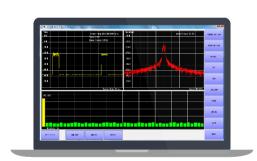


### Overview

A6 is a vector signal analyzer with compact design. With excellent testing performance and measurement sensitivity, A6 satisfies the testing requirements of the majority of RF signals. A6 satisfies the needs of general spectrum test, signal demodulation of GSM, WCDMA, LTE and NB-IoT signals. In terms of system integration, PCB version module product is available and API library is provided for secondary development.

### **Key Facts**

- Frequency range: 10MHz to 6000MHz (10MHz to 4200MHz)
- Signal demodulation: FM, AM, GSM, WCDMA, LTE and NB-IoT signal
- DANL: -168 dBm @1GHz (Sensitivity set to High, normalized to 1Hz)
- Resolution bandwidth: 10Hz to 5MHz
- Signal storage depth of 1Gbit for signal capture and analysis
- API library is provided for secondary development



### **Innovative Features & Benefits**

#### **Product features**

- Precise measurement performance
- Small size
- Easy to integrate
- Support secondary development

#### **Typical applications**

#### Signal demodulation

- FM/ AM demodulation
- GSM, WCDMA, LTE demodulation
- NB-IoT signal demodulation

#### General test in laboratory, factory, school, etc.

- General spectrum analysis
- Display waterfall plot
- Easy installation and set-up

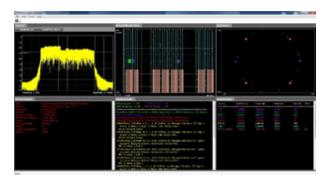
#### **System integration**

- General spectrum analysis
- Secondary development
- Small size and low power consumption

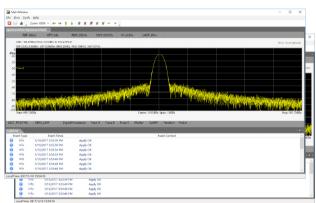
#### Radio fans

- Help to understand the spectrum
- Facilitate testing
- Simplified manipulation

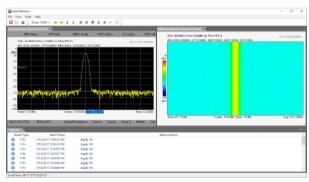
## Solution Highlights



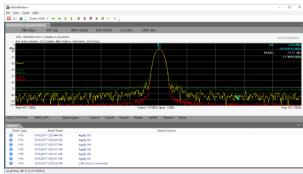
LTE signal demodulation



General spectrum analysis.



Display in waterfall plot



Easy installation and set-up

#### Signal demodulation

A6 can do GSM, WCDMA and LTE signal demodulation. FM/AM demodulation are supported. NB-IoT signal demodulation is also supported.

#### General test in laboratory, factory, school, etc.

#### **General spectrum analysis**

A6 has the broadband spectrum test function, including frequency test, power test, stray test, etc.

#### Display waterfall plot

Waterfall plot test facilitating testing, observation and analysis.

#### Easy installation and set-up

A6 is small and lightweight. Spectrum test can be carried out with one computer. It only occupies small space which allows users to carry by hand or in the pocket or tool box.

#### System integration

#### General spectrum analysis

Integrated A6 can directly provides the broadband spectrum test results for the integrated system to analyze the spectrum.

#### Secondary development

Users can perform secondary development via the API function library provided by Transcom. With 1GB data storage, it meets the basic signal capture needs, so that users can analyze the collected signals. This feature can also be applied in the monitoring field.

#### Small size and low power consumption

Premium industrial design supports Micro-Rx to have competitive advantage in integration. Tiny size, low power consumption (less than 10W) and light weight provide convenient operation for users.

#### **Radio fans**

#### Help to understand the spectrum analysis

A6 is a good choice for beginner in the spectrum analysis field. With A6, users can have a preliminary understanding of spectrum analysis. When applied in spectrum test, A6 will provide new views for all users.

#### Facilitate testing

Spectrum analysis and test can be done with just one computer, one A6 and one data wire.

#### In-depth understanding and development

User can customize the spectrum analysis function via the open API function library.

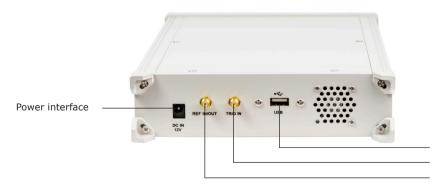
#### **Internet of Things**

We provide optional software to test NB-IoT (Narrow bandwidth Internet of Things). This optional software based on our spectrum module can satisfy users' NB-IoT transmission ending test.

- Surport NB-IoT test
- Optional software

### **Control Elements**





USB I/O interface External trigger interface Reference signal in/out

# **Specifications**

Sensitivity   Low, Medium and High	Function			
Ant 10MHz to 4.2CHz A6: 10MHz to 6.0CHz  Frequency Reference Aalign rate: ±1ppm Accuracy Accuracy Accuracy Accuracy Accuracy + 10Hz) x Frequency Reference + Frequency Span Accuracy x Span y  Frequency Span Accuracy - 15%  Frequency Span Accuracy -	Sensitivity	Low, Medium and High		
Frequency Range  AH: 10MHz to 4.2CHz A6: 10MHz to 6.0CHz Frequency Reference  Aging rate: ±1pm Accuracy Reference + Frequency Span Accuracy	Frequency			
### (readout frequency # 16ftz) x Frequency Reference + Frequency Span Accuracy #### (readout frequency + 16ftz) x Frequency Reference + Frequency Span Accuracy ####################################	Frequency Range	A4: 10MHz to 4.2GHz A6: 10MHz to 6.0GHz		
Accuracy x Span	Frequency Reference	Aging rate: ±1ppm		
1.1ms to 1600s   2.69ms to 1500s, zero span	Frequency Readout Accuracy			
2,69ms to 1600s, zero span	Frequency Span Accuracy	±1%		
10Hz to SMHz, (1-2-3-5-10 Sequence)   28My = 1MHz, ±10%   28My =	Sweep Time			
RBW Accuracy  Amplitude  Measuring Range  Display average noise level to +20dBm  O-30dB, 1dB Step  Sensitivity: +30dBm (Low)  Maximum Safe Input Level  Sensitivity: -20dBm (Medium)  Sensitivity: -20dBm (Reflum)  Amplitude Accuracy  Ampl	Resolution bandwidth			
RBW x 1MHz, ±2%  Measuring Range  Display average noise level to +20dBm  Display average noise level to +20dBm  Display average noise level to +20dBm  Display average Noise Level (DANL) @1GHz  Sensitivity: 430dBm (Medium)  Sensitivity: 20dBm (Medium)  Sensitivity: -20dBm (Medium)  Sensitivity: -20dBm (Medium)  ATT set to 0 dB, input signal: -5 to -30 dBm, detector set to Positive, Sensitivity set to Love; RBW auto-coupled, all other settingsauto-coupled, 23±5°C  Half hour warm-up required.  #1.5dB  Reference Level Range  Reference Level Range  #2.6dB  #3.6dB  #4.5dB  #5.5dBC	RBW Range	10Hz to 5MHz, (1-2-3-5-10 Sequence)		
Maximum Safe Input Level  Sensitivity: 2008m (Low)  Sensitivity: 2008m (Low)  Sensitivity: 2008m (Medium)  Amplitude Accuracy  Arriset to 0 dB, input signal: -5 to -30 dbm; detector set to Positive, Sensitivity set to Low; RBW auto-coupled, all other settingsauto-coupled, 23±5°C (Half hour warm-up required.  ±1.5dB  ABW Switching Uncertainty  40.6dB  Reference level: 2-60dBm, ±0.8dB  Input Attenuator Uncertainty  ±0.6dB  Reference level: 2-60dBm, ±0.8dB  Input Terminated, Detector set to Positive, Trace Average set to 1000, Span set to 50kHz, Ref set to -10006m, all other settings auto-coupled, 23±5°C.  Normalized to 1 Hz RBW  Display Average Noise Level (DANL) @16Hz  Sensitivity: Medium  -151dBm/Hz (typically -153dBm/Hz)  Sensitivity: Medium -151dBm/Hz (typically -153dBm/Hz)  Sensitivity: Medium -151dBm/Hz (typically -169dBm/Hz)  Arrised to 1.025GHz, 2.72GHz to 3.72GHz 1.285GHz, 2.72GHz to 3.72GHz 2.75GHz 2.75	RBW Accuracy			
Applitude Accuracy   Applitu	Amplitude			
Sensitivity: +30dBm (Low)	Measuring Range	Display average noise level to +20dBm		
Sensitivity: 0dBm (Medium) Sensitivity: -20dBm (High) -140 dBm to +20dBm Reference Level Range -190dBm to +70dBm (Ref level offset: ON) ATT set to 0 dB, input signal: -5 to -30 dBm; detector set to Positive,Sensitivity set to Low; RBW auto-coupled, all other settingsauto-coupled, 23±5°C high row warm-up required15-58B RBW Switching Uncertainty -15-58B RBW Switching Uncertainty -10-3dB Reference Level -10-3dB	Input Attenuator Range	0-30dB, 1dB Step		
Sensitivity: -20dBm (High) -140 dBm to +20dBm -190dBm to +70dBm (Ref level offset: ON)  ATT set to 0 dB, input signal: -5 to -30 dBm; detector set to Positive,Sensitivity set to Low; Ref Wa wuto-coupled, -3ll other settingsauto-coupled, 23±5°C Half hour warm-up required1.5dB -1.5dBm -1.5dBm/Hz (typically -133dBm/Hz) -1.5dBm -1.5dBm -1.5dBm -1.5dBm/Hz (typically -169dBm/Hz) -1.5dBm/Hz (typically -153dBm/Hz) -1.5dBm/Hz (typically -153dBm/Hz) -1.5dBm/Hz (typically -153dBm/Hz) -1.285GHz to 1.775GHz -5.5dBc -1.285GHz to 1.775GHz -5.5dBc -1.285GHz to 1.625GHz, 1.775GHz -5.5dBc -1.285GHz to 1.625GHz, 1.775GHz -5.5dBc -1.285GHz to 1.625GHz, 1.775GHz -5.5dBc -1.285GHz to 1.625GHz to 1.625GHz -5.5dBc -1.285GHz to 1.625GHz to 1.625GHz -5.5dBc -1.285GHz to 1.625GHz to 3.7GLDBm -1.5dBm -1		Sensitivity: +30dBm (Low)		
Areference Level Range  -140 dBm to +20dBm -190dBm to +70dBm (Ref level offset: ON)  ATT set to 0 dB, input signal: -5 to -30 dBm; detector set to Positive, Sensitivity set to low, RBW auto-coupled, all other settingsauto-coupled, 23±5°C Half hour warm-up required1.5dB  40.3dB -1.5dB  40.3dB -1.5dB	Maximum Safe Input Level	Sensitivity: 0dBm (Medium)		
Reference Level Range  -190dBm to +70dBm (Ref level offset: ON)  ATT set to 0 dB, input signal: -5 to -30 dBm; detector set to Positive, Sensitivity set to Low, RBW auto-coupled, all other settingsauto-coupled, 23±5°C hidf hour warm-up required.  ±1.5dB  -1.5dB  -1.5dBB  -1.5dBBM; 2 to 1.00dBm, ±0.8dB  -1.5dBm, ±0.8dB  -1.285GHz to 1.775GHz  -1.285GHz to 1.625GHz to 1.775GHz  -1.285GHz to 1.625GHz to 1.625GHz to 3.7GB  -1.285GHz to 1.625GHz to 1.625GHz to 3.7GB  -1.285GHz to 1.625GHz to 1.625GHz to 3.7GBB  -1.285GHz to 3.7GBB  -1.285G				
190dBm to +70dBm (Ref level offset: ON)  All Tiset to 0 dB, input signal: -5 to -30 dBm; detector set to Positive, Sensitivity set to Low; RBW auto-coupled, all other settingsauto-coupled, 23±5°C Half hour warm-up required.  ±1.5dB  RBW Switching Uncertainty  ±0.3dB  Input Attenuator Uncertainty  ±0.6dB  Accuracy of Reference Level  Reference level: ≥-60dBm, ±0.8dB  Input Terminated_Detector set to Positive, Trace Average set to 1000, Span set to 50kHz, Ref set to -100Bm, all other settings auto-coupled, 23±5°C. Normalized to 1 Hz RBW  Display Average Noise Level (DANL) @1GHz  Sensitivity: Low  -131dBm/Hz (typically -133dBm/Hz) Sensitivity: Medium -151dBm/Hz (typically -153dBm/Hz) Sensitivity: High -168dBm/Hz (typically -169dBm/Hz)  Residual Response  10M to 1.285G, 3.22G to 3.7G 10MHz to 1.285GHz, 3.22GHz to 3.7GHz 1.285GHz to 1.625GHz, 1.775GHz to 2.32GHz 3.22GHz to 3.22GHz 3.22GHz to 3.22GHz 3.22GHz to 3.22GHz 3.22GHz to 4.2GHz 4.2GHz to 6.0GHz -55dBc -55dB		-140 dBm to +20dBm		
amplitude Accuracy  Alf hour warm-up required.  ±1.5dB  Accuracy of Reference Level  Accuracy of Refer	Reference Level Range	-190dBm to +70dBm (Ref level offset:	ON)	
### ### #############################	Amplitude Accuracy	ATT set to 0 dB, input signal: -5 to -30 dBm; detector set to Positive, Sensitivity set to Low; RBW auto-coupled, all other settingsauto-coupled, 23±5°C		
### #################################		±1.5dB		
Accuracy of Reference Level  Reference level: ≥-60dBm, ±0.8dB  Input Terminated, Detector set to Positive, Trace Average set to 1000, Span set to 50kHz, Ref set to -100dBm, all other settings auto-coupled, 23±5°C. Normalized to 1 Hz RBW  Display Average Noise Level (DANL) @1GHz  Sensitivity: Low Sensitivity: High -151dBm/Hz (typically -133dBm/Hz) -151dBm/Hz (typically -153dBm/Hz) -168dBm/Hz (typically -169dBm/Hz)  Residual Response  10M to 1.285G, 3.22G to 3.7G 10MHz to 1.285GHz, 3.22GHz to 3.7GHz 1.625GHz to 1.775GHz 1.625GHz to 1.775GHz -55dBc  Input-Related Response  1.285GHz to 1.625GHz, 1.775GHz 2.55GHz 3.22GHz to 3.22GHz 3.22GHz to 3.22GHz 3.22GHz to 3.22GHz 3.22GHz to 3.22GHz 4.2GHz to 6.0GHz -55dBc  Second Harmonic Distortion  1.6GHz -70dBc -10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm  PoldB +5dBm (nominal) -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @10kHz (typically -120dBc/Hz) -118dBc/Hz, @10kHz (typically -120dBc/Hz)	RBW Switching Uncertainty	±0.3dB		
Input Terminated,Detector set to Positive,Trace Average set to 1000,Span set to 50kHz,Ref set to -100dBm,all other settings auto-coupled, 23±5°C. Normalized to 1 Hz RBW  Sensitivity: Low -131dBm/Hz (typically -133dBm/Hz)  Sensitivity: Medium -151dBm/Hz (typically -153dBm/Hz)  Sensitivity: High -168dBm/Hz (typically -169dBm/Hz)  Residual Response -75dBm  Input-Related Response -75dBc  Input-Related Response -1285GHz, 3.22GHz to 3.7G 10MHz to 1.285GHz, 3.22GHz to 3.7GHz -55dBc  Input-Related Response -1285GHz, 2.71GHz to 3.22GHz -55dBc  Input-Related Response -1285GHz, 2.71GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 3.22GHz to 4.2GHz -55dBc  Input-Related Response -15dBm to 1.625GHz, 1.775GHz to 1.775GHz	Input Attenuator Uncertainty	±0.6dB		
SokHz,Ref set to -100dBm,all other settings auto-coupled, 23±5°C.     Normalized to 1 Hz RBW	Accuracy of Reference Level			
Sensitivity: Medium		50kHz,Ref set to -100dBm,all other settings auto-coupled, 23±5℃.		
Sensitivity: High   -168dBm/Hz (typically -169dBm/Hz)	Display Average Noise Level (DANL) @1GHz	Sensitivity: Low	-131dBm/Hz (typically -133dBm/Hz)	
Acesidual Response		Sensitivity: Medium	-151dBm/Hz (typically -153dBm/Hz)	
10M to 1.285G, 3.22G to 3.7G 10MHz to 1.285GHz, 3.22GHz to 3.7GHz		Sensitivity: High	-168dBm/Hz (typically -169dBm/Hz)	
to 1.285GHz, 3.22GHz to 3.7GHz  1.625GHz to 1.775GHz  -55dBc  1.285GHz to 1.625GHz, 1.775GHz to 2.35GHz, 2.71GHz to 3.22GHz  3.22GHz to 4.2GHz  4.2GHz to 6.0GHz  -50dBc  4.2GHz to 6.0GHz  -70dBc  -10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm (nominal)  -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @11MHz (typically -120dBc/Hz)	Residual Response	-75dBm		
Input-Related Response  1.285GHz to 1.625GHz, 1.775GHz to 2.35GHz, 2.71GHz to 3.22GHz  3.22GHz to 4.2GHz  4.2GHz to 6.0GHz  4.2GHz fo 6.0G			<-70dBc	
2.35GHz, 2.71GHz to 3.22GHz  3.22GHz to 4.2GHz  4.2GHz to 6.0GHz  4.2GHz to 6.0GHz  5.6econd Harmonic Distortion  1.6GHz -70dBc  -10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm  -10dB (nominal)  -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @11MHz (typically -120dBc/Hz)			<-55dBc	
4.2GHz to 6.0GHz  4.2GHz to 6.0GHz  -55dBc  1.6GHz -70dBc  -10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm  -10dB (nominal)  -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @11MHz (typically -120dBc/Hz)	Input-Related Response		<-42dBc	
Second Harmonic Distortion  1.6GHz -70dBc  -10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm  P1dB  +5dBm (nominal)  -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @1MHz (typically -120dBc/Hz)		3.22GHz to 4.2GHz	<-50dBc	
-10dBm tones, 1MHz apart, Sensitivityset to low,Ref set to -10 dBm +15dBm  P1dB +5dBm (nominal)  Phase Noise @1GHz -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @1MHz (typically -120dBc/Hz)		4.2GHz to 6.0GHz	<-55dBc	
+15dBm +15dBm (nominal) -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @10Hz (typically -120dBc/Hz)	Second Harmonic Distortion	1.6GHz -70dBc		
Phase Noise @1GHz -96dBc/Hz, @10kHz (typically -98dBc/Hz) -118dBc/Hz, @1MHz (typically -120dBc/Hz)	Third-Order Intercept (TOI)			
-118dBc/Hz, @1MHz (typically -120dBc/Hz)	P1dB	+5dBm (nominal)		
	Phase Noise @1GHz			
	Storage			
Maximum storage depth 1Gbit	Maximum storage depth	1Gbit		
Data format I/Q two-way, 16bit	Data format	I/Q two-way, 16bit		
Demodulation FM, AM, GSM, WCDMA, TD-LTE, FDD-LTE, NB-IoT	Demodulation	FM, AM, GSM, WCDMA, TD-LTE, FDD-LTE, NB-IOT		

General		
OS	WindowsXp, Windows7, Windows8, and Windows10	
Connectors	RF input: N-type, female, $50\Omega$ USB: USB type C Power interface: DC12V	
Operating environment	Operating temperature: 0°C to 50°C Storage temperature: -20°C to 70°C	
Dimension	180mm×50mm×290mm	
Weight	0.8kg	

#### **Technical specifications**

This technical specifications include the influence of probability distribution, measurement uncertainty and environmental factors on the instrument performance. It guarantee the performance under the following conditions.

- The instrument is ON and warmed up for 30min.
- The instrument internal reference signal is applied.

Testing temperature is 23 $\pm 5$  °C, unless other specific condition applied.

#### Typical value

Additional description does not cover all performance information of the product guarantee. Unless otherwise specified, the typical value refers to the indicator or technical specification with which more than 80% of products comply under 23 ± 5 °C. The measurement uncertainty is excluded. A6 should be within the calibration period.

#### Nominal value

The nominal value refers to the characteristic description or design range. It is not tested or covered by the product. A6 should be within the calibration period.

# **Ordering List**

Model	Description	
A4	A4 signal analyzer (10MHz to 4200MHz)	
A6	A6 signal analyzer (1MHz to 6000MHz)	
Accessories Model	Description	
MRX-AS001	Power adapter	
MRX-AS002	Power cable(China standard)	
MRX-AS003	Power cable(US standard)	
MRX-AS004	USB disk	
Options		
MRX-S001	NB-IoT analysis software	

### Keep innovating for excellence!

#### About us

Transcom Instrument Co., Ltd. founded in 2005 and headquartered in Shanghai, is a leading manufacturer and provider of RF and wireless communication testing instruments and overall solutions in China, Based on its independent brands and a wide range of core patented technologies, Transcom became national high-tech enterprise with independent intelligent property rights and has been listed into Shanghai Enterprise Recognition Award for High Growth SMEs in Technology.

Transcom is backed by a experienced and dedicated research team in mobile communication, radio frequency and microwave, and network optimization testing instrument. Through "Industry-University-Research" cooperation with universities, Transcom founded Southeast University-Transcom Electronic Measurement Technology Center at Southeast University to futher ensure technology and talent reserve, and secure future visionary and sustainable technology development.

Transcom's product portfolios focus 4 areas: cellular network critical communication planning/maintenance/optimization, Manufacturing testing solution, educational instrument/ equipment, spectrum monitoring sensor for system integration.





#### Headquarter

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