

Inventronik GmbH

Kompetente Lösungen für Ihre Ideen

Finkenstraße 48
70199 Stuttgart

Tel.: +49 (0)711 - 280 400 18
Fax: +49 (0)711 - 280 400 20
Mail: post@inventronik.de
Internet: www.inventronik.de



**Viplax-IIA Signal Transmission System
for Analog and Digital Signals**

Preliminary Information

Inventronik GmbH
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Introduction

Viplax-IIA is our third generation signal transmission system and follows on the heels of the versatile Viplax-I and Viplax-II. This new system is refined and improved thanks to our long experience with fiber optic transmission systems. Viplax-IIA features the transmission of analog signals over a fiber-optic cable delivering them faithfully and in high quality to the receiver.

Analog signals are sampled and digitalized by A/D-Converter (Analog Devices) with a resolution of 14 bits. The data is serialized and transmitted high speed over a fiber optic link. At the receiver, the analog data is reproduced in its original quality from the serial digital data.

Viplax-IIA features error correction and a fail safe architecture which guarantees a safe operation even in case of a fault. Last but not least Viplax-IIA is highly customizable. With Viplax-IIA you are purchasing a powerful transmission system optimally suited for use in your critical environments.

Data at a Glance

AD / DA converters with 14 bits digital resolution.

Analog bandwidth 10MHz (theoretically up to 32.5MHz).

Signal latency \approx 50ns.

Remote controllable amplification factors.

Easy installation and initial start-up.

Immediately operational - No software configuration needed.

Components of the Viplax-IIA System

Transmitters and receivers come in compact handheld cases for mobile applications or in 3HE Cassettes for rack mount systems. Each component is described in detail below.

Analog Transmitter

Signals with an input voltage range of up to $\pm 10V$ are digitalized with a resolution of 14 bits and a sampling rate of 65Msps (Predecessor Viplax-II: 36Msps). The theoretical Nyquist signal frequency is 32.5MHz. Viplax-IIA is sixteen times faster than Viplax-I and about 80% faster than Viplax-II.

The operation voltage of this transmitter is 12 VDC supplied by a wall cube adapter or a battery pack. Both are available as accessories.

Analog Receiver

The receiver reproduces the analog signal in the highest quality. Like the transmitter, the DA converter has a resolution of 14 bits. The output driver is capable to impedances as low as 50 Ohm. It is powered by a wall cube adapter or a battery pack.

Accessories

Handheld Unit Power Supplies

You will need one power supply for each transmitter or receiver. The output voltage is 12 VDC. The input voltage range works world-wide: 100 VAC to 240 VAC.

Battery Pack for the Handheld Transmitter / Receiver (subject to be changed)

The battery pack has an output voltage of 12 VDC and a capacity of 4.5 Ah. It is a dry-cell system powerful enough to operate a transmitter or a receiver for > 10 hours. Charging the battery pack while supplying Viplax-IIA is possible.

Battery Charger

Inventronik GmbH offers a recommended charger for Viplax-IIA battery packs.

Fiber-Optic Duplex Cable with LC Connectors on Both Ends

Inventronik GmbH offers fiber-optic cables in any length up to 300m.

Transportation Case

Suited for one transmitter, one receiver, two power supplies, a charger and a battery pack.

Field of Application

Measurement in high voltage plants.

Signal processing in laboratories.

Signal processing in areas of high electromagnetic interference.

Offshore signal processing.

Controlling of industrial equipment (digital Viplax-IIA).

Signal- and control applications in research laboratories and development departments.

Use of fiber optic cables alongside high voltage cables.

About Inventronik

Inventronik GmbH is specialized in development and production of industrial electronic components such as controllers, signal conditioning and transmission systems and power electronics.

Our customers are companies engaged in manufacturing, power generation, scientific laboratories, R&D and universities. We are proud to serve Bosch GmbH, Daimler AG, Siemens AG, Max Planck Society, the Bombardier AG.

Further Information

Viplax-IIA User's Manual: www.inventronik.de/download/Viplax-IIA/documentation

Contact

Inventronik GmbH, Finkenstraße 48, 70199 Stuttgart, Tel. 0711-28040018, www.inventronik.de

Technical Information

Dipl. Ing. Wolfgang Förster, wf@inventronik.de

Dipl. Ing. Jens Carroll, jc@inventronik.de

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Technical Specification

Input Amplifier:

Input voltage range:	±1V; ±2V; ±5V; ±10V
Voltage Gain:	20dB; 14dB; 6dB; 0dB
The input range is selected from the receiver unit.	
3dB Frequency:	> 10 MHz

A/D Converter:

Digital Resolution:	14 bit
Sampling Rate:	65 Msps
Signal to Noise Ratio:	> 73 dB
Integral Linearity Error: □□□□	±2.5 LSB
Differential Nonlinearity: □□	±1 LSB
Further information:	see the Analog Devices AD9244 data sheet.

Overall Analog Section and AntiAliasingFilter:

No internal aliasing filter, the desired behaviour is selected using external filters.

3dB Frequency:	> 10 MHz depending on the filter accuracy
Nyquist frequency:	32.5 MHz

Digital Signal Processing:

Signal Latency:	< 0.08 µs
System Bandwidth (3dB):	typ. 10MHz, (up to the Nyquist frequency)
System Status Bits:	A/D Overflow, Battery Load Condition Link Fault, Gain selection

Fiber Optics:

Maximum Bit Stream Frequency:	1.3 Gbps
Optical Wave Length	850 nm
Fiber Type:	50/125 µm core, multimode
Connector:	LC Type (duplex)
Maximum Length:	300m / 10.000m (with repeater)

D/A converter:

Resolution:	14 bit
Sampling Rate:	65 Msps.
Spurious Free Dynamic Range:	> 75dB.
Integral Linearity Error	± 2.5 LSB.
Differential Nonlinearity	± 1.5 LSB (typ).
Further information:	see the Analog Devices AD9764 data sheet.

Output Amplifier:

Output Voltage Range:	± 10.0 V
Output Impedance:	50 Ohm.
3dB Frequency:	> 10 MHz

Voltage Supply:

Receiver/Transmitter:	12 VDC / 1.2 A.
Current consumption Transmitter:	aprox. 0,25A.
Current consumption Receiver:	aprox. 0,17A.