

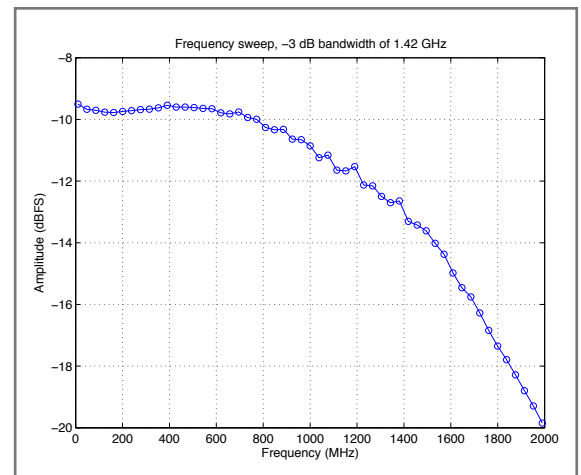
# iGp12 – Bunch-by-Bunch Processor



iGp12 is designed for the bunch-by-bunch feedback and diagnostics in lepton storage rings. Functionally, iGp12 implements a baseband bunch-by-bunch processing channel configured to individually process all bunches in the ring. Signal for each bunch passes through a 32-tap FIR filter before being sent to the one-turn delay and, from there, to the high-speed DAC.

An EPICS IOC is used to control system settings, monitor critical signals and environmental variables, and to perform real-time beam diagnostics. iGp12 is delivered with a full set of user interface panels, making it a real plug-and-play solution. Integrated tools include feedback filter generator and analyzer, bunch cleaning tool, and parasitic tune monitoring.

Parameter	Value
Bunch spacing	2–10 ns
ADC resolution	12 bits
Input 3 dB bandwidth	1.3 GHz
ADC SFDR	80 dB
ADC SINAD	60 dB
Bunch to bunch isolation	60 dB
DAC resolution	12 bits
DAC transition time	450 ps
ADC/DAC fine timing step	10 ps
Feedback filter length	32 taps
Diagnostic memory	12 Msamples
Diagnostic update rate	2 Hz
User interface	EPICS



## Dimtel Products

<b>LLRF9</b>	A 9-channel low-level RF controller for storage rings and boosters
<b>iGp12</b>	Bunch-by-bunch signal processor, 2 ns minimum bunch spacing
<b>iGp12H</b>	Slice-by-slice feedback signal processor for proton accelerators
<b>FBE-LT</b>	Front/back end for a bunch-by-bunch feedback system, three front end channels, one back end
<b>Actico</b>	Active kick combiner
<b>BPMH</b>	BPM hybrid network, 20–2000 MHz, four BPM inputs converted to $\Delta X$ , $\Delta Y$ , and $\Sigma$

## Commissioned Dimtel Systems

### Bunch-by-bunch feedback

ALS	DELTA	Photon Factory
ANKA	Duke SR-FEL	Sirius
APS	ELSA	SPring-8
Australian Synchrotron	HLS	SPEAR3
BEPC-II	Indus-2	SSRF
BESSY II	LNLS UVX	Super KEKB
CLS	MAX IV	TLS
CesrTA	MLS	TPS
DAΦNE	NSLS-II	

### Low-Level RF

ANKA  
DELTA  
ELSA  
SESAME

### Intra-bunch feedback

J-PARC

### About Dimtel:

Dimtel is a provider of analog and digital signal processing solutions for particle accelerators. Our primary focus is on bunch-by-bunch feedback for storage rings, bunch-by-bunch diagnostics, and low-level RF. Turnkey solutions from Dimtel allow the accelerator physicists and engineers to get the systems up and running in hours rather than years. We also provide support for beam commissioning and control system integration of our products. Contact us: [info@dimtel.com](mailto:info@dimtel.com); +1 650 862 8147

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