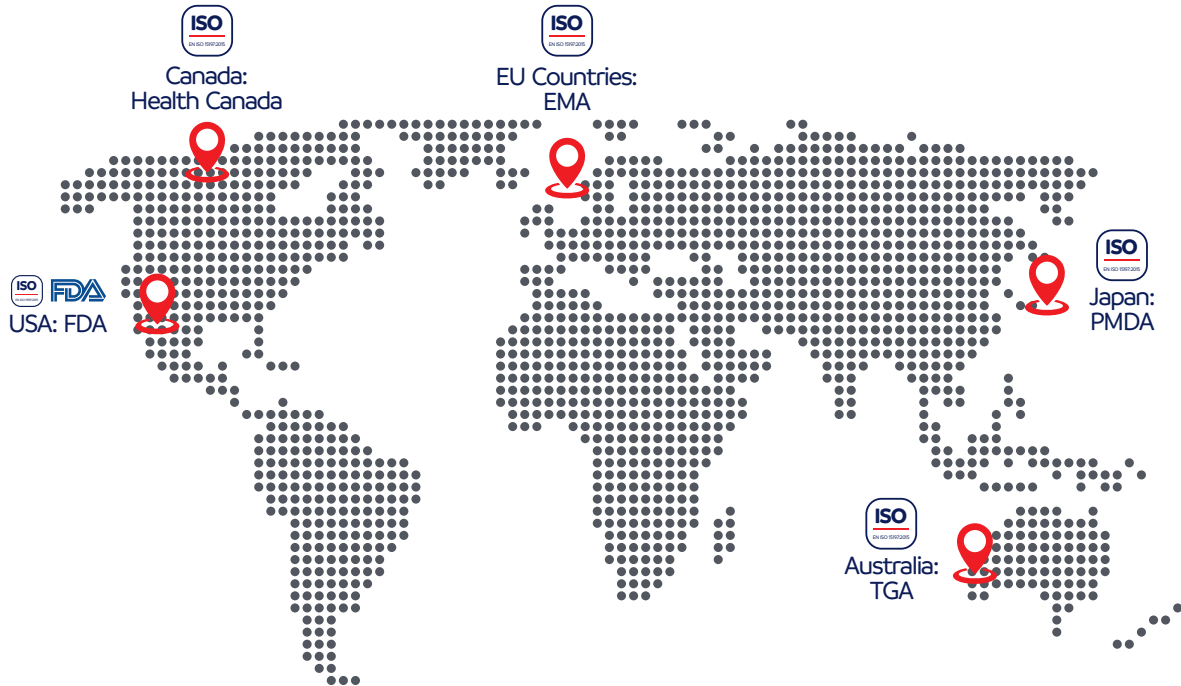


# FREE SENS<sup>®</sup>

Accuracy Beyond Standards

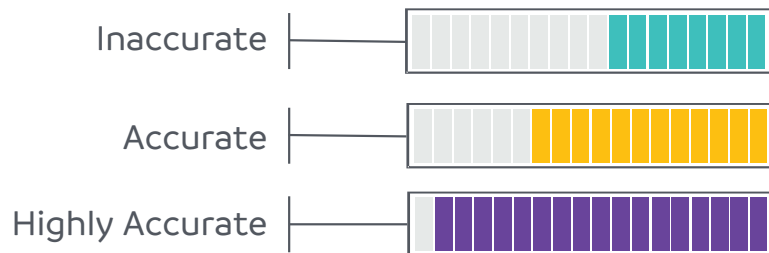


# Guidelines for Approval of Glucose Monitoring Devices



## FREESENS: Highly Accurate Results

	ISO 15197:2015			FDA OTC 2020	
BS Range	BS<100	BS ≥100	CEG	Entire range	
Bias	±15 mg/dL	±15%	Zone A+B	±15%	±20%
Minimum Accuracy	95%	95%	99%	95%	99%
<b>FREESENS/ Easymax</b>	<b>100%</b>	<b>99.3%</b>	<b>100%</b>	<b>96.6%</b>	<b>99.6%</b>



## FREESENS: Cutting Edge BGM Technology



### Hematocrit Correction:

Applying AC voltage to the blood sample and processing the electric response signal, the system can calculate HCT and compensate the inaccuracies related to HCT variation.

#### Clinical Implication:

- Wide hematocrit range coverage: 10-65%
- Accurate readings in specific populations including smokers, pregnant women and neonates.



### No Coding Technology:

High Quality Enzyme Purification and Precise Enzyme Dispensing

#### Clinical Implication:

- Ease of use
- Improved accuracy due to reduction in Lot-to-lot variability
- Eliminating miscoding errors



### Temperature Correction:

Using both built-in temperature sensor and multi sensor predictive algorithm to compensate for temperature variability.

#### Clinical Implication:

- Accurate readings when temperature changes within the working range
- Report error codes "Ht" or "Lt" when the ambient temperature is out of the working range.



### Dual Under Filling Detection:

Using both the extra electrode and insufficient sample detection algorithm to ensure the elimination of all under filling related inaccuracies.

#### Clinical Implication:

- Accurate results in patients prone to insufficient blood sampling, such as uneducated patients, children and those with hand tremor
- Report error code "E-2" in case of insufficient blood sample volume.



# FREESENS: Advanced Strip Chemistry



## Advanced Enzyme:

Higher accuracy by using GDH-FAD enzyme and an specific mediator

### Clinical Implication :

- Accurate results in patients with respiratory diseases or under oxygen therapy.
- Accurate results with both venous and capillary whole blood samples.
- After opening, test strips can be used up to 6 months.
- 2-year shelf-life



## Minimum Interference:

High substrate specificity with no interference from 61 substances

### Clinical Implication:

- Covers majority of endogenic and exogenic substance including uric acid, acetaminophen, salicylates, ascorbic acid, maltose, galactose and commonly prescribed DM and HTN medications.
- Accurate readings in patients with kidney failure, heart failure, HTN and inherited metabolic disorders like galactosemia.

		FREESENS	Glucocard 01
Accuracy ISO 15197 : 2015	BS <100 Within ±15mg/dl	100%	100%
	BS ≥100 Within ±15%	99.3%	96.5%
Coding Technology		No Coding	Auto Coding
Test Time		5 Seconds	7 Seconds
Hematocrit Range		10 - 65 %	35 - 50 %
Enzyme		GDH - FAD	GOD
Memory Capacity		880	50
Color Indicator		+	-
Pre/Post Meal Indicator		+	+
Connectivity		+(NFC)	-
Sample Volume - (µL)		0.6	0.3

#### References:

- \*American Diabetes Association Professional Practice, C., 7. Diabetes Technology: Standards of Medical Care in Diabetes—2022. Diabetes Care, 2021. 45(Supplement 1): p. S97-S112.
- \*Villena Gonzales W, Mobashsher AT, Abbosh A. The progress of glucose monitoring—A review of invasive to minimally and non-invasive techniques, devices and sensors. Sensors. 2019 Jan;19(4):800.
- \*Villena G W, et al. The progress of glucose monitoring—A review of invasive to minimally and non-invasive techniques, devices and sensors. Sensors. 2019 Jan;19(4):800.
- \*Katz, L.B., et al., Meeting the New FDA Standard for Accuracy of Self-Monitoring Blood Glucose Test Systems Intended for Home Use by Lay Users. Journal of Diabetes Science and Technology, 2020. 14(5): p. 912-916.
- \*Freckmann, G., et al., Analytical Performance Requirements for Systems for Self-Monitoring of Blood Glucose With Focus on System Accuracy: Relevant Differences Among ISO 15197:2003, ISO 15197:2013, and Current FDA Recommendations. Journal of Diabetes Science and Technology, 2015. 9(4): p. 885-894.
- \*Goeder-Fredrick, L.A., et al., Self-measurement of blood glucose. Accuracy of self-reported data and adherence to recommended regimen. Diabetes Care, 1988. 11(7): p. 579-85.
- \*Ginsberg, B.H., Factors affecting blood glucose monitoring: sources of errors in measurement. Journal of diabetes science and technology, 2009. 3(4): p. 903-913.
- \*Ginsberg BH. An analysis: to code or not to code—that is the question. J Diabetes Sci Technol. 2008 Sep;2(5):819-21. doi: 10.1177/19322968080200511. PMID: 19885266; PMCID: PMC2769783.
- \*Slingerland RJ, Muller W, Meuwis JT, Van Blerk L, Gouka-Feng C, Dollahmsensid R, Witteveen C, Vroonhof K. The quality of blood glucose meters in the Netherlands 5 years after introduction of the CE/IVD directive. Ned Tijdschr Klin Chem Labgeneesk. 2007;32:202-204.
- \*Erbach, M., et al., Interferences and limitations in blood glucose self-testing: an overview of the current knowledge. Journal of diabetes Science and Technology, 2016. 10(5): p. 1161-1168.