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GUIDE

Barcode & SKU System Setup Guide for Indian Retail

The difference between a barcode, an SKU, a GTIN, and an HSN code. When you need a GS1 barcode and when a free in-store one will do. How to design an SKU system that still makes sense in year three. Plus the scanner, printer, and label decisions, and the Legal Metrology declarations your labels must carry.

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01 Barcode, SKU, GTIN, HSN: Four Different Things

Get these straight before you buy a single scanner

Almost every barcode conversation in an Indian shop goes wrong in the first five minutes, because four different things get called the same thing. They are not interchangeable. Here is what each one actually is.

The four terms, untangled

SKU (Stock Keeping Unit)	Your own internal code for a product. You invent it. It never leaves your business. Example: SHIRT-RAY-BLU-M. Its job is to let your team and your software tell one product from another.
GTIN (Global Trade Item Number)	A globally unique number for a product, issued through GS1. It identifies the same product in every shop in the world. A 13-digit GTIN is what sits inside an EAN-13 barcode.
Barcode	The machine-readable stripes or squares that carry a number. The barcode is the picture. The GTIN or your internal code is the number inside it. A barcode is not a number, it is a way of printing one.
HSN / SAC code	A tax classification code used on your GST invoice to decide the rate. It says what kind of product this is for tax purposes. It has nothing to do with identifying your specific item.

> **The one-line version**
>
> SKU is yours. GTIN is the world's. The barcode is just how a number gets printed so a scanner can read it. HSN is for the taxman. A single bottle of shampoo on your shelf has all four at once, and they are all different numbers.

Why this confusion costs money

Shop owners routinely ask for a GS1 barcode when all they need is an internal one, and pay for a subscription they will never use. Others try to use an HSN code as a product code, then wonder why two different shirts have the same number.

The rest of this guide follows the order you should actually work in: decide whether you need GS1 at all, design your SKU system, then pick the hardware, then make the labels legal.

02 Do You Even Need a GS1 Barcode?

For most small shops, the honest answer is no

This is the chapter that saves the most money. A GS1 barcode is a commercial requirement, not a legal one. No Indian law says a shop must create a GS1 barcode for its own products. What forces your hand is who you sell to.

The decision, in one table

Your situation	Do you need GS1?	What to use instead
You run a kirana, general store, or standalone shop and only want to scan at your own till	No	Free in-store barcodes printed by your billing software
You sell loose, unbranded, or your own-made goods	No	Your own internal barcodes and SKUs
You are a retailer scanning products that already carry a manufacturer's barcode	No	Scan the barcode already on the pack
You manufacture or own a brand and want to sell through modern retail chains	Yes	GS1 India membership and a company prefix
You want to list on Amazon, Flipkart, BigBasket, or similar	Usually yes	GTIN/EAN, unless you hold a brand-registry exemption
You export, or your buyer's system demands a GTIN	Yes	GS1 India membership

The rule of thumb: if the barcode only ever gets scanned inside your own four walls, you do not need GS1. The moment someone else's system has to recognise your product, you do.

The free option most shops never hear about

GS1 keeps some number ranges outside the global pool, for numbering that never leaves a business. The one built for you is prefix 04. GS1's own specification is unusually blunt about it: any company in the world may use this range for its internal product numbering, under its own sole control. No licence, no registration, no permission.

Numbers on this range are not GTINs and are not globally unique. That is the point, not a flaw. Because 04 is never issued as a company prefix, a number you build on it can never collide with a branded product's barcode. It simply means nothing outside your shop, which for a kirana or a standalone store is not a limitation at all.

You can use as many of these as you like, print them on labels, and scan them at your own till, at no cost. Any software that lets you give a product its own barcode can work this way, which is most of them. Some will also generate the numbers for you, and the range they pick varies, so check what yours does before you commit to a scheme.

> **Do not print a made-up 890 barcode**
>
> Some shops invent a 13-digit number starting with 890 because that is what Indian barcodes look like. Do not. That range belongs to GS1 India and may already be issued to a real company's real product. It can collide with genuine stock, and it is passing off a number that is not yours. If you want a free barcode, use the 04 range, which exists precisely for this.

> **Ignore the advice to use 02 and 20 to 29**
>
> You will see these recommended all over the internet as the free in-store range. They are restricted, but they are not yours. GS1's specification reserves 02 and 20 to 29 for use within a geographic region, and each country's GS1 body decides who gets them. GS1 India has not assigned any of them yet, so nothing collides today, but you would be building your entire catalogue on numbers that can be allocated later. Prefix 04 carries no such risk, because GS1 has already handed it to every company on earth.

03 Barcode Types and When to Use Each

Five symbologies cover essentially everything an Indian retailer meets

A barcode symbology is just the format of the stripes. Picking the wrong one is why a scanner sometimes refuses to read a label that looks perfectly fine.

The five that matter

Type	Holds	Use it for	Notes
EAN-13	13 digits	Retail products sold anywhere	The global retail standard. Indian GS1 numbers start with 890.
EAN-8	8 digits	Small packs with no room for EAN-13	Assigned individually on request, only where space truly forbids EAN-13: printable area under 80 sq cm, or largest label under 40 sq cm, or a cylinder under 30 mm across.
Code 128	Letters and digits, variable length	Internal stock codes, logistics, cartons	Compact and alphanumeric, so it can hold your actual SKU string.
ITF-14	14 digits	Outer cartons and cases	Prints reliably on corrugated board, where thin bars fail.
QR / GS1 DataMatrix	A lot, including 2D data	Payments, batch and expiry data, pharma	Needs a 2D imager, not a basic laser scanner.

How an EAN-13 is actually built

An EAN-13 has three parts, not four, and this is where most explanations go wrong. First comes your GS1 Company Prefix, the number GS1 India licenses to you. It already begins with 890, which is GS1 India's own prefix, so a company prefix looks like 8901234. There is no separate 890 to add in front of it.

Then comes the item reference, which you assign yourself to each individual product. The final digit is a check digit. So the only part you actually choose is the item reference.

The check digit is a small piece of arithmetic calculated from the other twelve. A scanner recalculates it on every read, and will not read the code at all if it does not match. This is why a barcode with one digit smudged does not quietly scan as the wrong product.

What the check digit cannot tell you is whether the number is genuine. Any well-formed 13 digits will pass it. A clean scan is not proof that a barcode is registered to that product, which matters once you start printing your own.

One consequence worth understanding: because the 890 sits inside your company prefix, the length of that prefix decides how many products you can number. A seven-digit prefix leaves five digits for item references, which is 1,00,000 products. A nine-digit prefix leaves three, which is 1,000. That is the trade-off behind GS1's subscription tiers.

A free in-store number from Chapter 2 is built the same way, minus the licence: a 0, then a 4, then ten digits you assign however you like, then the check digit. Still thirteen digits, still an ordinary EAN-13 as far as any scanner is concerned. Your software will handle the check digit for you.

> **890 identifies the issuer, not the origin**
>
> A common misreading: 890 means the number was issued by GS1 India, not that the product was made in India. A company can register with GS1 India and manufacture abroad, and an imported product can carry a foreign prefix and be made in India. Never use the barcode prefix to judge country of origin. For imports, country of origin is a separate mandatory label declaration.

04 Getting a GS1 India Barcode

Only if Chapter 2 said you need one

If you own a brand and need your products recognised outside your own shop, you register with GS1 India, the Indian member organisation of GS1. Here is the shape of the process.

The process end to end

1. **Apply to GS1 India for membership**
   Apply through gs1india.org with your business documents, GST details, and an idea of how many distinct products you need to number. Membership is by subscription and renews annually.

2. **Receive your GS1 Company Prefix (GCP)**
   This is the block of numbers that belongs to your business, and it already begins with 890, GS1 India's prefix. A company prefix looks like 8901234. Every GTIN you create starts with it, and you fill in only the item reference and the check digit. It stays with you as long as you keep the subscription current.

3. **Assign an item reference to each product**
   You decide the item reference digits. Give every distinct sellable variant its own number. A different size, colour, flavour, or pack quantity is a different product and needs its own GTIN.

4. **Calculate the check digit**
   The final digit is computed from the previous twelve. GS1 India provides a check-digit calculator, and any decent labelling or billing software will do it automatically. Never guess it.

5. **Record every GTIN against its SKU**
   Maintain one master list mapping your internal SKU to its GTIN. This mapping is what lets your own stock system and the outside world talk about the same product.

6. **Generate and print the barcode image**
   Turn the GTIN into an EAN-13 image at a size and print quality the scanner can read, and place it where it will not be creased, curved, or covered.

> **One product, one GTIN, forever**
>
> Every distinct variant gets its own GTIN: 500 ml and 1 litre are two products, red and blue are two products. And do not recycle a GTIN from a discontinued line onto a new one. Old stock, old invoices, and other people's systems still remember the old meaning. Retire the number and move on.

On fees

GS1 India charges a subscription, and what you pay depends on the tier you take, which is driven by your turnover and how many product numbers you need. These figures are revised from time to time, so this guide does not quote them. Check the current fee schedule directly with GS1 India before you budget.

05 Designing an SKU System That Lasts

The part you will regret getting wrong in year three

Your SKU is the code your own team lives with. A good one can be read out over the phone and understood without a lookup. A bad one turns into a five-digit number nobody can interpret, and a stock count that takes twice as long.

Structure it, do not just number it

The simplest workable pattern is a few short segments joined by hyphens, moving from broad to specific: category, then brand, then variant, then size. A person reading SHIRT-RAY-BLU-M knows what it is without opening the software. A person reading 10023 does not.

Keep it to roughly eight to twelve characters. Long enough to be meaningful, short enough to type at a busy counter and to fit on a small label.

Patterns that work, by trade

Business	Pattern	Example	Reads as
Garment store	CATEGORY-BRAND-COLOUR-SIZE	SHIRT-RAY-BLU-M	Raymond shirt, blue, medium
Grocery / kirana	CATEGORY-BRAND-PACK	RICE-INDG-5KG	India Gate rice, 5 kg pack
Electronics	CATEGORY-BRAND-MODEL	MOB-SAM-M14	Samsung mobile, M14
Pharmacy	FORM-SALT-STRENGTH	TAB-PARA-500	Paracetamol tablet, 500 mg
Bakery	CATEGORY-ITEM-SIZE	CAKE-CHOC-1KG	Chocolate cake, 1 kg

The rules worth following

- **No spaces or special characters.** Hyphens are safe. Spaces, slashes, and hashes break exports, filenames, and half the software you will ever use.
- **Avoid characters that look alike.** Drop the letter O and the digit 0, the letter I and the digit 1, from your codes. They cause endless mis-keying at the counter.
- **Never encode the price.** Prices change. An SKU that means the 299-rupee shirt becomes a lie the day you discount it, and you cannot change the SKU without breaking your history.
- **One SKU per distinct sellable thing.** If a customer can choose between them, they are different SKUs. Same shirt in medium and large is two SKUs, not one.
- **Never reuse a retired SKU.** Old sales history, old invoices, and old stock all still point at it. Reusing it corrupts your own reports.
- **Keep one master list.** One place, ideally inside your billing software rather than a private spreadsheet, that maps SKU to product, to GTIN if it has one, and to HSN code.
- **Fix the pattern before you scale.** Renaming two hundred SKUs is an afternoon. Renaming two thousand, across printed labels and old bills, is a project you will keep postponing.

SKU count is not a vanity number

A small kirana may run a few hundred SKUs, a garment store can pass a few thousand once every size and colour is counted, and a supermarket runs into tens of thousands. What matters is not the count but whether the pattern still makes sense at ten times your current range. Design for that, not for today.

06 Scanners, Printers, and Labels

What a shop actually needs, and what it does not

You need less hardware than most sales pitches suggest. But the two or three choices you do make are the difference between a label that scans first time and one your cashier keys in by hand every single time. One thing you will not find here is prices: scanner and printer prices in India vary widely by brand, capability, and where you buy, and they move constantly. Get current quotes from two or three suppliers before you commit.

Scanners

1D laser scanner	Reads ordinary striped barcodes such as EAN-13 and Code 128. Cheapest and perfectly sufficient if you only scan retail barcodes at a till.
2D imager	Reads striped barcodes plus QR and DataMatrix. Needed if you handle QR codes, pharma DataMatrix, or want to scan from a phone screen. Also reads damaged codes more forgivingly.
Wired vs wireless	Wired is cheaper and never needs charging, which suits a fixed counter. Wireless earns its keep when you scan on the shop floor or during stock counts away from the till.
What most shops need	One wired 1D scanner at the counter. Add a 2D imager only when you actually have 2D codes to read.

Label printers

Direct thermal	Prints by heating special paper. No ink or ribbon, so the running cost is low. The print fades over months, and faster in heat or sunlight. Right for fast-moving stock, shelf labels, and anything you reprice often.
Thermal transfer	Uses a ribbon to fuse ink onto the label. Costs more per label and needs ribbons, but survives years, heat, and handling. Right for slow-moving stock, asset tags, and anything that sits in a warehouse.
Do you need one at all?	If your products already arrive with the manufacturer's barcode, you may need no printer at all. Buy a printer when you sell loose, own-made, or repacked goods that arrive without a barcode.
Sticker sheets on a normal printer	Workable when you label in occasional batches. It becomes painful the moment you need three labels right now, because you waste most of a sheet each time.

Label mistakes that stop a scan

- **Printing too small.** Shrinking an EAN-13 to fit a tiny label thins the bars past what the scanner can resolve. Use a smaller symbology instead of shrinking a big one.
- **No quiet zone.** A barcode needs clear blank space at each end. Crowd it with text or a border and the scanner cannot find where the code starts.
- **Low contrast.** Black on white reads best. Colour on colour, or a code printed over a busy design, will fight the scanner.
- **Curves and creases.** A code wrapped tightly around a bottle or folded at a corner distorts the bars. Put it on a flat face.
- **Direct thermal in a hot shop.** Labels near a window, a fryer, or a heater will darken and become unreadable. Use thermal transfer where heat is unavoidable.

07 Making the Label Legal, and Making It Work

Legal Metrology declarations, then the billing workflow end to end

A barcode is not the only thing on your label. If you pack or import goods for retail sale in India, the Legal Metrology (Packaged Commodities) Rules, 2011 dictate what the label must declare. This is separate from the barcode, but it lands on the same sticker, so it belongs in the same conversation.

Mandatory declarations on a pre-packed commodity

- ✓ **Name and address of the manufacturer, packer, or importer**
  Who is responsible for the pack. For imports, the importer's details.
  Legal Metrology (Packaged Commodities) Rules, 2011, Rule 6(1)(a)

- ✓ **Common or generic name of the commodity**
  What the thing actually is, in plain terms, not only a brand name.
  Rule 6(1)(b)

- ✓ **Net quantity**
  In standard units of weight, measure, or number. This is net contents, not including the packaging.
  Rule 6(1)(c)

- ✓ **Month and year of manufacture, packing, or import**
  The date the pack was made or brought in.
  Rule 6(1)(d)

- ✓ **Best before or use by date**
  Month and year, on anything that can become unfit for consumption. Added by a later amendment. Food packs carry further FSSAI requirements on top.
  Legal Metrology (Packaged Commodities) Rules, 2011

- ✓ **Retail sale price as 'MRP Rs ... inclusive of all taxes'**
  The maximum retail price, stated as inclusive of all taxes. You may sell below it, never above it. The exact wording is prescribed, and both 'Maximum or Max. retail price Rs ... inclusive of all taxes' and 'MRP Rs ... incl., of all taxes' are permitted.
  Rule 6(1)(e), wording prescribed by Rule 2(m)

- ✓ **Unit sale price**
  The price per gram or kilogram, millilitre or litre, centimetre or metre, or per unit, in rupees to two decimal places. Added by a later amendment, mandatory since 1 April 2023, and the one most shops still miss. Some small and low-value packs are exempt, so check what applies to yours.
  Legal Metrology (Packaged Commodities) Rules, 2011

- ✓ **Consumer care details**
  A name, phone number, and email or address a customer can use to complain.
  Legal Metrology (Packaged Commodities) Rules, 2011

- ✓ **Country of origin**
  Required for imported packages. Added by a later amendment.
  Legal Metrology (Packaged Commodities) Rules, 2011

These rules move, and they do not apply to everything

The packaged commodity rules have been amended repeatedly, more than once since 2020, so check the current text rather than an old summary, and confirm the clause that applies before you rely on it. They also do not reach everything. Goods you sell loose, and packs made up in front of the customer, are not pre-packaged commodities at all, because the definition turns on the pack being made without the purchaser present. Food packs carry additional FSSAI labelling requirements on top, and cosmetics follow the Drugs and Cosmetics Rules. Confirm what applies to your goods with the Legal Metrology department of your state before you finalise a label design.

One case where the barcode itself is the law

Everywhere else in this guide, a barcode is a commercial choice. One carve-out: Rule 96 of the Drugs Rules, 1945 requires a barcode or QR code on the top 300 drug brands, for batches manufactured on or after 1 August 2023. That obligation sits with the manufacturer or importer, not the chemist selling the strip. So a pharmacy still needs no barcode of its own, but the packs on its shelves must legally carry one.

The barcode-to-billing workflow

1. **Create the product once, in your software**
   Enter it with its SKU, its description, its HSN code, its GST rate, and its GTIN if it has one. Everything downstream depends on this record being right.

2. **Assign or generate the barcode**
   Use the manufacturer's existing barcode if the product has one. Otherwise generate an internal barcode on the in-store range.

3. **Print and apply the label**
   Print at a size the scanner reads comfortably, on a flat surface, with the quiet zone clear.

4. **Scan at billing**
   The scanner enters the code, the software finds the product, and the price, tax, and description fill in on their own. No typing, no wrong rate.

5. **Let stock deduct itself**
   Every scan reduces stock by one. This is the whole payoff: your stock figure stays live without anyone counting anything.

6. **Read the reports**
   Once every sale carries an SKU, you can finally see what actually sells, what is dead stock, and what to reorder, by product rather than by guess.

Where this breaks in real shops

- **The product is not in the system.** The scanner beeps, nothing happens, and the cashier types the price manually. Now the sale is recorded with no SKU and your stock is wrong. Every barcode must exist in the software before it reaches the counter.
- **Two products, one code.** Usually from copying a product record and forgetting to change the code. Your reports silently blend two products together.
- **Reprinted labels over old ones.** A new label stuck over an old one leaves two scannable codes on one pack. The scanner reads whichever it sees first.
- **Barcode but no HSN.** Scanning is smooth and then the GST return is a mess, because nobody filled in the tax classification. Barcode and HSN are different jobs, and you need both.
- **Nobody owns the master list.** Three staff create products three different ways, and within a year you have SHIRT-RAY-BLU-M, shirt_raymond_blue_m, and 10023 for the same shirt. Decide the pattern, write it down, and let one person approve new codes.

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This guide is provided by Petpooja for informational purposes. Barcode standards and labelling rules change. Verify GS1 requirements with GS1 India and labelling rules with the Legal Metrology department before acting.

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