

# METAR

METAR stands for **M**ETeorological **A**erodrome **R**eport and is a coded weather report at a specific time with a development forecast (trend). In Germany, the METAR is always published 20 and 50 minutes after the hour. Reports between these time periods are called SPECI and have the same format as a METAR. A SPECI is only published if certain values have changed significantly compared to the last METAR. The trend at the end of each METAR is always valid for the next two hours.

We will use the following example below:

```
EDDF 301650Z AUTO 19006KT 130V270 9999 FEW036 11/02 Q1012 RESHRA NOSIG
```

## Location identification and observation time

```
EDDF 301650Z AUTO 19006KT 130V270 9999 FEW036 11/02 Q1012 RESHRA NOSIG
```

A METAR always begins with the ICAO location identifier of the airport (in this case Frankfurt/Main EDDF), followed by the observation time. The latter is given as the day of the month with the time in hours and minutes (here the 30th of the month at 1650z).

## Auto METAR

```
EDDF 301650Z AUTO 19006KT 130V270 9999 FEW036 11/02 Q1012 RESHRA NOSIG
```

Since 2022, all METARs for international airports in Germany and some regional airports have been generated automatically. This means that all values are generated by measuring instruments and are not entered by a weather observer. The letter group **AUTO** shows this.

## Surface wind

```
EDDF 301650Z AUTO 19006KT 130V270 9999 FEW036 11/02 Q1012 RESHRA NOSIG
```

This is the average value of the surface wind within the last 10 minutes before the observation time. The measurement is taken in the landing zone of the active runway.

The **first three digits** always express the direction of the wind rounded to 10 degrees on the compass rose. The **following two digits** indicate the speed with the corresponding unit (KT, MPS, KMH).

Calm winds are reported as 00000KT and transmitted as "Wind calm".

## Gusts

```
19006G20KT
```

Gusts that exceed the average wind speed by at least 10 KT are indicated in the METAR. This information is separated from the regular wind by a G (Gusts). If the gusts are greater than 99 KT, this is coded as GP99KT.

## Variable wind

```
VRB02KT  
19006KT 130V270
```

Up to an average ground wind of 3 KT and a change of direction between 60° and 180°, the wind direction is coded as **VRB**. If the change exceeds 180° and it is not possible to determine a clear mean wind direction (e.g. during thunderstorms), VRB can also be used independently of the wind speed.

If the wind fluctuates between 60° and 180° and the mean wind is greater than 3 KT, the directional extremes of the fluctuations are indicated

## Ground visibility

```
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```

The visibility is the maximum prevailing visibility which is reached or exceeded for at least half of the airfield area. The areas do not have to be connected.

The visibility is specified in 50 m (up to 800 m), 100 m (800 m - 5000 m) and 1 km (above 5 km) steps. If the value lies between two levels, it is always rounded down to the smaller level.

A visibility of more than 10 km is always coded as **9999**.

```
6000 1400N
```

If visibility varies greatly on the ground, the lowest visibility can also be reported with its direction.

# Runway visual range (RVR)

R25R/1200U R25C/1300D R25L/1000U

If the prevailing visibility or one of the runway visual ranges is less than 1500 m, the runway visual range (RVR) of all runways is always indicated in the METAR.

This message begins with the corresponding runway, followed by the measured visual range in meters. This is followed by the change trend over the last 10 minutes (U = upward trend, D = downward trend, N = no trend).

If the runway visibility is greater than 2000 m, this is coded as P2000. If it is less than 50 m, the coding is M0050.

# Weather

EDDF AUTO 301650Z 19006KT 130V270 9999 -RA FEW036 11/02 Q1012 TEMPO +TSRA 1500

The following table shows the various abbreviations for general weather phenomena.

## Precipitation

Report	Explanation
DZ	Sprühregen / drizzle
RA	Regen / rain
SN	Schnee / snow
PL	Eiskörner / ice pellets
GS	Frostgraupel / snow pellets
GR	Hagel / hail
SG	Schneegriesel / snow grains

## Obscuration

Report	Explanation
FG	Nebel / fog (Sichtweite unter 1 Kilometer oder weniger)
BR	Feuchter Dunst / mist (Sichtweiten zwischen 1 und 5 Kilometer)

<b>HZ</b>	trockener Dunst / haze
<b>FU</b>	Rauch / fume
<b>SA</b>	Sand / sand
<b>DU</b>	Staub / dust

### Intensity / Descriptor

Report	Explanation
<b>SH</b>	Schauer / shower
<b>FZ</b>	gefrierend / freezing
<b>TS</b>	Gewitter / thunderstorm
<b>MI</b>	flach / shallow
<b>BC</b>	einzelne Schwaden / patches
<b>PR</b>	partiell / partial
<b>BL</b>	fegend / blowing
	moderate Intensität / moderate (ohne +/-)
-	leichte Intensität / light
+	schwere Intensität / heavy
<b>VC</b>	in der Nähe / vicinity

## Clouds

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Here the degree of coverage and the height (in 1/100 ft) of the cloud layer below 5000 FT AGL is reported. Up to three groups can be used. In the case of significant cloud types (e.g. thunderstorm clouds and their preliminary stages), these are added directly to the altitude information as CB (Cumulonimbus) and TCU (Towering Cumulus), even with a base above 5000 FT AMSL.

The degree of cloud cover is coded in eighths and indicates how much of the sky is covered with clouds. At and above a 5/8 (BKN) cloud cover, we speak of a ceiling.

Abbreviation	Meaning	English	German
<b>NSC</b>	0/8	no significant clouds	keine sig. Bewölkung (wolkenlos)

<b>FEW</b>	1/8 bis 2/8	few	gering bewölkt
<b>SCT</b>	3/8 bis 4/8	scattered	aufgelockert
<b>BKN</b>	5/8 bis 7/8	broken	durchbrochen
<b>OVC</b>	8/8	overcast	bedeckt

The indication **CAVOK** (clouds and visibility OK) replaces the groups visibility, runway visual range, weather and clouds if the visibility is more than 10 km everywhere, there is no significant weather and there is no cloud cover below 5000 FT AGL.

If the sky is not recognizable, the vertical visibility is always indicated as **VV///** (measurement not possible) instead of cloud cover.

## Temperature and dew point

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The temperature and dew point are always specified together. The dew point indicates the humidity content of the air. The smaller the difference between the two (also known as the *spread*), the greater the relative humidity and the higher the probability of clouds.

## Air pressure

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The QNH is the air pressure reduced to sea level (MSL) using the ICAO standard atmosphere. With "Q", the air pressure is coded with the unit hPa, as is usual in Europe. An "A" shows the setting in inches/inch, as used in North America or at US military airfields in Germany.

## Additional indications

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In some cases, additional information can be found before the trend. The most common is **RE** followed by other weather phenomena. This stands for Recent, i.e. weather that has occurred since the last report. For example, RESHRA means "recent rain showers". Sometimes, you might also find a **WS** followed by a runway, which indicates a wind shear.

## Trend

The trend predicts significant aeronautical meteorological changes only in terms of wind, visibility, weather and clouds within the next two hours if these meet defined criteria (threshold values). As with the TAF, there are the following change groups:

**TEMPO**

Temporary, significant fluctuation of one or more weather parameters.

**BECMG**

Consistent, significant change in one or more parameters across the threshold values, lasting at least until the end of the forecast period. The following time groups can also be used: FM (from - beginning), TL (until - ending), AT (at - around) followed by the time in the format HHMM (rarely used).

**NOSIG**

No significant change in the forecast period.

**TEMPO** 20015G25KT TSRA  
**BECMG** 1400 SN  
**BECMG FM1515** BKN010

## Further informationen

The Deutsche Wetterdienst (DWD) offers a [helpful document](#) for decoding METAR and TAF.

Alte METARs, TAFs and SPECIs are available at [OGIMET](#).

Processing of current METARs and TAFs auf [metar- taf.com](#)

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